Copies of the General Catalog are available for examination in Iowa high schools, offices of the county superintendents of schools, public libraries, junior and community colleges, major state government offices in Des Moines, and in each office of the University. Copies may be requested from the bookstore at the Iowa Memorial Union at a cost of $3. Reprints of individual sections of the Catalog are available free of charge.

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 the Catalog is prepared. However, information on regulations, policies, fees, curricula, courses, and other matters is subject to change any time during the period for which the Catalog is in effect.

Current information regarding fees, important dates, and which courses are offered in a particular semester is printed in the Schedule of Courses, which is available before each term begins. The publications The Iowa Book and The Graduate Experience also include information on admission, fees, scholarships, student financial aid, housing, and student personnel services.

The University of Iowa does not discriminate in its educational programs and activities on the basis of race, national origin, color, religion, sex, age, disability, or veteran status. The University also affirms its commitment to providing equal opportunities and equal access to University facilities without reference to affectional or associational preference. For additional information on nondiscrimination policies, contact the Coordinator of Title IX and Section 504 in the Office of Affirmative Action, The University of Iowa, 202 Jessup Hall, Iowa City, Iowa 52242-1316; telephone 319-335-0705.
## University Calendar

### Fall Semester

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<thead>
<tr>
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<tbody>
<tr>
<td>Classes begin</td>
<td>August 22</td>
<td>January 2</td>
<td>August 21</td>
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<tr>
<td>University holiday</td>
<td>September 5</td>
<td>January 16</td>
<td>September 4</td>
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<tr>
<td>Thanksgiving recess</td>
<td>November 23-26</td>
<td>January 17</td>
<td>November 22-25</td>
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<tr>
<td>University holidays</td>
<td>November 24-25</td>
<td>February 21</td>
<td>November 23-24</td>
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<tr>
<td>Exam week</td>
<td>December 9</td>
<td>March 20-25</td>
<td>December 8</td>
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<td>Commencement ceremonies</td>
<td>December 12-16</td>
<td>May 5</td>
<td>December 11-15</td>
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<tr>
<td>University holidays</td>
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<td>May 8-12</td>
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### Spring Semester

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<td>January 2</td>
<td>January 1</td>
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<tr>
<td>Martin Luther King Day</td>
<td>January 16</td>
<td>January 15</td>
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<tr>
<td>(University holiday)</td>
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<td></td>
</tr>
<tr>
<td>Classes begin</td>
<td>January 17</td>
<td>January 16</td>
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<tr>
<td>Foundation day</td>
<td>February 21</td>
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<tr>
<td>Spring vacation</td>
<td>March 20-25</td>
<td>March 18-23</td>
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<tr>
<td>Classes end</td>
<td>May 5</td>
<td>May 3</td>
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<tr>
<td>Exam week</td>
<td>May 8-12</td>
<td>May 6-10</td>
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<tr>
<td>Commencement ceremonies</td>
<td>May 12-13</td>
<td>May 10-11</td>
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### Summer Session

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<tr>
<td>Classes begin</td>
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<td>June 11</td>
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<tr>
<td>University holiday</td>
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<td>July 4</td>
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<tr>
<td>Classes end</td>
<td>August 4</td>
<td>August 2</td>
</tr>
<tr>
<td>Commencement ceremonies</td>
<td>August 4</td>
<td>August 2</td>
</tr>
<tr>
<td>Independent study unit for</td>
<td>August 7-18</td>
<td>August 5-16</td>
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<tr>
<td>law and graduate students</td>
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</tbody>
</table>

### Campus Visits

The best introduction to The University of Iowa is a visit to the campus. Come first to the John G. Bowman House Admissions Visitors Center, 230 N, Clinton. Office hours: 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 1-800-553-IOWA (4692), nationwide; direct dial 319-335-3847.
Contents

What Iowa Is All About ......................... 6
Learning at Iowa ........................... 8
Academic Programs ......................... 9
Admissions ................................. 12
Registration ............................... 14
Financial Aid .............................. 15
Student Life at Iowa ......................... 18
Academic Services ......................... 19
General Services .......................... 21
Housing .................................. 22
Codes, Policies, and Students’ Rights .... 23
Special Resources at Iowa .................... 26
Research and Interdisciplinary Activities ... 27
University Libraries ....................... 34
The University of Iowa Health Sciences Center .... 35
The Iowa Center for the Arts ............... 38
Museum of Natural History .................. 41
Old Capitol .............................. 41
Other Services ............................. 41
College of Liberal Arts....................... 44
College of Business Administration ......... 258
College of Dentistry ......................... 276
College of Education ....................... 290
College of Engineering ...................... 334
Graduate College .......................... 372
College of Law ............................ 384
College of Medicine ....................... 396
College of Nursing ......................... 442
College of Pharmacy ....................... 450
Continuing Education ...................... 456
Administrative Officers ..................... 458
Faculty .................................. 460
Iowa Administrative Code .................... 494
Campus Map .............................. 500
Index .................................. 502
What Iowa Is All About
The University of Iowa is a major national research university with a solid liberal arts foundation. Founded in 1847 as Iowa’s first public institution of higher education, it has won international recognition for its wealth of achievements in the arts, sciences, and humanities.

Iowa was the first U.S. public university to admit men and women on an equal basis and the first institution of higher education in the nation to accept creative work in theater, writing, music, and art as theses for advanced degrees. It established the first law school west of the Mississippi, broadcast the world’s first educational television programs, and developed and continues to hold preeminence in educational testing.

The home of pioneering space research, Iowa has designed and built research instruments carried aboard many major U.S. space missions, including the Galileo spacecraft currently on a six-year journey to Jupiter. Its research in hydraulics engineering is world renowned, as are its innovations in biocatalysis, biomedical engineering, agricultural medicine, and pharmacology education.

The University has one of the most extensive research library systems in the country and operates one of the nation’s largest university-owned teaching hospitals.

A member of the select Association of American Universities, an organization of institutions recognized for excellence in research, The University of Iowa maintains a balance between scholarly research and teaching. It places strong emphasis on undergraduate, international, and interdisciplinary education and brings undergraduate, graduate, and professional students together with distinguished teachers and scholars in a close-knit, intellectual community.

Liberal Arts at Iowa: Education for Life

A program of study in the liberal arts is considered “education for life” at The University of Iowa. The College of Liberal Arts has the largest enrollment among the University’s ten colleges and is the college in which most undergraduate students first enroll, including those who later transfer into one of the eight professional colleges.

Professional education is provided through the Colleges of Business Administration, Dentistry, Education, Engineering, Fine Arts, Law, Medicine, Nursing, and Pharmacy. The Graduate College provides leadership in development, review, and oversight of graduate programs.

The University of Iowa has a diverse and distinguished faculty, whose members bring outstanding backgrounds in research and education to their teaching assignments. Many have been recognized for their accomplishments as teachers and scholars with awards including Guggenheim Fellowships, senior fellowships from the National Endowment for the Humanities, and Fulbright scholarships for teaching and study abroad. Three are Howard Hughes Medical Institute (HHMI) investigators—one each in biochemistry, internal medicine, and physiology and biophysics.

The University reaches out to all segments of society. It seeks students who are high achievers, yet at the same time it serves a broad cross-section of students. Approximately 27,000 students enroll at Iowa during fall and spring semester. Nearly 66 percent come from Iowa, 19 percent from adjoining states, and 8 percent from the remaining states. International students from 101 countries make up 7 percent of the University’s enrollment.

Wealth and Diversity of Programs, Services

The Iowa Center for the Arts provides the stimulus and setting for professional-level theater, dance, and musical performances by students and faculty as well as by visiting artists from around the world. The Museum of Art displays outstanding permanent collections, works by faculty and students, and traveling exhibits year-round, and the world-renowned Writers’ Workshop and International Writing Program help make the University and Iowa City one of the nation’s most prominent arts communities.

The University of Iowa Hospitals and Clinics serves more than 466,000 persons from Iowa and other states every year. Specialized care is provided by nearly 1,300 physicians and dentists, 1,550 registered nurses, and 1,500 professional staff. Teams of faculty, clinical support specialists, and students study and learn as they care for patients. University Hospitals and Clinics keeps in close touch with community hospitals and health professionals throughout the state, continually sharing new knowledge with them.

In athletics, the Iowa Hawkeyes enjoy national recognition and enduring fan loyalty as leaders in football, basketball, wrestling, field hockey, swimming, and gymnastics. A member of the Big Ten athletic conference, Iowa offers 11 intercollegiate sports for women and ten for men.

The University’s 1,900-acre campus includes more than 110 major buildings, most within walking distance of each other and all accessible to persons with disabilities.

Overlooking the Iowa River is Old Capitol, the central landmark of the campus. Built in Greek revival style during the early 1840s, Old Capitol served as the last capitol building for Iowa’s territorial government from 1842 until 1846, and then housed the legislature and government offices for the state of Iowa until 1857, when state government moved to Des Moines. Various University offices and departments were housed in the building until it was restored as a National Historic Landmark and opened to the public in 1976.

A major attraction and educational facility at the University is Iowa Hall, a 6,000-square-foot gallery in the Museum of Natural History in Macbride Hall that presents life-like exhibits of scenes from Iowa’s four billion years of natural history. The museum itself houses more than one million specimens of plant and animal life.

In addition to the Iowa City campus, there are University research and field study facilities at nearby Oakdale, at the Macbride Nature Recreation Area north of Iowa City, and at the Lakeside Laboratory on Lake Okoboji in northwest Iowa.

Iowa City

A forward-looking community provides a special setting for The University of Iowa. Iowa City is casual and cosmopolitan, a meeting place for scholars, artists, and scientists. The relationship between Iowa City and the University is friendly, cooperative, and supportive. Faculty and staff share the responsibilities of community government and service with people outside the University. Together they create an environment for growth in learning and business, in health and social well-being.

A community of 60,000 people, Iowa City lies within 300 miles of Chicago, Minneapolis, and St. Louis. The city is accessible by airlines serving the Cedar Rapids airport, by major bus lines, and by car from major highways.
The University of Iowa is one of Iowa’s three state universities. With Iowa State University and the University of Northern Iowa, it is governed by the State Board of Regents.

The College of Liberal Arts is the core of the University, with six schools and more than 50 departments and programs. It is closely linked with the professional colleges of Business Administration, Dentistry, Education, Engineering, Law, Medicine, Nursing, and Pharmacy, and with the Graduate College. All ten colleges are located on the Iowa City campus.

The University faculty includes some 1,700 full-time members, many of whom have established national and international reputations. Their effectiveness as teachers is enhanced by their involvement in scholarly and scientific research. Some faculty members from the University’s professional colleges also teach undergraduate classes, including a number of interdisciplinary courses in the College of Liberal Arts.

The University’s undergraduate student enrollment is about evenly divided between men and women. Approximately three out of four undergraduates are Iowa residents. The rest are students from the other 49 states and more than 101 foreign countries.

About 81 percent of the University’s entering freshmen had a B average or above in high school. Approximately 90 percent ranked in the upper half of their high school classes and about 23 percent ranked in the upper tenth.

The University of Iowa offers a comprehensive program of student financial aid. More than 50 percent of the University’s students have some form of employment; 40 percent have education loans; 20 percent of undergraduates have scholarships. Most University scholarships are awarded on the basis of demonstrated financial need and academic excellence, with a small number of grants awarded solely for scholarly achievement.

Reflecting a growing trend toward lifelong learning, the University in recent years has expanded educational programs substantially, both on and off campus, for individuals who cannot enroll as regular full-time students. These learning opportunities include minicourses, conferences, workshops, continuing education programs for professionals, Saturday and evening classes offered on campus, and credit courses taught off campus. In 1977 the University, in cooperation with Iowa’s other two state universities, introduced a Bachelor of Liberal Studies (B. L. S.) degree program designed for adults who want to earn a college degree but are unable to enroll in traditional on-campus study.

Degrees Offered

The University offers the following degrees. The major fields are listed in the various college sections of the Catalog:

- Bachelor of Arts
- Bachelor of Science
- Bachelor of Music
- Bachelor of Fine Arts
- Bachelor of General Studies
- Bachelor of Liberal Studies
- Bachelor of Business Administration
- Bachelor of Science in Engineering
- Bachelor of Science in Pharmacy
- Bachelor of Science in Nursing
- Bachelor of Science in Medicine
- Doctor of Dental Surgery
- Juris Doctor
- Master of Comparative Law
- Doctor of Medicine
- Master of Arts
- Master of Science
- Master of Business Administration
- Master of Fine Arts
- Master of Social Work
- Master of Physical Therapy
- Master of Arts in Teaching
- Education Specialist
- Doctor of Musical Arts
- Doctor of Pharmacy
- Doctor of Philosophy

Accreditation and Associations

The University of Iowa has been accredited by the North Central Association of Colleges and Secondary Schools 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 Western (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).

As shown below, various colleges and schools of the University are members of accrediting associations in their respective fields.

Colleges

- Business Administration
- American Assembly of Collegiate Schools of Business
- Dentistry
- Commission on Dental Accreditation
- Law
- American Bar Association; Association of American Law Schools
- Medicine
- Liaison Committee on Medical Education, representing the American Medical Association (AMA) and the Association of American Medical Colleges (AAMC)
- Nursing
- National League for Nursing; Iowa Board of Nursing
- Pharmacy
- American Council on Pharmaceutical Education

Schools

- Journalism and Mass Communication
- Accrediting Council on Education in Journalism and Mass Communication
- Library and Information Science
- American Library Association
- Music
- National Association of Schools of Music
- Social Work
- Council on Social Work Education

Departments and Programs

The undergraduate engineering programs of the Departments of Biomedical, Chemical and Biochemical, Civil and Environmental, Electrical and Computer, Industrial, and Mechanical Engineering—Engineering Accreditation

Commission of the Accreditation Board for Engineering and Technology (ABET)

Chemistry—American Chemical Society

Counselor Education—Council for Accreditation of Counseling and Related Educational Programs

Dietetics—American Dietetic Association

Hospital and Health Administration—Accrediting Commission on Education for Health Service Administration

Medical Technology—Committee on Allied Health Education and Accreditation of the American Medical Association; National Accrediting Agency for Clinical Laboratory Sciences

Nuclear Medicine Technology—Committee on Allied Health Education and Accreditation, and Council on Medical Education, both of the American Medical Association

Physical Therapy—American Physical Therapy Association

Physician Assistant Program—Committee on Allied Health Education and Accreditation of the American Medical Association

Psychology—American Psychological Association

Speech Pathology and Audiology—Educational Standards Board of the American Speech and Hearing Association

Theatre Arts—National Association of Schools of Theatre

Academic Sessions

The University’s academic year consists of two semesters of approximately 16 weeks each. The University also conducts an eight-week summer session and, following that, an Independent Study Unit of from one to three additional weeks for students in the Graduate College and the College of Law.

Academic Recognition

The University recognizes high scholastic achievement by awarding degrees “with distinction,” “with high distinction,” and “with highest distinction,” based on the following criteria.

All Undergraduate Colleges (except Pharmacy)

- Highest distinction—highest 2 percent
- High distinction—next highest 3 percent
- Distinction—next highest 5 percent

College of Pharmacy

- Highest distinction—grade-point average of 3.75 and above
- High distinction—grade-point average of 3.50 to 3.74
- Distinction—grade-point average of 3.25 to 3.49

Dean’s List

Liberal arts students who achieve grade-point averages of 3.50 or above during a given semester on 12 or more semester hours of graded work and who have no hours of I or O grades are recognized by inclusion on the Dean’s List for that semester.
President's List
Undergraduate students who achieve grade-point averages of 4.00 for two consecutive semesters of 12 or more semester hours of graded work, with no hours of I or O grades during those semesters, are recognized by inclusion on the President’s List.

Undergraduate Scholar Assistantships
For students who rank in the top one percent among undergraduates at the University, Undergraduate Scholar Assistantships provide a limited number of students with an opportunity to do scholarly work with faculty members from all areas of the University on projects that range from art to Spanish, from music to medicine.

Depending on their interests and fields of study, undergraduate assistants might help in classrooms, do research in libraries, work in the field, perform laboratory experiments, gather and analyze data, program computers, or edit manuscripts.

The biggest reward from this ten-hour-a-week appointment is the working relationship students form with faculty members and the involvement they have in important teaching and research activities. As long as they maintain superior performance, assistants may be invited to continue their work throughout their college careers, allowing them to increase the breadth and depth of their scholarly work and to cement the mentor relationship with their faculty member.

Honorary and Professional Societies
Phi Beta Kappa, Sigma Xi, Mortar Board, and Omicron Delta Kappa are among 64 national honorary and professional societies that have active chapters on The University of Iowa campus.

University Honors Program
The University of Iowa Honors Program offers special academic and extracurricular opportunities to outstanding students in the Colleges of Business Administration, Education, Engineering, Liberal Arts, Nursing, and Pharmacy. Freshmen and sophomores may take special College of Liberal Arts honors courses, which are taught at a level and pace appropriate to honors students. Honors courses include special honors sections of General Education Requirement courses and honors seminars taught by regular faculty members to small classes of first- and second-year honors students. The honors seminars carry General Education Requirement credit and are numbered 143:50, 143:60, and 143:70.

Students can earn honors credit for courses that do not have honors sections through special arrangement with the professor (for example, by completing a special project). With permission from the University Honors Program and faculty, any course can be designated an “honors course” and will be noted as such on the student’s transcript.

Sophomores and juniors in the honors program who wish to work individually with faculty on research are invited to apply to be honors research scholars. Each awardee is matched with a faculty member whose research interests are complementary. Research scholars receive academic credit for the course 143:100 Honors Research Practicum.

Seniors with an interest in exploring the teaching side of an academic career are invited to apply to be honors teaching interns. Each awardee is matched with a faculty member who is teaching a freshman- or sophomore-level course in which students might benefit from contact with teaching interns. Although their duties vary from course to course, interns are expected to maintain regular office hours for consultation with students and to conduct review sessions when appropriate. Honors teaching interns receive academic credit for the course 143:101 Honors Teaching Practicum.

At the junior and senior level, most departments offer honors seminars, independent research, and/or the opportunity to pursue an original senior project under the guidance of a faculty member.

Successful completion of all departmental honors requirements leads to a baccalaureate degree with honors in the major. Students who graduate with honors receive special recognition during commencement ceremonies. Other student academic awards and accomplishments are celebrated during Honors Recognition Week in the spring.

The University Honors Program also helps students prepare to apply for a variety of local, national, and international scholarships and prizes.

Honors Center
The Shambaugh House Honors Center is a meeting place and study center for students in the honors program. It houses a reference library, study lounges, and computers, as well as the Austin Commons Room, which is used for meetings, receptions, and dinners. Each year the student association affiliated with the honors program, the Associated Iowa Honors Students, plans a variety of activities-recreational, social, cultural, and academic.

Entering students with strong academic records are invited to join the honors program, but any student whose grade-point average meets the required minimum (3.20) may join at any time. To remain in the program, students must maintain a 3.20 grade-point average.

For details of admission requirements for entering students and for more information about other aspects of the program, contact the University Honors Program.

The following are University Honors Program courses.

143:50 Honors Seminar in the Humanities 3 s.h.
Small class with faculty member; central topic. Open only to honors students. GER: humanities.
## Academic Programs

### College of Business Administration
- 6A Accounting
- 6B Business Administration
- 6E Economics
- 6F Finance
- 6J Management and Organizations
- 6K Management Sciences
- 6M Marketing
- 6N M.B.A. Program

### College of Dentistry
- 82 Operative Dentistry
- 83 Endodontics
- 84 Prosthodontics
- 85 Oral Pathology, Radiology, and Medicine
- 86 Oral and Maxillofacial Surgery
- 87 Dental Hygiene
- 88 Orthodontics
- 89 Pediatric Dentistry
- 90 Periodontics
- 111 Preventive and Community Dentistry
- 112 Dentistry Nondepartmental
- 114 Family Dentistry
- 151 Oral Science

### College of Education
- 7C Counselor Education
- 7D Educational Administration
- 7E Elementary Education
- 7F Social Foundations of Education
- 7H Higher Education
- 7P Educational Psychology, Measurement, and Statistics
- 7S Secondary Education
- 7U Special Education
- 7W Instructional Design and Technology
- 7X Education Interdivisional

### 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

### College of Liberal Arts
- 000 Nondepartmental
- BLS Bachelor of Liberal Studies
- L Lakeside Laboratory

### 91 College of Law

### [Partial List of Programs]
- 1A Fundamentals of Art
- 1B Elements of Art
- 1C Ceramics
- 1D Design
- 1E Art Education
- 2 Drawing
- 1F Metalworking and Jewelry
- 1G Art History
- 1H Multimedia and Video Art
- 1I Painting
- 1J Photography
- 1K Printmaking
- 1L Sculpture
- 1M Art Interdepartmental
- 1N Papermaking
- 1O Studio
- 1P Biological Sciences
- 1Q Speech Pathology and Audiology
- 1R Chemistry
- 1S Probusiness
- 1T English
- 1U General Education–Literature
- 1V English Language and Linguistics
- 1W Instruction
- 1X English Professional
- 1Y English Writing
- 2 French
- 10 Rhetoric
- 11 Geology
- 12 German
- 13 Greek
- 14 History
- 15 Open Major
- 16 American History
- 17 European History
- 18 Italian
- 19 Journalism and Mass Communication
- 20 Latin
- 21 Library and Information Science
- 22A Applied Mathematical and Computational Sciences
- 22B Computer Science
- 22C Mathematics
- 22D Statistics and Actuarial Science
- 23A Aerospace Military Studies
- 23B Museum Studies
- 24 Music
- 25 Philosophy
- 26 Exercise Science
- 28 Sport, Health, Leisure, and Physical Studies
- 28S Physical Education Skills
- 29 Physics and Astronomy
- 30 Political Science
- 31 Psychology
- 32 Religion
- 33 Literature, Science, and the Arts
- 34 Sociology
- 35 Spanish
- 36 Communication Studies
- 36C Communication
- 36D Production Studies
- 36F Film Studies
- 36M Media Studies
- 36R Rhetorical Studies
- 38 Portuguese
- 39 Asian Languages and Literature
- 39J Japanese
- 41 Russian
- 41S Russian, East European, and Eurasian Studies
- 42 Social Work
- 44 Geography
- 45 American Studies
- 47 Global Studies Program
- 48 Comparative Literature
- 49 Theatre Arts
- 61 Microbiology
- 97 Science Education
- 98 Social Studies
- 99 Biochemistry
- 102 Urban and Regional Planning
- 103 Linguistics
- 108 Letters
- 113 Anthropology
- 127 Genetics
- 129 African-American World Studies
- 130 Latin American Studies
- 131 Women’s Studies
- 137 Dance
- 140 Unified Program
- 141 African Studies Program
- 143 Honors Program
- 144 Philosophies and Ethics of Politics, Law, and Economics
- 145 Interdepartmental Studies
- 149 American Indian and Native Studies Program
- 150 Third World Development Support
Appropriate academic preparation for students entering the University must have a better chance to succeed and are more likely to be admitted. Preparation to the programs of their choice.

High School Preparation

Appropriate academic preparation for college-level studies is important. Students who enter with strong college preparatory curriculum have a better chance to succeed academically and are more likely to be admitted to the programs of their choice.

Students entering the University must have completed the following set of high school courses (units) or their equivalents. These high school unit requirements apply to entering freshmen who graduated from high school after 1985; liberal arts transfer students with fewer than 24 semester hours of transferable credit who graduated from high school after 1991 or after. Certain requirements vary for students enrolling in the College of Engineering (noted in italics).

- Four years of English/language arts, with emphasis on writing, speaking, and reading, as well as understanding and appreciation of literature.
- Two years (but preferably four) of a single foreign language.
- Three years of mathematics (two years of algebra and one year of geometry are required); in addition, a course in higher mathematics-trigonometry, analysis, or calculus—is recommended for students who plan to pursue a science major.

Students enrolling in engineering must meet the above mathematics requirements, including completion of a course in higher mathematics.

- Three years (but preferably four) of social studies (American and world history, anthropology, economics, geography, government, psychology, and sociology).

Students enrolling in engineering must have completed two years of social studies.

- Three years of science (two years must be chosen from biology, chemistry, and physics; the third year can be from any area, including others not listed, such as general science, physical science, geology, astronomy).

For students enrolling in engineering, the three years of science must include one year of chemistry and one year of physics. Engineering also recommends, but does not require, one year of computer programming.

One year of study in the performing arts, visual arts, or humanities is recommended but not required.

Students whose high school curriculum did not offer courses necessary to complete the unit requirements or who experienced difficulty in scheduling the required courses may appeal to the director of admissions for an exception.

Applying for Admission

Prospective students interested in enrolling in any of the ten colleges of The University of Iowa should contact the Office of Admissions to request application forms and application instructions for both admission and University housing. All applicants must submit formal applications, official transcripts, test scores, and other required supporting material to the Office of Admissions. For specific admission standards of the respective colleges, refer to the appropriate collegiate sections of the Catalog.

ACT and SAT Scores

All entering freshmen and undergraduate transfer students who present fewer than 24 semester hours of transferable work are required to complete the American College Test (ACT) or Scholastic Assessment Test (SAT I) and have their scores reported to the University in support of their application for admission. The Office of Admissions recommends that students complete the ACT or SAT I during the spring of their junior year of high school or the following summer.

The scores from these exams are used as a criterion for admission, for placement purposes, for advising, and for awarding University-administered scholarships and loans.

Graduate and Professional College Examinations

Prospective Graduate College applicants are required to take the Graduate Record Examination (GRE) General Test or, if applying for admission to a program in the College of Business Administration other than economics, the Graduate Management Admission Test (GMAT). Prospective students of the Colleges of Dentistry, Law, or Medicine are required to take admission tests of the respective colleges.

Application Fees

A $20 application fee must accompany applications submitted by prospective students not previously enrolled in a degree program at the University. The application fee for foreign students is $30. Application fees are not refundable.

Re-entry

Undergraduate students who have been absent from the University for 12 months or more and graduate students who have been absent for 36 months or more must apply to the Office of Admissions for re-entry. Students who have been enrolled in another college or university after leaving The University of Iowa are required to submit official transcripts along with their application for re-entry. A $20 re-entry application fee is assessed to re-entry students when they enroll.

Application Deadlines

U.S. Citizens

Entering freshmen are urged to apply early in the fall of their senior year to arrange for University housing and to apply for financial aid. Entering transfer students and graduate students are encouraged to apply well in advance of the session in which they plan to enroll. All application materials are due in the Office of Admissions by the deadlines listed below. Students of “Foreign Students,” below.

College of Liberal Arts: May 15 for summer session, May 15 for fall semester, November 15 for spring semester.

College of Business Administration: May 1 for summer session, May 1 for fall semester, December 1 for spring semester.

College of Dentistry: D.D.S. program, fall admission only; preliminary applications must be on file with the American Association of
Dental Schools Application Service by December 1.

College of Engineering: May 15 for summer session, May 15 for fall semester, November 15 for spring semester; early application is advised since enrollment may reach capacity far in advance of the beginning of classes.

Graduate College: General Graduate College deadlines are May 1 for summer session, July 15 for fall semester, December 1 for spring semester. Individual departments and programs may have earlier deadlines, which are indicated in their materials. All departmental materials should be reviewed carefully for information about early deadlines. To be considered for graduate awards, students must apply by February 1 for the fall semester.

college of Law: J.D. program, March 1 for summer or fall admission; LLM program, March 1 for fall or spring admission.

College of Medicine: M.D. program, fall admission only; preliminary applications must be submitted to the American Medical Colleges Application Service by November 15 (August 1 if applying through the Early Decision Plan).

College of Nursing: March 1 for summer session (RN standing required for summer admission); March 1 for fall semester, October 1 for spring semester.

College of Pharmacy: February 1, fall semester only; Pharm.D. program, February 1, fall session only.

Teacher Education Program: March 15 for summer session, June 15 for fall semester, October 15 for spring semester.

Foreign Students

Foreign students should begin the process of applying for admission at least 12 months prior to enrollment. Applicants must satisfy all application procedures and submit their complete application file to the Office of Admissions by the following dates.

Graduate College: For students applying to The University of Iowa for financial assistance (scholarships, fellowships, assistantships), February 1 for summer session or fall semester, October 1 for spring semester; for students applying for financial support, March 1 for summer session, April 15 for fall semester, October 1 for spring semester.

Note: The preceding deadlines are general Graduate College deadlines. Individual departments and programs may have earlier deadlines, which are indicated in their materials. All departmental materials should be reviewed carefully for information about early deadlines.

College of Business Administration: March 1 for summer session, March 1 for fall semester, September 1 for spring semester.

College of Dentistry: D.D.S. program, fall admission only; preliminary applications must be on file with the American Association of Dental Schools Application Service by December 1.

College of Engineering: March 1 for summer session, March 1 for fall semester, September 1 for spring semester.

College of Law: J.D. program, March 1 for summer or fall admission; LLM program, March 1 for fall or spring admission.

College of Liberal Arts: March 1 for summer session, April 15 for fall semester, October 1 for spring semester.

College of Nursing: March 1 for fall semester, October 1 for spring semester.

College of Pharmacy: February 1 for fall semester; Pharm.D. program, February 1, fall admission only.

Determining Residence

Each person enrolling at The University of Iowa is classified as a resident or nonresident for admission, tuition, and fee purposes. The classification is made by the University registrar or some one designated by the University registrar, according to criteria established by the State Board of Regents and on the basis of information provided by the student and all other relevant information. The criteria may be found under “Iowa Administrative Code: Board of Regents” at the back of the Catalog.

English Proficiency

Non-Native speakers

The University's English proficiency requirement assures that non-native speakers know English well enough to study without being hindered by language problems, to understand lectures, and to participate successfully in class discussions.

U.S. Citizens and Permanent Residents

UNDERGRADUATE APPLICANTS

U.S. citizens and permanent residents whose native language is not English are required to submit scores on the TOEFL test before registering for courses. Exceptions to this requirement are made in the cases of:

- graduates of Iowa high schools whose ACT composite score is 24 or above (SAT I combined score of 980 or above) and whose ACT English subscore is 21 or above (SAT I 430); and
- nonresidents of Iowa whose ACT composite score is 25 or above (SAT I combined score of 1020 or above) and whose ACT English subscore is 21 or above (SAT I 430).

Admitted applicants whose TOEFL scores are 600 or above may begin academic coursework without restriction. Those whose TOEFL scores fall below 600 are required to complete additional English language proficiency evaluations before they register for courses.

Applicants seeking exceptions are directed to the Director of Admissions.

Foreign Students

All applicants to the University whose native language is not English are required to submit scores on the Test of English as a Foreign Language (TOEFL) with their applications for admission and supporting academic documents. Automatic waivers from this policy are granted for persons who have received a baccalaureate or equivalent degree from a university in the United States, the United Kingdom, Canada (excluding French Quebec), Africa (English speaking), Australia, or New Zealand.

UNDERGRADUATE APPLICANTS-REGULAR ADMISSION

A minimum TOEFL score of 530 is required to be considered for regular admission to the University and to begin study in a degree program. Newly admitted undergraduate students whose TOEFL scores are 600 or above may begin academic coursework without restriction. Admitted students whose TOEFL scores fall between 530 and 599 are required to complete an English proficiency evaluation before their first registration for courses.

Based on the results of the evaluation, these students may

- be allowed to take a full academic course load, excluding English as a Second Language (ESL) courses;
- be required to enroll in credit-bearing ESL courses; or
- be required to enroll in the Iowa Intensive English Program until their language proficiency reaches an appropriate level.

UNDERGRADUATE APPLICANTS-CONDITIONAL ADMISSION

Applicants who meet the academic requirements for admission, but whose TOEFL scores fall between 450 and 530, may be considered for conditional admission to the College of Liberal Arts. As space permits, conditionally admitted students enroll in the Iowa Intensive English Program for up to one year. To change their admission status from conditional to regular (a prerequisite for beginning study in a degree program), students must attain a minimum TOEFL score of 530 and complete an English proficiency evaluation.

Based on the result of the evaluation, these students may

- be allowed to take a full academic course load, excluding English as a Second Language (ESL) courses;
- be required to enroll in credit-bearing ESL courses; or
- be required to continue in the Iowa Intensive English Program until their language proficiency reaches an appropriate level.

Students without TOEFL scores or with scores below 450 are not considered for admission to the University. These students may enroll in the Iowa Intensive English Program (IIEP). However, IIEP enrollment without conditional admission to the College of Liberal Arts does not imply or guarantee admission to an academic program at The University of Iowa.

Applications for IIEP should be submitted two months before the beginning of the term to allow time for admission, obtaining a student visa, and making travel arrangements. Students may begin IIEP studies in August, January, or May. For more information and IIEP application
materials, write to the Iowa Intensive English Program at The University of Iowa.

Graduate Applicants
A minimum TOEFL score of 530 is required for admission to the Graduate College. There is no conditional admission for graduate students whose TOEFL scores are below 530. Newly admitted graduate students whose TOEFL scores are below 600 are required to complete an English proficiency evaluation before their first registration for courses. Some departments may require students to complete an English proficiency evaluation regardless of TOEFL score and to enroll in English as a Second Language courses until their English proficiency reaches the appropriate level.

Graduate students should consult their departmental academic advisers to determine whether or not they should enroll in course work in English as a Second Language.

English Evaluations
On-campus proficiency evaluations for newly admitted students are conducted by the Department of Linguistics. If such evaluation work is done, students are required to enroll either in credit-granting courses in English as a Second Language or in the noncredit Iowa Intensive English Program until their language proficiency reaches the appropriate level. Once such proficiency has been established, students are allowed to take a full academic course load, exclusive of English as a Second Language courses. Such students may begin their academic course work only upon the written recommendation of the coordinator of English as a Second Language. (Courses for non-native speakers of English are described under “Linguistics” in the College of Liberal Arts section of the Catalog.)

Medical Information
The Student Health Service provides health care for registered students. After students are admitted to the University, they receive a medical history form, which they must complete, including all information about immunizations. Proof of immunity to measles is a prerequisite to registration. Completed medical history forms should be returned to the Student Health Service. For students who have health problems, the University recommends that the attending physician send a report to the Student Health Service so that continuing care can be provided.

Foreign students at the University are required to have health insurance. A reasonably priced group insurance plan is available through the University.

Campus Visits
The best introduction to The University of Iowa is a visit to the campus. Students and their parents are encouraged to visit on a weekday when classes are in session.

Campus visits might include a meeting with an admission counselor, a group information session, a campus or residence hall tour, and an appointment with a faculty member or academic adviser in a particular area of study; or some visitors might prefer one of the day-long Hawkeye Visit Day programs. Answers are provided to questions about academic programs, admission requirements, financial aid, campus life, housing, and the many student services available at the University. Students also can explore University museums, libraries, and downtown Iowa City.

Campus visits start at the John G. Bowman House Admissions Visitors Center. Contact the Office of Admissions to arrange a visit.

Orientation Services
With the aid of representative student, faculty, and staff personnel, Orientation Services designs and conducts a wide variety of year-round programs to help new freshmen, transfer students, and foreign students make a successful transition to University life.

Once admitted to the University, students are required to attend an orientation/registration program before they begin classes. During orientation, new students learn about academic policies and procedures, take placement tests, meet with their academic advisers, complete their first registration, and become acquainted with faculty, staff, and other students. Parents are encouraged to attend special parent orientation sessions conducted concurrently with the student programs.

Freshmen students admitted for fall semester attend an orientation/registration program held during the summer or just before classes begin in August. Transfer students admitted for the fall semester attend an orientation/registration program during the spring or summer or before classes begin in August. Students admitted for the spring semester attend a session in December or during the week before the semester opens in January. Students admitted for summer session attend an orientation program during the spring or just before classes start in June. New foreign students attend an orientation/registration program just before classes begin.

services for Transfer Students
The Office of Admissions provides a variety of services to help prospective transfer students make a smooth transition to University life. Students are encouraged to contact the office with questions concerning admissions criteria, programs of interest, and course equivalences.

Admissions representatives annually visit each Iowa area community college and are available to answer questions via scheduled appointments, special transfer visit programs, written correspondence, or by telephone. A variety of written materials is available to help students understand programs and policies.

The Office of Admissions also maintains a transfer course equivalency system that provides accurate and consistent information on how individual courses from specific transfer institutions fit various degree programs at The University of Iowa. Admitted students receive a summary of this evaluation prior to their first registration.

Records
All academic records are maintained by the Office of the Registrar and are not released without permission of the student.

Regents Exchange Program
University of Iowa students may take courses at either of the other two Regents universities for University of Iowa resident credit. Regular, degree-bound students in good standing at any of the three Regents universities may attend another Regents university for a maximum of two semesters; the credits earned at the other university are counted as resident credit at the home institution.

Approval for participation and credit in the exchange program must be obtained well in advance of registration. The department head must approve the acceptance of such credits if they are to apply to the major, and time must be allowed to ensure complete processing of the application between the cooperating universities within the dates specified for enrollment. Detailed information and application forms for the exchange program are available from the Office of the Registrar.

Registration

All persons who attend University classes must first be admitted to the University and are required to register and pay the established tuition and fees. Students in the Graduate College and the Colleges of Business Administration, Engineering, Liberal Arts, Pharmacy, Dentistry, Law, Medicine, and Nursing may audit courses with proper approval. Students who audit courses are assessed a fee based on the lowest number of semester hours for which the course is offered that semester.

Late Registration
Students are not permitted to register after the third week of the fall or spring semester or the first one-and-one-half weeks of the summer session.

Tuition and Fees
The University’s schedule of tuition and fees for full-time students, per semester, for the academic year 1994-95 is stated below. Extension courses are $152 per semester hour for graduate students and $96 per semester hour for undergraduates; M.B.A. extension courses are $198 per semester hour. Correspondence courses are $71 per semester hour. All fees are subject to change by action of the State Board of Regents.

Undergraduate
Resident $1,145.50
Nonresident 4,074.50
Graduate

Resident 1,360.50
Nonresident 4,246.50

Dentistry

Resident 2,611.50
Nonresident 7,860.50

Law

Resident 2,068.50
Nonresident 5,727.00

M.B.A.

Resident 1,774.50
Nonresident 4,680.50

Medicine

Resident 4,044.00
Nonresident 10,494.00

Pharmacy

Fourth year (1994-95 only):
Resident 1,295.50
Nonresident 4,224.50

Other:

Resident 1,445.50
Nonresident 4,374.50

Doctoral:

Resident 1,779.50
Nonresident 5,343.00

General fees provide for the student's use of the Iowa Memorial Union, libraries, laboratories, and gymnasium; free admission to some sports events and to student-faculty concerts; reduced rates for admission to University athletic events and theater productions and to performances by visiting stage and concert artists; subscriptions to the student newspaper, The Daily Iowan, delivered to housing units; certain student hospital services; and other activities and services as announced. Extension and correspondence fees do not provide for the benefits listed above.

Payment of Student Accounts

Effective fall 1994, all items students have contracted to pay are billed in full for the term. These include tuition and fees, residence hall room and board charges, and fraternity and sorority housing.

Students have the following three tuition and fee payment options:

- Pay the full amount billed;
- Pay the minimum monthly periodic payment, including a $15 deferred payment fee; or
- Participate in the optional payment plan offered by Tuition Management Systems, a private organization authorized by The University of Iowa to contact students and parents.

Financial need is determined by subtracting the estimated costs for an academic year at the University.

- Whenever possible, financial assistance is awarded toward meeting the student's financial need; however, due to the large number of applicants and the limited funds available, it usually is not possible to offer enough assistance to meet the financial need in full.

Eligibility for Aid

Students are eligible for federal financial aid if they are U.S. citizens or eligible noncitizens and are enrolled at least half-time in a degree program, and if they demonstrate financial need as determined by the FAFSA.

In order to maintain or establish eligibility for financial aid at the University, students must comply with the following Reasonable Academic Progress (RAP) standards.

- Minimum Semester Hours: Undergraduates must earn 20 semester hours per academic school year (fall, spring, and summer sessions combined); graduates must earn 12 semester hours per academic school year.
- Minimum Grade-Point Average: Undergraduates and graduates must maintain the minimum grade-point average requirement of the colleges in which they are enrolled.
- Duration of Eligibility: Undergraduates must complete their bachelor's degrees within six academic school years (12 semesters) or 135 semester hours; graduates working toward master's degrees must complete their program of study within four academic school years (eight semesters) or 48 semester hours; graduates working toward combined master's doctoral degrees must complete their programs of study within eight academic school years (16 semesters) or 96 credit hours.

Financial aid eligibility is canceled for one or more of the following reasons: exhausting one's duration of eligibility; failing to meet the requirements for semester hours completion and/or grade-point average; or failing to meet the minimum requirements of a probationary term. These and other requirements and exceptions are outlined in detail in the publication Reasonable Academic Progress Standards, available at the Office of Student Financial Aid.

Scholarships

Presidential Scholarships

The University annually awards Presidential Scholarships to 20 high school students in recognition of their outstanding high school achievements. These scholarships are the highest scholastic awards for entering freshmen.

Application information is available from the Office of Admissions or from high school guidance counselors.
The Iowa Center for the Arts scholarships

The Iowa Center for the Arts scholarships are awarded on the basis of exceptional talent in the fine arts. Each department (art, dance, theatre arts, and music) awards one scholarship to an entering freshman majoring in one of the areas. The scholarship, the highest award that these areas offer to entering freshmen, is a $2,500 freshman-year, nonrenewable stipend. Application deadlines for these awards fall between January and March of applicants’ senior year of high school.

Application information is available from the Office of Admissions or the appropriate department.

Opportunity at Iowa Scholarships

Opportunity at Iowa Scholarships are the University’s highest scholastic awards for traditionally underrepresented entering minority students. They are awarded to incoming freshmen who have demonstrated outstanding academic achievement in high school. Information about Opportunity at Iowa Scholarships is available from the Office of Admissions.

National Merit Scholarships

The University offers National Merit Scholarships to all entering freshmen who have attained finalist status in the National Merit Competition. Students may receive awards for up to four years. The minimum award is $750. Awards range from $750 to $2,000, based on financial need. The FAFSA determines need.

Departmental Scholarships

For information about departmental scholarships, students should inquire at the offices of the academic programs of interest.

University of Iowa Tuition scholarships

University of iowa tuition scholarships are institutional funds awarded on the basis of financial need and academic achievement. To qualify, entering freshmen must have an ACT composite score of 28 or above or must rank in the upper 10 percent of their high school graduating class. Upperclassmen or transfer students must have at least a 3.00 cumulative grade-point average to qualify for the scholarship. The maximum amount of the scholarship is resident tuition, and the award is applied directly toward tuition. These scholarships are for undergraduates without a bachelor’s degree who are enrolled full-time. The FAFSA determines financial need.

LaVerne Noyes Scholarships

LaVerne Noyes Scholarships are for U.S. citizens who are direct descendants of World War I army or navy veterans. Awards are based on financial need and are available to undergraduates without a bachelor’s degree. Students must file the FAFSA and obtain the LaVerne Noyes application from the Office of Student Financial Aid. Application deadline is July 1.

University of Iowa Farm Scholarships

Farm scholarships are for entering freshmen who are residents of Iowa. Applicants must rank in the upper 25 percent of their graduating class, be enrolled full-time at Iowa, and live on an Iowa farm operated by their parents. Students must file the FAFSA. Applications are available from the Office of Student Financial Aid and must be submitted by April 1.

Grants

Federal Pell Grants

Undergraduate students without bachelor’s degrees may apply for Federal Pell Grants. These awards range from $200 to $2,300 per academic year, depending on financial need and federal funding. Students must be enrolled at least half-time in a degree program in order to be eligible. The FAFSA determines eligibility.

Federal Supplemental Educational Opportunity Grants (SEOG)

The Federal SEOG program provides federal aid to undergraduate students without bachelor’s degrees who show exceptional financial need. The amount of the grant varies depending on financial need and federal funding. Recipients must be enrolled at least half-time. The FAFSA determines eligibility.

Educational Opportunity Program (EOP) Grants

Institutional funds are awarded to minority students who show exceptional financial need. Parental income and asset information must be reported. The FAFSA determines eligibility.

Iowa Grant

The Iowa Grant is a state-supported program awarded on the basis of financial need to undergraduate Iowa residents. The FAFSA determines eligibility.

IMAGES

The Iowa Minority Academic Grants for Economic Success (IMAGES) is a state-supported program for minority undergraduates with financial need. Preference is given to residents of Iowa. The FAFSA determines eligibility.

Loans

Federal Perkins loans

Federal Perkins Loans are long-term federal loans based on exceptional financial need. The amount of the award varies depending on federal funding. Students must be enrolled at least half-time in a degree program. Repayment, at 5 percent interest, begins six months after recipients cease to be at least half-time students. The FAFSA determines eligibility.

Federal Stafford loans, Federal Unsubsidized Stafford Loans

Federal Stafford Loans are low-interest loans made to students who show need. These loans are insured by a guarantee agency in each state and are reinsured by the federal government. The interest rate is variable, and repayment begins when recipients cease to be at least half-time students.

The Federal Unsubsidized Stafford Loans are for students who do not receive the maximum need-based Federal Stafford Loan amount and whose cost of attendance is not met by other aid. Interest on this loan accrues while the student is in school.

The FAFSA determines eligibility. Applicants must submit a Federal Stafford Loan application, which is available from banks and credit unions. Recipients must be enrolled at least half-time.

Federal PLUS loans

Federal PLUS loans are for parents of dependent students. They provide additional funds for educational expenses. Federal PLUS applications are available from banks and credit unions. The loans have a variable interest rate that is adjusted each year. Students must file the FAFSA.

Health Professions Students Loans

Health Professions Student Loans are long-term federal loans for students enrolled full-time in the College of Dentistry or Pharmacy. Amounts available depend on federal funding. The interest rate is 5 percent. The FAFSA determines eligibility.

Students in the College of Medicine may borrow through the Health Professions Student Loan if they previously have received the loan. New borrowers are eligible for the Primary Care Loan.

Nursing Student Loans

Long-term federal loans are available for students enrolled at least half-time in the College of Nursing. Amounts available depend on federal funding. Repayment begins nine months after recipients cease to be half-time students. Interest is 5 percent. The FAFSA determines eligibility.

Jobs

Part-Time Jobs

Student part-time employment can provide a meaningful work experience as well as assistance in meeting educational expenses. The University of Iowa employs nearly 11,000 students in a variety of positions. Ranging from accountant to writer, the jobs offer students the opportunity to increase skills, gain experience, and earn money.

Student part-time employment is limited to 20 hours per week during the academic year and 40 hours per week during the summer session. The minimum wage paid by the University is $4.65 per hour. Students employed on an
hourly basis are paid by check once every two weeks.

Jobs are advertised via computer terminals across campus.

The student newspaper, The Daily Iowan, also has job listings in the classified ads. Friends, advisers, and instructors are other possible sources of information about jobs.

Students contact employers directly to arrange interviews. The Office of Student Financial Aid does not operate a referral or placement service for student employees. However, students who are hired for jobs on campus must come to the student employment area of the Office of Student Financial Aid, to process payroll paperwork.

Work-Study Program

The Work-Study (WS) Program helps students earn money to meet educational expenses. This program currently is funded by both the federal government and the Iowa legislature. Students in the WS Program must be enrolled at least half-time in a degree program. Their work experience should complement and reinforce their educational goals.

The amount of WS money a student is eligible to earn is based on financial need as determined by the FAFSA and legislative funding. WS employment is limited to 20 hours per week during the academic year. The minimum wage paid by the University is $4.65 per hour. Students are paid by check once every two weeks.

Other Sources of Aid

A guidance counselor or high school principal may have information on local scholarships, and school or public libraries are excellent sources for publications about financial aid. Many places of employment, professional associations, and labor unions have programs to help pay the cost of education for children of employees or members. Other sources include foundations, religious organizations, fraternities or sororities, town or city clubs, community organizations, and civic groups. A little searching on the student’s part may unearth some unexpected source of financial aid.

Information about financial assistance for students with disabilities is available from the University’s Office of Student Disability Services.

Information about financial assistance for veterans of U.S. military services is available from the University’s Office of Veterans Services.

Information about Education Aid to War Orphans is available from the Iowa Bonus Board (State House, Des Moines, IA 50319).

Additional Information for Graduate Students

The primary sources of financial aid for graduate students are the University Teaching and Research Assistantships, Iowa Fellowships, Graduate College Block Allocation Fellowships, and Graduate Opportunity Fellowships. Scholarships, traineeships, and part-time employment also are available. Further information is available from academic departments or programs.

The resource room of the University’s Division of Sponsored Programs has information on assistance for graduate students from non-University sources, such as foundations and professional associations.
Academic Advising

Each student is assigned an academic adviser to assist with educational planning, academic counseling, and registration. Most entering freshmen, including open majors, certain preprofessional majors, and most declared majors, are assigned advisers in the Undergraduate Academic Advising Center. Other entering freshmen with declared majors are assigned to advisers in their major departments. Upon admission to professional colleges (Business Administration, Education, Engineering, Nursing, Pharmacy, Dentistry, Law, and Medicine), students are advised by the college deans or their designated representatives. Graduate students are advised by their department heads and the Graduate College dean.

In addition to providing academic advising, advisers serve as general consultants to their advisees and refer those with special needs to appropriate support services.

Undergraduate Academic Advising Center

The Undergraduate Academic Advising Center advises almost all freshmen and many sophomores. Professional advisers provide intensive support through systematic and frequent contact with their advisees. Advisers help students explore various fields of interest, select a specific academic major, learn about career options that relate to their programs, and develop plans of study appropriate for their educational goals. They also refer students to other campus offices for assistance in academic, personal, and career counseling; academic skills development; and financial aid. Academic advising is mandatory at The University of Iowa. Students must consult their advisers in order to register for classes each semester.

Collegiate Academic Offices

Each of the University’s undergraduate colleges maintains an academic/student affairs office. These offices are available to all students in the respective colleges to help with questions about admissions, academic majors, course requirements, grading options, career and degree plans, and other matters. They assist students who want to change advisers and/or majors, and they act on student complaints.

International Education and Services (OIES)

The Office of International Education and Services works to enrich campus life by developing and promoting all aspects of the University’s international dimension. It has administrative responsibility for the University’s foreign student/scholar program, for the cross-cultural educational and training program, and for the study abroad program. It has developmental responsibilities in international studies, institutional linkages, and technical cooperation activities. It also provides services and facilities and organizes extracurricular programs for both foreign and domestic students and faculty.

Through technical cooperation and faculty exchange programs, the OIES encourages the development of formal links between University of Iowa departments and their counterparts in foreign institutions. The liaison officer for the Midwest Consortium for International Activities (MUCIA) is located in the OIES, encouraging involvement of University of Iowa faculty in MUCIA activities.

Foreign student advisers provide information, counseling, and services related to orientation, financial aid, immigration regulations, and liaison with foreign governments and sponsoring agencies. They help with problems and questions in most areas except academic advising. The Cross-Cultural Education and Training Program sponsors or supports educational programs such as the Friends of International Students, the Armchair Travelers Program, the Cultural Consultant Program, and discussions and activities that foster constructive interaction between students and scholars from other countries and their domestic counterparts.

The study abroad staff maintains a library with references on study, work, and travel in other countries, including information about foreign universities and study abroad programs open to U.I. students. Staff members help students select study abroad programs to complement their on-campus academic programs. They also help assure that students receive the correct credit for such activities.

The study abroad staff helps students obtain information about and applications for the following scholarships: Fullbright, DAAD (German Academic Exchange Service), Inter-American Foundation, International Student Identity Card, University of Ibadan, Presidential Scholarships for Study Abroad, the Stanley Undergraduate Scholarship Awards for International Research and Study, and the Stanley Fellowships for Graduate Student Research Abroad.

Study Abroad Programs

The University of Iowa sponsors a number of study abroad programs. They include reciprocal exchanges, in which Iowa students enroll in a foreign university, as well as summer and semester programs, in which groups of Iowa students are accompanied to the foreign study site by an Iowa faculty member. Some programs are offered in cooperation with other universities in Iowa, in the Midwest, or throughout the United States. Others are administered in part by an international educational exchange agency.

University of Iowa students also may participate in approved study abroad programs sponsored by other colleges, universities, and agencies, or they may enroll directly in a foreign university. Students should obtain approval of all transfer credit from non-University of Iowa programs before leaving the United States, by completing a Study Abroad Credit Approval form.

Information on transfer credit, financial aid, and other study abroad programs is available at the Study Abroad Center, Office of International Education and Services.

In addition to the study abroad courses listed below, the following programs are offered through foreign language departments: 9:119 Regents Summer Program in France (8-9 semester hours), see “French and Italian”; 13: 109 Regents Program Abroad in Austria (arr., see “German”); 35: 100 Regents Hispanic Institute (arr., see “Spanish and Portuguese”). Students may earn transfer credit in 000:105, 106, 108, 113, 114, and 115.

000:105 International Student Exchange Program arr. Study on reciprocal exchange at foreign universities worldwide; some instruction in English. Semester, year-long, or summer. Good command of foreign language, forty semester hours earned, and 3.00 grade-point average required.

000:106 UK Exchange Program arr. Regular degree course work at the Universities of Hull and Lancaster (England) and the Universities of Strathclyde and Aberdeen (Scotland); humanities, social sciences, physics, sciences, business, engineering. Forty semester hours earned, minimum 3.00 grade-point average required.

000:108 Japan Exchange Program arr. Intensive Japanese language, and a course work at Center for Japanese Studies, Nanzan University, Nagoya, Japan. Minimum 3.00 grade-point average required.

000:109 Dance Studies Exchange arr. Rotterdamse Dansacademie (Netherlands), Swedish National College of Dance, or London Contemporary Dance School; technique, choreography, studio and/or theory courses. One semester. Junior or Senior standing, minimum 3.00 grade-point average required.

000:110 Iowa Critical Languages Program arr. 000:112 University of Iceland Exchange Program arr. Icelandic studies, modern Icelandic language. Academy year. Twenty-four semester hours earned, minimum 3.00 grade-point average required.

000:116 ACTR program Russia arr. Russian language programs at institutions in Moscow, Leningrad. Semester, academic year, or summer. Prerequisite: three years of college-level Russian or equivalent.

000:117 Frankfurt Exchange Program arr. Regular degree course work at Johann Wolfgang Goethe Universität, Frankfurt, Germany; taught in German. Academy year. Arranged through College of Business Administration. Prerequisite: at least two years of college German, business background.

000:119 Vienna Exchange Program arr. Regular degree course work in business administration and economics at Wirtschaftsuniversitat in Vienna, Austria; taught in German. Arranged through College of Business Administration. May be repeated. Prerequisite: at least two years of college German or equivalent.

000:805 Iowa Regents Semester in Wales arr. University of Swansea; interdisciplinary course on British life, culture; regular degree course work in humanities, social sciences, physics; sciences, business, engineering. Three weeks in fall. Minimum 2.50 grade-point average required.

000:810 CIEE Spain Program arr. Five programs in Seville and Alicante for specific language proficiency levels, academic interests. Minimum 2.50 grade-point average required. Prerequisites vary by program.

000:811 USAC San Sebastian Program arr. Intensive beginning-level Spanish language; third-year level; language, civilization, literature, intensive Basque language; some courses taught in English. Minimum 2.50 grade point average required.

000:812 CIEE Paris Program arr. Centre-Franco American Olsen and University of Paris II; film studies; contemporary French critical thought in literature, philosophy, semiotics, psychoanalysis. Minimum 3.00 grade-point average required. Prerequisite: three years of college-level French.

000:813 CIEE China Program arr. Three programs in People’s Republic of China, three in Republic of China, Mandarin Chinese, Chinese civilization and culture. Semester, academic year, or summer. Prerequisites vary.
Center for Career Development and Cooperative Education

This center helps University students and alumni graduates explore and plan their careers and obtain educational work experience. Located in Calvin Hall, the center includes a career library with information on occupations and cooperative education/internship position listings. The materials contain job descriptions, educational requirements, job outlook, and salary information.

Professional staff advisors are available for individual appointments. They provide help with self-assessment, exploring new possibilities, and in seeking work related to academic and career interests. The center also maintains a computerized career decision-making program, SIGI PLUS, which is accessible at five of the University’s computer clusters.

Each year some 1,000 students accept internship positions. Cooperative education assignments, which coincide with fall or spring semesters or summer sessions, include opportunities throughout Iowa, across the nation, and overseas.

Cooperative education offers undergraduates and graduate students opportunities to assume professional responsibilities, apply academic studies in supervised work situations, and gain professional work experience. The University offers many cooperative education courses; see course listings in the Catalog. The following is a nondepartmental cooperative education course.

000:822 Washington Center Program

Mathematics Tutorial Laboratory

The Mathematics Tutorial Laboratory is integral to instruction in both pre-college and freshman-level mathematics courses. Students are encouraged to use the math lab’s programs and facilities, which include private and small-group tutoring, self-instructional material, computer-assisted instruction, and diagnostic testing and advising.

The math lab holds tutoring hours throughout the day and on some evenings; no appointments are necessary. Students are encouraged to stop by the lab for help with their assignments; to use the lab as a resource for supplementary materials; to study in the lab’s supportive environment; and to consult with their teaching assistants concerning problems related to their math courses.

Reading Lab

The Reading Lab, located in the English-Philosophy Building, provides individual instruction for all University students interested in improving their ability to read with comprehension and enjoyment.

Most students come to the Reading Lab to work on assignments from difficult courses. Some want to improve their study strategies—writing notes, taking tests, and so forth; others need help using the University Libraries for research projects. Many simply want to become more efficient and capable readers. Whatever their goals, students can work on readings of their own choice.

Each student meets twice a week for an hour of one-on-one tutorials with his or her own instructor. No fee or registration is required; students may sign up at the Reading Lab.

Rhetoric 10:8 Individual Instruction in Reading is offered through the Reading Lab. For more information, see “Rhetoric” in the College of Liberal Arts section of the Catalog.

Writing Lab

The Writing Lab provides individualized writing experiences for University students who want to improve their writing. Lab students discuss their work in personal conferences with teachers, who offer comments and suggestions to help the students become perceptive, critical readers of their own writing as they learn how to develop their ideas clearly and cogently.

Students may enroll for noncredit work in the lab throughout the semester. Or they may register for the credit course 10:9 Rhetoric (no credit toward degree) before or after taking a required beginning rhetoric course, or transfer to 10:9 Rhetoric from another rhetoric course after conferring with their rhetoric teacher and the director of the Writing Lab.

Registrar

The Office of the Registrar determines the residence status of each student, issues University identification cards, supervises registration procedures, provides and publishes course information, and coordinates commencement and academic special events programs. It assesses fees and fee adjustments, maintains all students’ academic records, and issues official transcripts and verifications.

The registrar’s office issues degree evaluations for undergraduate students and helps students determine graduation requirements, submit applications for degrees, and interpret college and University academic policies. It provides assistance to students on Selective Service and military service matters, and it helps student veterans apply and enroll at the University and secure receipt of their Veterans Affairs benefits.

Transcripts

Students who have completed work at The University of Iowa can obtain an official transcript of that work upon request to the Office of the Registrar. Fees are $3 per transcript. For an additional $2 charge, students with proper identification can obtain immediate transcript service.

An official transcript cannot be issued for a student who has a past-due University account.
Student Disability Services

The University of Iowa is committed to making its facilities, services, and programs fully accessible to people with disabilities. The Office of Student Disability Services (SDS), located in Burge Residence Hall, provides assistance to students with a wide range of visible and nonvisible disabilities, including hearing and speech impairments, learning disabilities, mobility impairments, visual impairments, and others. The office’s goal is to help students with disabilities enjoy the same rights and assume the same responsibilities as do other students. The office also provides information to students, faculty, and staff on educational services for students with disabilities.

SDS works closely with University faculty and staff to provide assistance with admission, orientation, academic and career planning, academic support services, financial aid, housing, transportation and parking, aide and attendant care, health services, and recreational services (see “Recreational Services” in this section of the Catalog). The office works with students individually to locate the type of assistance appropriate to their needs, from tutors or personal attendants to tape recorders to emergency-loan wheelchairs.

Special Support Services

The Office of Special Support Services (Undergraduate Educational Opportunities Program) includes New Dimensions in Learning, a math and science tutoring program, and the Upward Bound Project. New Dimensions in Learning is open to first-generation low-income students and students with disabilities. The Undergraduate Educational Opportunities Program (UEOP) is designed to provide academic assistance and personal support to historically underrepresented minority students in higher education. The program encourages African-American, Hispanic/Latino, American Indian, and American Asian students to achieve academic excellence and personal development.

Campus Programs and Student Activities

The Office of Campus Programs & Student Activities (OCPSA), located in the Iowa Memorial Union, provides diverse and balanced social, cultural, recreational, and educational programs and activities in the Iowa Memorial Union and on The University of Iowa campus. The office helps individual student organizations to design, build, and maintain educational environments that enhance personal growth and achievement of organizational purpose.

Professional staff members provide information to students who want to become involved in organizations suited to their interests or to form new groups or organizations. They also conduct workshops on enhancing leadership skills and organizational effectiveness. The Volunteer Iowa Program (VIP), designed to bring University students interested in volunteer service together with local community service agencies, is coordinated by the OCPSA.

Campus programming and special event planning are ongoing tasks for OCPSA. Student groups, working in conjunction with OCPSA staff, plan and conduct traditional events such as Homecoming, RiverFest, minority and international events and festivals, and new campus programs. Various governing bodies, commissions, and committees benefit from OCPSA assistance in their efforts to promote life outside the classroom as well as to increase the University’s visibility in the community. Among student governing bodies with which OCPSA works are The University of Iowa Student Association (UISA), the Panhellenic Council, the National PanHellenic Council, and the Interfraternity Council. The commissions and committees include SCOPE (the concert promotion group), the Bijou Film Commission, the Student Legal Services Commission, Fine Arts Council, and the University Lecture Committee. The office also administers the Arts and Craft Center, the Student Activities Center, the University Box Office, OCPSA Business Office, the Afro-American Cultural Center, and the Chicano Native American Cultural Center.

Cultural Centers

Afro-American and Chicano Native American Cultural Centers

The University operates the Afro-American Cultural Center and the Chicano Native American Cultural Center under the auspices of the Office of Campus Programs & Student Activities. Students meet at the centers to share experiences, find mutual academic and personal support, relax, and develop social programs, all in an atmosphere that emphasizes their cultural heritage. Programs and activities at the center are open to all students.

The Afro-American Cultural Center sponsors discussion groups, orientation programs, movies, and class sessions. The house is decorated with art by African and Afro-American artists and has study areas, a kitchen, and a library of publications by African, Afro-American, and Third World authors.

The Chicano Native American Cultural Center sponsors conferences, lectures, and workshops on cultural themes. The center also houses a library with special-interest books and periodicals and displays wall murals painted by students and guest artists.

International Center

The International Center serves members of the University community who have international interests. Its facilities and programs are designed to encourage interaction among people of all cultures.

The International Center Lounge is open to University and Iowa City individuals and to groups sponsored by an International Center unit.

Sports and Recreation

Intercollegiate Athletics for Men

The University of Iowa is a member of the Big Ten Conference and has athletic programs in football, basketball, track and field, baseball, swimming, golf, wrestling, tennis, cross-country, and gymnastics. General policy guidelines are recommended by the Board in Control of Athletics, which is composed of 12 members from the University’s teaching and administrative staff, two University alumni, one representative from the University Staff Council, and two students.

Intercollegiate Athletics for Women

The University of Iowa sponsors nationally competitive intercollegiate athletic varsity teams for women in basketball, crew, cross-country, field hockey, golf, gymnastics, softball, swimming and diving, tennis, track and field, and volleyball. It competes as a member of the Big Ten Conference and the National Collegiate Athletic Association (NCAA). Athletic scholarships are available in all 11 programs to qualified student athletes. Women’s Intercollegiate Athletics is governed by the University Board in Control of Athletics.

Recreational Services

The Division of Recreational Services, located in the Field House, administers one of the most diverse recreation programs in the country. There are seven major programming areas in which students, faculty, and staff may participate.

Intramural Program

More than 30 different intramural sports are offered. Activities vary from popular team sports such as basketball and flag football to individual and novel activities such as trapshooting and wallyball.
Sports Clubs
Recreational services advises and funds more than 20 sport clubs organized by individuals to further their interest in a sport or recreational activity. Clubs range from competitive team clubs such as soccer and rugby to recreational clubs such as sailing and table tennis.

Lesson Programs
Recreational services offers a variety of noncredit instructional classes for all age groups throughout the school year. To defray the cost of providing instruction, the office charges a minimal registration fee for each program. Typical lessons include gymnastics, lawn tennis, swimming, scuba diving, and various martial arts classes.

Informal Recreation
An informal drop-in recreation program is available for popular activities, including basketball, swimming, racquetball, volleyball, tennis, weight training, and jogging.

Outdoor Recreation
The division operates the MacBride Nature Recreation Area, one of the finest university-managed outdoor programs in the country. The 435-acre nature area, located 15 miles north of Iowa City on Lake MacBride and the Coralville Reservoir, offers picnic and camping sites, nature trails, an outdoor archery range, a raptor/nature center, and some of the finest cross-country ski trails in the Midwest. It also is the site of day camps and nature awareness programs for elementary school children.

The division also sponsors a weekend outdoor trip program that features a wide variety of activities such as white water rafting and canoeing, backpacking, bicycling, kayaking, rock climbing, horseback riding, cross-country and downhill skiing, and spelunking. An outdoor check-out service, located at 700 South Clinton Street, offers all types of outdoor equipment, including cross-country skis, picnic equipment, canoes, backpacks, skates, and tents.

Persons with Disabilities
Recreational services has a weight and exercise room with equipment modified for use by persons with disabilities. In addition, recreation staff members are available to help disabled students who want to be included in regular recreational services programs. The division offers a limited number of programs strictly for persons with disabilities.

Summer Sports Camps
The University of Iowa has one of the largest summer sports camp programs in the Midwest. All popular team sports are offered—boys' and girls' basketball, pool swimming, football, volleyball, wrestling, track and field, golf, boys' and girls' gymnastics, baseball, softball, and tennis. There also are unique camps in activities such as cheerleading and sports medicine. The University of Iowa Sports Camps Office is in the Recreational Services Office, located in the Field House.

Iowa Memorial Union
The Iowa Memorial Union is the hub of student life. Its facilities include a copy center; the Campus Information Center; the University Box Office, with check-cashing service and a U.S. Postal Station; the Office of Campus Programs and Student Activities; the Wheelroom, which offers live entertainment, a recreation area with billiards and electronic games; a hair salon, an arts and craft resource center; a bookstore; moms for lectures, concerts, meetings, and social events; and art and sculpture display areas. It offers a variety of food services, including the River Room cafeteria, Union Station, Union Pantry and Union Market, State Room (a formal dining room), and catering service.

The adjoining Iowa House has 110 guest rooms for parents, alumni, conference participants, and other visitors to the campus. Also housed in the union are the Instructional Technology Center (ITC); the Student Activities Center, with student organization offices and an extension of the ITC; and the Center for Conferences and Institutes.

Student Health Service
Student Health Service is located in the Steidler Building on the University health center campus. All students registered at the University for 5 or more semester hours are charged a mandatory health fee and are eligible for outpatient care at the Student Health Clinic. Students registered for O-4 semester hours may choose to pay the health fee to receive the same care. Students registered for O-4 semester hours who do not pay the health fee may use the Student Health Service, but they are charged a fee for each visit.

Payment of the health fee allows unlimited free office visits. There are additional charges for laboratory procedures, X-rays, accident examinations, minor surgery, and special procedures.

AU University students are advised to have health and accident insurance. A University-sponsored group insurance is available for students in individual or family plans. This insurance policy must be obtained prior to or during registration and is available through the Business Office in Jessup Hall.

University counseling service
The University Counseling Service (UCS) is committed to fostering a multicultural environment. Its staff of professional psychologists and advanced doctoral students offers learning disability assessment and career and personal counseling and therapy in individual, couple, or group sessions. UCS also offers programs, workshops, and consultation activities. Most of its services are available to students without cost, but there is a fee for psychological testing.

Veterans Services
The Office of Veterans Services is part of the Office of the Registrar. It serves veterans, dependents of veterans, and service personnel in matters relating to Veterans Affairs educational benefits, University registration, and study at the University.

Women's Resource and Action Center
The Women's Resource and Action Center (WRAC) provides services to meet educational, cultural, social, and personal needs of University and community women. WRAC advocates the removal of all barriers to equal access and self-determination, including barriers of racism and classism as well as those based on physical ability, sexual preference, and gender. Through its feminist programs and services, the staff is committed to empowering Iowa women through providing information, skills, and support.

The WRAC provides a resource for many women's organizations; sponsors a Brown Bag Luncheon program; offers evening and weekend workshops, lectures, films, and classes; provides a wide variety of support and discussion groups for women; offers one-on-one problem-solving sessions for women; and publishes a newsletter.

The WRAC houses the Sojourner Truth Women's Resource Library of books and periodicals on a wide range of women's topics. For persons dealing with sexual harassment and other forms of discrimination, WRAC acts as an advocate and provides emotional and informational support. WRAC maintains an information and referral system, a speakers bureau, and an active volunteer program.

HOUSING
Fair Housing Policy
The following is the University’s statement on fair housing practices: “It is and shall be the firm policy of the University that householders shall rent to all students on the basis of their individual merits as persons, without exclusion or discrimination on the basis of race, creed, color, or national origin.”

Iowa City has a fair housing ordinance providing for equal opportunity to secure housing without distinction due to race, religion, or ancestry, except in certain instances involving owner-operator dwelling units. A Human Relations Commission is responsible for the observance of this ordinance and for the initiation of redress for violations of it.
University Residence Halls

The University’s nine residence halls provide housing and dining accommodations and academic and program support for 5,526 single students; 749 units are available in the family housing apartment complex operated by the Department of Residence Services.

Single, double, triple, and quadruple rooms with full or partial board are available in the Grand Avenue Residence Halls (west campus), which include Hillcrest, Quadrangle, Rienow, and Slater halls, and in the Clinton Street Residence Halls (east campus), which include Burge, Daum, Currier, Stanley, and Mayflower halls.

There are lounges, study areas, television rooms, game rooms, coin laundry facilities, weight rooms, kitchens, sun decks, and pianos in or available to each residence hall. Computer terminals (both IBM and Macintosh), reference materials, browsing libraries, and private rooms for group study sessions are available in five monitored learning centers.

Each residence hall is divided into small living units. Each building has a live-in hall coordinator, and there is a resident student assistant living on each floor. All students are encouraged to participate in residence hall government to plan programs and discuss issues. Student- and staff-initiated programs and activities provide opportunities for students to pursue social, recreational, cultural, and educational interests. Several academic classes are taught in residence halls. An undergraduate academic advising center is located in Burge Hall and tutorial sessions are available there.

All students living in residence halls must contract for a food plan, with the exception of Mayflower residents, who may contract for room only. There are ten plans to choose from, ranging from weekday breakfast only to daily breakfast, lunch, and dinner. There is no Sunday evening meal.

Students who do not live in residence halls may purchase full or partial board contracts.

Applications and Assignments

Prospective undergraduate students should request housing application forms to apply for residence hall accommodations. Prospective students are encouraged to apply for housing at the same time they apply for admission to the University. Applicants for residence hall accommodations should read the terms and conditions of the contract carefully, provide all information requested on the application form, sign the contract portion, and return the completed application/contract to the housing office in Burge Hall, with a check for $50 made payable to The University of Iowa.

Students wishing to be roommates must ask for the same accommodations. Students must list one another’s names and social security numbers and be sure they have listed roommate as their number-one priority of preference.

Roommate requests are processed according to the date the last roommate’s housing application is received. The housing office does not consider requests for roommates who have not been admitted at the time assignments are made, for those who have not made the advance payment, or for those who have not completed the housing application correctly.

Applicants do not receive room assignments until after they have been admitted to the University. However, they are encouraged to apply for housing at the same time they apply for University admission.

The residence hall application/contract and $50 advance payment constitute a contract offer. Applicants may withdraw by notifying the University Housing Office in writing before their notice of acceptance of the contract and assignment of accommodations. Assignments are usually mailed to new students during June, July, and August.

Upon written request, the $50 advance payment is refunded to applicants who are not admitted to the University and to those who cancel their residence hall contracts by the binding date of the contract.

Rates

Basic rates for University residence hall accommodations for the 1994-95 academic year are $3,423 for a non-airconditioned double room and $3,162 for a non-airconditioned triple, with full board (20 meals per week). Rates for room and board options vary according to accommodations. Rates are subject to change annually.

Family Housing

Family housing apartments are available to any registered University of Iowa student. Priority is given to students with dependent children. The University provides 749 unfurnished family living units in three complexes. Hawkeye Drive and Hawkeye Court are located on the west side of Iowa City, and Parklawn is located close to the central campus. Each complex is unique, but all three offer off-street parking, refrigerator and range, paid water, city bus and CamBus service, play areas for children, telephone and local service, and basic television reception with pay cable option. There is schoolbus transportation for children in Hawkeye Drive and Hawkeye Court.

Rent includes telephone on-campus and local service, Heat, but not electricity, is included in the monthly rent for Hawkeye Drive residents. Hawkeye Court and Parklawn residents must pay for gas and electricity. All units are unfurnished.

Monthly rents for the 1994-95 academic year are $203 for efficiencies, $248 to $264 per month for one-bedroom units, and $300 to $377 for two-bedroom units. Rates are subject to change annually.

Applicants must meet all University admission requirements before assignments can be made. Applications may be filed before admission is complete, but they are not accepted more than a year in advance.

Off-Campus Housing

The Housing Clearinghouse, located at the Campus Information Center in the Iowa Memorial Union, maintains and provides accurate, up-to-date listings of available rental units in the Iowa City area, including large apartment complexes, smaller complexes, rooms in private homes, and one-, two-, and three-bedroom duplexes and houses. The clearinghouse also suggests other resources useful in looking for housing and offers a packet of helpful information for prospective residents of the area.

Fraternities and Sororities

Twenty-four undergraduate social fraternities and 19 undergraduate social sororities exist on the University campus. Nineteen fraternities and 14 sororities operate chapter houses, which accommodate 35 to 60 people each.

Undergraduate fraternities include Acacia, Alpha Delta Omega, Alpha Delta Pi, Delta Chi, Delta Tau Delta, Delta Upsilon, Kappa Sigma, Lambda Chi Alpha, Phi Beta Sigma, Phi Delta Theta, Phi Gamma Delta, Phi Kappa Psi, Phi Kappa Sigma, Phi Kappa Theta, Pi Kappa Alpha, Sigma Alpha Epsilon, Sigma Alpha Mu, Sigma Lambda Beta, Sigma Nu, Sigma Phi Epsilon, Sigma Tau Gamma, and Tau Kappa Epsilon.

Undergraduate sororities include Alpha Xi Delta, Alpha Omegata, Alpha Delta Pi, Delta Gamma, Delta Kappa Alpha, Alpha Phi, Alpha Xi Delta, Chi Omega, Delta Delta Delta, Delta Gamma, Delta Sigma Theta, Delta Zeta, Gamma Phi Beta, Kappa Alpha Theta, Kappa Kappa Gamma, Pi Beta Phi, Sigma Gamma Rho, Sigma Lambda Gamma, Zeta Phi Beta, and Zeta Tau Alpha.

Codes, Policies, and Students’ Rights

As members of the academic community, students are encouraged to develop a capacity for critical judgment and to engage in a sustained and independent search for truth. Freedom to teach and freedom to learn are inseparable facets of academic freedom. The freedom to learn depends on appropriate opportunities and conditions in the classrooms, on the campus, and in the larger community.

To provide and safeguard the right of every individual student to exercise this freedom to learn without undue interference by others, the University has developed a Code of Student Life. The code covers conduct that adversely affects a University process or function or some distinct and clear interest of the University as an academic community. In order to foster an environment where academic freedoms are exercised in a responsible manner, all students are expected to acquaint themselves with the code and to conduct themselves in accordance with the standards it sets forth.
University Policy on Human Rights

The University of Iowa brings together in common pursuit of its educational goals persons of many nations, races, and creeds. The University is guided by the precept that in no aspect of its programs shall there be differences in the treatment of persons because of race, creed, color, national origin, age, sex, disability, and any other classifications that deprive the person of consideration as an individual, and that equal opportunity and access to facilities shall be available to all. Among the classifications that deprive the person of consideration as an individual are those based on affectional or associational preference. This principle is expected to be observed in the internal policies and practices of the University, specifically in the admission, housing, and education of students; in policies governing programs of extracurricular life and activities; and in the employment of faculty and staff personnel. The University shall work cooperatively with the community in furthering these principles.

Student Complaints Concerning Faculty Actions

Student complaints concerning actions of faculty members or teaching assistants are pursued first through the informal mechanism established in each college for this purpose.

Although there is some variation among colleges, these mechanisms generally involve the following steps.

- The student should first attempt to resolve the issue with the instructor involved.
- If the instructor is a teaching assistant, the student may approach the faculty supervisor of the course.
- Lacking a satisfactory outcome, the student should turn to the departmental executive officer.
- If the outcome is still not satisfactory, the student may take the matter to the collegiate dean.

The Colleges of Business Administration, Education, Engineering, Liberal Arts, Medicine, and Nursing have written policies and procedures for resolving complaints. The Colleges of Dentistry, Engineering, Law, and Nursing also have established ombudsperson systems as alternative mechanisms for handling student complaints. Information concerning the mechanisms established by a specific college is available in the collegiate dean’s office.

Graduate students should consult with the associate dean for academic affairs in the Graduate College concerning ways to resolve complaints.

If a student’s complaint concerning a faculty action cannot be resolved through the informal mechanisms available, the student may file a formal complaint, which will be handled under the procedures established for dealing with alleged violations of the “Statement on Professional Ethics and Academic Responsibility,” as specified in section 20:290 of the University Operations Manual. A description of these formal procedures, found in section 20:260 of the University Operations Manual, can be obtained from each college dean’s office; the University and collegiate ombudspersons; the College of Liberal Arts Office of Academic Programs; or the Undergraduate Academic Advising Center.

University Ombudsperson

The Office of the University Ombudsperson responds to problems and disputes brought forward by all members of the University community-students, staff, and faculty. The ombudsperson investigates claims of unfair treatment or erroneous procedure and serves as a neutral and detached listener, information resource, adviser, intermediary, and mediator. The ombudsperson considers all sides of a question in an impartial and objective way.

The ombudsperson’s office is an independent entity. It does not report to the University administration. It treats all requests and consultations in strict confidence. It will not divulge a client’s name or the nature of his or her complaint without the client’s consent.

Before consulting the ombudsperson, students, staff, and faculty should try to resolve their problems by following procedures outlined by University rules and policies. Where practical, faculty and staff members should discuss problems with department chairs and/or supervisors; students should follow procedures in the handbook Policies and Regulations Affecting Students. Students, staff, and faculty usually should consult the appropriate academic adviser, department head, supervisor, chair, dean, or other administrator before contacting the ombudsperson.

They may consult the ombudsperson at the outset, however, if use of official channels would result in lengthy and damaging delays or a lack of confidentiality and/or impartiality detrimental to their cases.

The ombudsperson has no power to order changes in rules, regulations, policies, procedures, or the behavior of others. Solutions reached through the Office of the Ombudsperson are nonbinding; it is the responsibility of the parties involved to see that the solutions are implemented.

Policy on Sexual Harassment

Following are excerpts from the University “Policy on Sexual Harassment and Consensual Relationships,” which is printed in full in the booklet Policies and Regulations Affecting Students.

Division 1. Sexual Harassment

Section 1. Rationale

(a) Sexual harassment is reprehensible and will not be tolerated by the University. It subverts the mission of the University and threatens the careers, educational experience, and well-being of students, faculty, and staff. Relationships involving sexual harassment or discrimination have no place within the University. In both obvious and subtle ways, the very possibility of sexual harassment is destructive to individual students, faculty, staff, and the academic community as a whole. When, through fear of reprisal, a student, staff member, or faculty member submits or is pressured to submit to unwanted sexual attention, the University’s ability to carry out its mission is undermined.

(b) Sexual harassment is especially serious when it threatens relationships between teacher and student or supervisor and subordinate. In such situations, sexual harassment exploits unfairly the power inherent in a faculty member’s or supervisor’s position. Through grades, wage increases, recommendations for graduate study, promotion, and the like, a teacher or supervisor can have a decisive influence on a student’s, staff member’s, or faculty member’s career at the University and beyond.

(c) While sexual harassment most often takes place in situations of a power differential between the persons involved, the University also recognizes that sexual harassment may occur between persons of the same University status. The University will not tolerate behavior between or among members of the University community that creates an unacceptable working or educational environment.

Section 2. Prohibited Acts

No member of the University community shall engage in sexual harassment. For the purposes of this policy, sexual harassment is defined as unwelcome advances, requests for sexual favors, or other verbal or physical conduct of a sexual nature when

(a) Submission to such conduct is made explicitly or implicitly a term or condition of an individual’s employment or status in a course, program, or activity;

(b) Submission to or rejection of such conduct is used as a basis for an employment or educational decision affecting an individual; or

(c) Such conduct has the purpose or effect of unreasonably interfering with an individual’s work or educational performance or of creating an intimidating, hostile, or offensive environment for work or learning.

Section 7. Consensual Relationships in the Instructional Context

No faculty member shall have an amorous relationship (consensual or otherwise) with a student who is enrolled in a course being taught by the faculty member or whose academic work (including work as a teaching assistant) is being supervised by the faculty member.
RESEARCH AND INTERDISCIPLINARY ACTIVITIES

The University recognizes that its creative activity is indispensable if its teaching is to have the relevance, freshness, and effectiveness expected of a distinguished institution of higher learning.

The University holds that the term “research” applies to creativity in all fields. Imaginative originality, whether in the fine arts or in the sciences, is of a common character and significance in the overall intellectual life of the institution.

The Office of the Vice President for Research maintains an overview of the many individual research commitments of the institution and actively promotes the research mission of the University in many ways. It

● fosters the development of new knowledge;
● develops and maintains the infrastructure for proper conduct of research;
● helps individuals, groups, and organizational units search out and obtain funds from potential sources in order to enhance the University’s education, research, and service missions;
● provides a forum for systematic institutional review of potential major, research-based University initiatives as well as interim management for projects judged worthy of pursuit;
● fosters interdisciplinary and collaborative research and service efforts within and beyond the University to take advantage of funding opportunities;
● identifies high-priority national and state research needs related to the University’s mission; disseminates information pertaining to those needs; and assists in development of a University agenda to meet those needs;
● affects federal legislation and regulations enhancing the University’s position as a major education and research institution;
● promotes the development of the Oakdale Research Campus in support of the University’s research mission;
● stimulates and manages technology transfer of intellectual property to the private sector;
● manages University efforts to improve Iowa’s economy;
● promotes the Oakdale Research Park as a vehicle for University/industry interaction.

The Office of the Vice President for Research also maintains a close relationship with the Graduate College because of the college’s University-wide character and the vital connection between graduate programs and research and creative activity.

The University Research Council assists the vice president for research in a regular advisory capacity. The council consists of ten faculty members who are widely recognized for their personal involvements in basic research or creative activity, one representative of the University staff, and two student members.

Faculty members include two each from the physical, biological, and social sciences and the humanities, and two from the faculty at large. The council gives regular consideration to matters such as the establishment of general policies regarding the University’s research and creative efforts, the review of policies and procedures concerned with securing and allocating funds for support of research and creative activity, and additional matters related to the general research and creative functions of the University and the health of basic scholarship on the campus.

Programs

The Office of the Vice President for Research currently supports the following programs, with the advice of the University Research Council and other appropriately involved University officers and committees.

Central Investment Fund for Research Enhancement

The Office of the Vice President for Research annually solicits proposals for support of scholarly and creative projects through the Central Investment Fund for Research Enhancement (CIFRE). All tenured and tenure-track faculty and all research scientists are eligible, except for recent recipients of CIFRE awards. Preference is given to applicants in the early stages of their careers.

CIFRE funds are oriented specifically to assisting faculty and research scientists in exploring new approaches and/or enhancing the competitiveness of subsequent applications for external research funding. Applications from faculty in all areas of scholarly endeavor—the arts and humanities, biological sciences, physical/mathematical sciences, and social sciences—are welcome.

Carver Scientific Research Initiative Grants Program

The Carver Scientific Research Initiative Grants Program, funded by the Roy J. Carver Charitable Trust of Muscatine, Iowa, is designed to focus support on nonmedical projects in the sciences and in technology-related fields. The program provides competitive research grants to tenure-track faculty who have exciting ideas with long-range potential, but who need to conduct preliminary studies in order to launch a research project. Awards normally are limited to projects in the natural, physical, biological, and technological sciences in the Colleges of Liberal Arts and Engineering.

Incidental Grants

Limited funds also are available in the Office of the Vice President for Research for small grants to faculty members to cover the costs of materials, supplies, equipment, proposal writing, and clerical and related assistance for specific research projects; for faculty members’ domestic travel related to specific research projects or for the purpose of acquiring skills, knowledge, or techniques that will enhance research at the University; and for honoraria and expenses of visiting lecturers.

Services

The Office of the Vice President for Research also provides support for several University-wide services required by faculty members engaged in research and creative activities. They include the following.

Central Research Facilities

To maintain state-of-the-art resources for key research activities within the University, selected facilities are identified for centrally supported development. Such facilities generally are available to interested graduate students and faculty and on a time-averaged fee-for-service basis to those outside the University community. Currently these facilities include the following.

Animal Care Unit

The staff of the Animal Care Unit is responsible for the purchase, maintenance, husbandry, and veterinary care of all animals used in research. In addition, the staff ensures that all work with animals is conducted in accordance with regulations of the U.S. Public Health Service and the U.S. Department of Agriculture.

Faculty members are encouraged to consult with animal care personnel when writing applications for grants, especially with regard to choice of animal models and numbers, completion of animal care and use review forms, aseptic surgery, special procedures, biohazards, questions concerning humane treatment, budgetary considerations, and the University’s policy on animal care. Training for investigators concerning proper husbandry and biohazards is available upon request.

All requests for animals must be initiated through the Animal Care Unit. All protocols involving animals, regardless of funding arrangements, must be approved by the University Animal Care and Use Committee before study is begun.

Image Analysis Facility

The Image Analysis Facility provides a unique combination of software, computer-based hardware, and technical expertise for those interested in computer visualization and imaging and molecular modeling. Several commercial, public, and facility-developed software packages are available, including applications in image processing, graphics modeling, voxel processing, three-dimensional animation, and molecular modeling.

Image processing applications include digital image acquisition, image enhancement, and image analysis. Images can be digitized from films, video signals, videotape, microscopic slides, electron micrographs, autoradiograms, gels, and photographs. Images that have been digitized elsewhere (including images from medical scanners) and stored on magnetic media can be transferred into the computer via a magnetic tape drive, a floppy disk drive, the internet, or a computer modem.
Once images have been stored on the computer, they can be processed on Silicon Graphics Iris workstations, Macintosh II computers, and IBM PCs. Three-dimensional visualization techniques, such as voxel processing and molecular modeling, can be performed on one of four Silicon Graphics workstations.

The facility has several molecular modeling programs, including TOM, SYBYL, NITRO, Gaussian 85, Ribbons, and MacMolecule. University courses and workshops are offered in molecular modeling.

Also available are 3-D surface modeling services, including model building, rendering, and training in 3-D modeling. Software development and consultation is available from the three full-time engineers. Training in techniques and production work also is available.

Electron Microscopy Facility
The Electron Microscopy Facility provides instrumentation and technical assistance to researchers involving the use of light microscopy, laser scanning confocal microscopy, scanning probe microscopy, scanning and transmission electron microscopy, and X-ray microanalysis.

Equipment includes the following: a Hitachi S-2700 scanning electron microscope equipped with a cryostage, backscattered electron detector, and a Kevex EDS system; a Hitachi S-4000 field emission scanning electron microscope equipped with a backscattered electron detector; Hitachi H-600 and H-7000 transmission electron microscopes equipped with STEM and a Kevex EDS system, a cryostage, electron diffraction, a lanthanum hexaboride electron source, and tilting and rotational holders; a Bio-Rad MRC-600 laser scanning confocal microscope equipped with a krypton/argon laser, dual detection system, optical disc storage, freeze-frame camera, color printer, and a heating/cooling stage; a Digital Instruments Nanoscope II scanning probe microscope equipped with a Nanoscope II scanning tunneling microscope and a 301 freeze-fracture apparatus; an Autotechnicon tissue processor; a Balzers 301 freeze-substitution system; four Reichert ultracut-E ultra-microtomes including an FC-4D cryo-sectioning apparatus; A O. paralin microtomes; an Oxford vibratome; a Reichert cryostat; LKB glass knife makers; diamond knives; a Leitz Diaplan light microscope equipped with brightfield, darkfield, phase, Nomarski DIC, epi-polarization, and epi-fluorescence microscopy, as well as 35mm, Polaroid, and video cameras; a Gatan ion mill; a Bio-Rad plasma ash, an Emetech carbon coater; a Hitachi vacuum evaporator; a Wescor osmeter; centrifuge; balances; ovens; and three photographic darkrooms equipped with automatic film and print processors.

The facility also provides all solutions, supplies, and training for investigations involving microtomy, including specialized staining and embedding techniques, negative staining, metal-coating, autoradiography, cryofixation and cryomicrotomy, enzyme-cytochemistry, immunocytochemistry, morphometry and stereology, the preparation of material science samples for both TEM and SEM, including X-ray microanalysis, and other procedures. A library containing texts and reviews on various applications of light, scanning probe, and transmission and scanning electron microscopy also is available.

The facility is intended to serve both experienced and novice investigators and to provide training for those who need it. Alternatively, all or parts of a project can be handled by the facility staff. The facility is available seven days a week, 24 hours a day, on a first-come, first-served basis. It is located in the Eckstein Medical Research Building.

High Field Nuclear Magnetic Resonance (NMR) Facility
Three superconducting spectrometers form the basis for the High Field NMR Facility. The Bruker WM-360 spectrometer operates at 360 MHz, and the Bruker MSL-300 operates at 300 MHz for proton observation. The Bruker Amx-600, operating at 600 MHz, represents the most advanced commercially available NMR spectrometer. Very high spectral resolution and sensitivity can be achieved for structural determination of complex molecules. All three instruments are fully multinuclear and have variable temperature capabilities. Virtually any multipulse two-dimensional experiment can be performed on the spectrometers.

Hard disk, floppy disk, or tape-drive systems provide for data storage. Off-line data processing is available on silicon graphics or DOS-based computers. Proton NMR spectra are recorded in 5mm tubes; carbon-13 and other heteronuclear spectra are recorded in 5mm, 10mm, or 20mm tubes. Carbon-13 observation is possible with a combination of proton and either fluorine or phosphorus decoupling. Solid samples can be examined in either the high power or magic-angle spinning modes on the Bruker MSL-300 spectrometer.

For the casual user, spectra are recorded by a technician, whereas hands-on use is encouraged for the frequent user after an appropriate training period. The facility is located in the northwest ground floor area of the Chemistry Building.

High Resolution Mass Spectrometry Facility
The High Resolution Mass Spectrometry Facility, located in the Chemistry Building, provides the capability for almost any experiment in modern mass spectrometry. Through the utilization of this facility, information about the molecular weight, elemental composition, and molecular structure of organic, bioorganic, and inorganic molecules can be obtained (to 600 amu). The most important of these experiments are gas chromatography-mass spectrometry, fast atom bombardment mass spectrometry, and high resolution mass measurement.

Gas chromatography-mass spectrometry (CC-MS) permits the analysis of all components of any complex mixture that can be separated by gas chromatography. This technique is especially useful in research projects that require the analysis of complex samples, such as environmental studies.

Fast atom bombardment mass spectrometry (FAB-MS) permits the analysis of very large, polar, and/or involatile compounds that cannot usually be studied by other mass spectrometric methods. FAB-MS is particularly useful for biologically important compounds such as polypeptides, nucleic acids, oligosaccharides, antibiotics, and toxins.

High resolution mass spectrometry provides extremely accurate mass measurements that permit assignment of probable elemental composition for any molecular ion or fragment. Analysis of molecular ions in this manner generally provides better accuracy and requires less sample than any other method of elemental analysis. This technique can be applied even if the sample is impure.

The facility houses three mass spectrometers. The primary instrument is a VG ZAB-HF high resolution mass spectrometer, which is interfaced to a Hewlett-Packard (HP) 5890A capillary GC and a DEC PDP 11/73 data system. The instrument is equipped with positive and negative ion analysis capabilities in the electron impact (EI), CC-MS, and FAB ionization modes. High resolution mass measurements can be made in all of these modes of operation.

The second, a VG TRIO-3 triple quadruple mass spectrometer interfaced to a Waters 600 MS high-performance liquid chromatography, an HP 5890A GC, and a DEC PDP 11/53 data system, permits LC-MS as well as EI, CC-MS, and FAB experiments. MS-MS techniques used for structure elucidation experiments can be applied in all modes. The third instrument, a VG TRIO-1 single quadruple mass spectrometer, is interfaced to an HP 5890A GC and an INTEL 80386/387 computer. The TRIO-1 is available for routine, low resolution EI and CC-MS experiments. The user-friendly nature of the TRIO-1 data system permits hands-on sample analysis after a brief training session.

Fermentation Facility
The Fermentation Facility, located at the Oakdale Research Park, makes possible the large-scale growth and recovery of such microorganisms as yeasts and bacteria.

The facility is suitable for 10-liter or 100-liter preparations of recombinant or pathogenic microorganisms.

With its sophisticated growth, monitoring, control, and harvesting systems, the facility is one of only four medium or large-scale fermenters in the United States that are able to grow methanogenic bacteria; and it is one of only five or six such facilities able to grow extremely thermophilic bacteria at 70-100 degrees C.

The facility’s director is available for consultation on medium composition, fermenter conditions, and growth strategies. Further services are provided in areas such as inoculum preparation, media preparation, fermentation, process initialization, inoculation (growth monitoring if required), and harvesting. Users can arrange for preliminary pilot studies, gas chromatography, and other relevant technical and scientific services.
Social Science Institute

The University of Iowa Social Science Institute (ISSI) is a research and teaching facility that supports the work of faculty and graduate students in a variety of departments on campus. Located in Schaeffer Hall, the institute provides the capability for conducting survey research using a state-of-the-art, computer-assisted telephone interviewing (CATI) system as well as large-scale mail surveys. The CATI hardware system includes a central server computer linked through a local area network to 12 interviewing stations. Features of the CATI software include automatic dialing, automatic execution of complex questionnaire skip patterns and logic branches, call attempt disposition monitoring, and on-line recording of numeric and verbatim responses in machine-readable form.

ISSI also provides training for graduate students interested in techniques of survey methodology. Its professional staff consults with faculty members and graduate students as well as clients outside the University.

The institute maintains an extensive Social Science Data Archive and acts as the on-campus representative of the U.S. Census Bureau State Data Center Program, with responsibility for maintaining and providing access to the decennial census data.

The University maintains membership in the Inter-University Consortium for Political and Social Research (ICPSR) through ISSI, enabling members of the University community to obtain a vast array of social science datasets for secondary analysis. The archive presently includes more than 2,000 datasets and continues to grow each year.

ISSI services are available to faculty, staff, and graduate students at the University, as well as to the broader state and regional community. In addition to providing access to census and ICPSR data, the institute handles consultation on individual aspects of survey work, such as questionnaire design, data collection, and data analysis. It also may conduct entire surveys, from design through presentation of a final report.

Statistical Consulting Center

The Statistical Consulting Center (SCC), located in MacLean Hall, helps design experiments and surveys, analyze data, and prepare grant proposals. The director of the center and advanced graduate students in the Department of Statistics and Actuarial Science provide professional statistical consulting to University faculty, staff, and students, as well as to the broader state and regional community.

Consulting services, either drop-in or by appointment, are available free of charge for graduate thesis projects and certain short-term research problems. More extensive consulting is offered on a cost-recovery basis.

Sponsored Programs

Located in Gilmore Hall, the Division of Sponsored Programs maintains information on federal and nonfederal sources of funding for study and research projects by faculty, staff, and graduate students. The division searches out potential support; helps faculty, staff, and students take advantage of funding opportunities; and matches proposed projects with potential funding agencies. Staff members specialize in major discipline areas.

The division maintains files on all federal agency programs, complete with proposal guidelines, application forms, regulatory information, and directories of agency staff. Division staff members are well-acquainted with the programs and requirements of the various agencies.

The division’s resource center, also located in Gilmore Hall, maintains extensive files on nonfederal agencies, private foundations, and corporations that support colleges and universities. Among the center’s many resources are general directories of available grants, fellowships, and scholarships, as well as directories aimed at special populations and interests; annual reports of private foundations; and files of information on nonfederal agencies and foundations, including application guidelines and forms, when available. The center maintains its own computerized database of information on more than 1,600 nonfederal programs of interest to the University community. Customized searches can be performed to determine potential funding sources for proposed programs.

The division’s staff keeps the University research community informed of new funding opportunities, and changes in program regulations, policies, and perspectives through:

- individual contact, either by telephone, mailings, or consultation;
- “Grant Bulletin,” published in fyi, the University’s faculty/staff newsletter;
- weekly bulletins from the Commerce Business Daily, which lists all government requests for proposals (RFPs) and requests for quotations (RFQs); the division also obtains copies of RFPs in response to special requests from individual researchers; and
- Research in Progress, a directory containing interest profiles of faculty and staff researchers; compiled for the purpose of matching opportunities and potential collaborators with researchers’ interests, the directory is used in both published and electronic formats.

Development of proposals, monitoring the progress of projects, and reporting results are important steps in the support process. While much of the responsibility is in the hands of faculty, staff, and students who originate proposals, the division helps make the process efficient and effective.

Sponsored programs staff members guide investigators through the development process and, upon request, help establish budgets, review proposal drafts, prepare technical information, and initiate and maintain contact with funding agencies.

The Division of Sponsored Programs is responsible for interpreting regulations that affect research activities. It has major responsibility for monitoring clearance documentation regarding the use of humans or animals in research. The staff’s understanding of relevant regulations helps assure full compliance with established rules.

Oakdale Research Campus

The Oakdale Research Campus is administered by the Office of the Vice President for Research. Its 500 acres of land and 12 major buildings are located within the corporate limits of Coralville, approximately seven miles northwest of the main University campus. The Oakdale campus is accessible by interstate and multilane divided highways. Approximately 1,000 researchers, students, patients, staff, tenants, conferees, and visitors use the campus daily.

During the past decade, the campus has evolved from a provider of patient care to a diversified complex devoted to research, development, and education. Most of its programs are affiliates of University colleges and major departments. Among these are the Chemical Dependency Center, Institute of Agricultural Medicine and Occupational Health, Iowa Geological Survey, CONDUIT, Labor Center, Physiology Research Laboratory, and Animal Care Research Facility.

New programs added in recent years include the Institute of Public Affairs, Iowa Center for the Book, Center for Health Effects of Environmental Contamination, Center for Advanced Drug Development, Biomedical Engineering Research, Iowa Drug Information Service, and Health Protection Office.

Also located on the research campus are the Oakdale Research Park, the Technology Innovation Center, The University of Iowa Research Foundation, the Center for Advanced Studies, and the University Hygienic Laboratory, all of which are described in this section of the Catalog.

Oakdale Research Park

The University of Iowa’s Oakdale Research Park offers businesses engaged in basic and developmental research, product development, and production linked to research and development the opportunity to establish a sustained working relationship with academic researchers.

The park, located on a 170-acre parcel of land on the Oakdale Research Campus, includes a multitenant building designed to meet the needs of growing companies emerging from the Technology Innovation Center, small- or medium-sized research and development firms, and research units of larger, established firms. The University Center for Biocatalysis and Bioprocessing, a magnet center for industrial biotechnology, is located in the Multi-Tenant Facility.

The University also leases land at the park to organizations that want to construct and occupy separate facilities. Sites of varying size and prominence are available to meet individual corporate needs. The headquarters building for
Computer Aided Design Software, Inc., is located at the park, and construction of the Neural Applications Corp. headquarters building is scheduled for completion by August 1994.

Technology Innovation Center

The University of Iowa Technology Innovation Center (TIC) offers a range of services and facilities designed to foster the development of new business ventures—particularly those that take advantage of Iowa's scientific and technological assets. Many of the services at the center are tailored to the needs of entrepreneurs just starting up. However, TIC gladly serves established companies eager to initiate new endeavors.

The strength of the center lies in its ability to couple the scientific and technical capabilities of the University with the expressed needs of the business community. Located on the University's Oakdale Research Campus, TIC provides congenial, cost-effective work space where collaborations between academic scientists and those in business can flourish. It offers ready access to the University's computing facilities, research equipment, and instruments, as well as access to a battery of counseling services on crucial issues such as management, marketing, and finance.

The University of Iowa Research Foundation

The University of Iowa Research Foundation (UIRF) believes that transferring intellectual property developed at The University of Iowa to the marketplace is an important means of fulfilling the institution's research and public service mission. To accomplish this mission, the UIRF works with University faculty, staff, and students who wish to disclose ideas, inventions, and discoveries that may be of benefit to the public.

Following disclosure, the UIRF helps these researchers obtain appropriate intellectual property protection (patents, trademarks, and so forth) and licenses for their inventions. The UIRF also maintains a summary of all technologies developed by University researchers that have been patented and are available for licensing and distributes this information to the business community.

Center for Advanced Studies

The Center for Advanced Studies, both a place and program, brings together scholars from a broad range of disciplines and institutions to generate interesting and powerful scholarship. Located on the Oakdale Research Campus, the center allows scholars-working independently, as small teams, or in large seminars-to reflect, write, and exchange ideas.

Appointments for scholars in all fields are available for summer sessions or fall or spring semesters. Many scholars are supported by major grants and fellowships or University of Iowa awards; others have teaching obligations but are on schedules that allow time for their center-based research. The center also has special interest in serving faculty of the two- and four-year colleges in the Iowa region.

The center sponsors several competitive grants programs. Scholars at the University and nationwide compete for Obermann Fellowships to participate in the Faculty Research Seminar, organized each year around an interdisciplinary theme. Interdisciplinary Research Grants support University of Iowa faculty members working on collaborative projects. Laura Spelman Rockefeller Child Research Seed Grants support studies leading to the well-being of children. Humanities Symposium Awards support interdisciplinary research conferences.

For faculty members seeking internal or external grants, the center helps in identifying collaborators and potential funding sources, and in preparing proposals. For those who have been awarded grants, the center provides offices, meeting rooms, and file and archival space. Center scholars are provided a private office, hard-drive computer and printer, links to the Weeg Computing Center, and many support services, including a library delivery service that locates and copies journal articles.

Center for Biocatalysis and Bioprocessing

The center’s primary aims are to foster biocatalysis and bioprocessing research and encourage intellectual interactions and communication between University of Iowa scientists and biotechnology industries. The center attracts industrial attention to the state of Iowa and provides highly educated personnel for biotechnology industries. It also provides strong input and leadership in strengthening and creating new interdisciplinary academic opportunities at the University.

Faculty scientists from six departments of four University colleges participate in the following general research areas: fundamental properties of biocatalyst, bioprocessing technology to isolate and purify materials prepared by biocatalysis, discovery of new biocatalyst, applications of biocatalyst (synthesis of chemicals, biosensing technology, development of bioactive agents), and bioremediation.

Graduate students interested in applying for admission to the Biocatalysis Training Program must apply to the graduate program in biochemistry, chemical and biochemical engineering, chemistry, civil and environmental engineering, medicinal and natural products chemistry, or microbiology; or they must contact the Center for Biocatalysis and Bioprocessing.

Center for Global and Regional Environmental Research

The Center for Global and Regional Environmental Research fosters interdisciplinary study of the physical, chemical, and biological processes that influence the earth’s changes and trends by bringing together the University’s special strengths in the health sciences, biogeochemical cycles, hydrologic and climate systems, and ecological systems and dynamics. The center’s primary goal is to evaluate the effects and interactions of global change on earth surface processes and people on both the global and regional scale, including Iowa’s midwestern agricultural setting. The causes of global change (climate forcing) and the feedback of effects on the regional and global scale are considered.

Center for Health Effects of Environmental Contamination

The Center for Health Effects of Environmental Contamination supports and conducts research to determine levels of environmental contamination that can be associated specifically with human health effects. The center assembles pertinent environmental data; uses health outcome data from the existing statewide cancer and birth defect recording systems; develops registries of persons known to be exposed to environmental hazards; performs epidemiologic studies; fosters relationships and ensures the exchange of information with other teaching institutions or laboratories in the state; and conducts public education programs. The center includes faculty from the Departments of Civil and Environmental Engineering, Pediatrics, and Preventive Medicine and Environmental Health.

Iowa Consortium for Substance Abuse Research and Evaluation

The Iowa Consortium for Substance Abuse Research and Evaluation is an association of institutions of higher education and departments of Iowa state government dedicated to conducting research and evaluation and disseminating knowledge among researchers, helping professionals, and public policy makers in the field of substance abuse. The University of Iowa serves as host institution for the consortium. Other members include the University of Northern Iowa Iowa State University, Drake University, the Iowa Departments of Public Health, Public Safety, Human Services, Education, and Corrections; and the Iowa Substance Abuse program Director’s Association.
Public Policy Center

The Public Policy Center conducts academically sound research on issues such as health care, transportation, environmental quality, and economic growth and development. It helps faculty from numerous disciplines secure funds for research on public interest topics, and it facilitates the dissemination of research results. The center also works with groups outside the University to discover, excavating, and preserving archaeological remains in Iowa Protection of ancient burial sites and human remains is one of its primary functions. The OSA conducts research, educational, and service activities throughout the state and provides consulting services for agencies, municipalities, and firms that need archaeological expertise. Its fieldwork emphasizes archaeological survey and evaluation of development areas, such as new highway corridors, to recover data from threatened sites. It also conducts field schools, teacher workshops, and cooperative research projects with other departments and agencies. Through OSA, University of Iowa students engage in a variety of laboratory study and fieldwork.

Weeg Computing Center

The Gerard P. Weeg Computing Center, located in the Lindquist Center, provides research and instructional computing facilities to all students, faculty, and staff. The center's computer systems capable of a wide variety of applications. These facilities are accessible through networked terminals and workstations distributed around the campus. The center's campus and external network connections provide University users with convenient access to national and international computing and information resources. On behalf of the University, Weeg maintains membership in the CICNET and BITNET networks. Weeg provides specialized computing support through several groups and centers.

Office of the State Archaeologist

The Office of the State Archaeologist (OSA) conducts archaeological work that leads to development, dissemination, and preservation of knowledge about Iowa’s prehistory and history. Under Iowa statute, OSA is responsible for discovering, excavating, and preserving archaeological remains in Iowa. The OSA conducts research, educational, and service activities throughout the state and provides consulting services for agencies, municipalities, and firms that need archaeological expertise. Its fieldwork emphasizes archaeological survey and evaluation of development areas, such as new highway corridors, to recover data from threatened sites. It also conducts field schools, teacher workshops, and cooperative research projects with other departments and agencies. Through OSA, University of Iowa students engage in a variety of laboratory study and fieldwork.

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Weeg provides specialized computing support through several groups and centers.

- The Distributed Services Group offers planning, consulting, installation, and management services for departmental networks. It also provides consulting and management services for campuswide network-based applications.

- The Personal Computing Support Center provides product demonstrations of microcomputer equipment, administers the Faculty/Staff and Student Microcomputer Purchase Programs, and provides hardware and software support to campus microcomputer users.

- CONDUIT publishes and supports faculty-developed technology applications for an international audience of middle-school through college-level students. Current activities focus on materials for English (such as Writer’s Helper, for composition) and foreign language (such as Dasher, for listening comprehension).

- The Instructional Software Development Group collaborates with University faculty members to formulate, design, construct, and implement development projects awarded through an annual grant competition. It also offers consulting to faculty who are creating or adapting instructional software.

- Second Look researches and develops tools and applications for instructional computing, emphasizing new technologies, such as pen-based computing and multimedia development. The Second Look staff offers an extensive series of short courses, individual consulting, and training seminars, and Second Look’s multimedia computing facilities are available to faculty, staff, and students for instructional use.

- The Customer Service Support Group provides warranty and post-warranty service for Weeg-supported personal computers and related peripheral equipment owned by University faculty, staff, students, and departments. Together with some University academic and service departments, Weeg jointly supports personal computers at several Instructional Technology Centers on campus. These are available for use by University students, faculty, and staff. The center also provides noncredit educational seminars and consultation on general computer use on an ongoing basis. Specialized consultation is provided for equipment and software selection, networking, database, multimedia applications, and instructional design applications.

Detailed information on computing facilities and services is available from the WCC Information Center in the Lindquist Center.

Evolutionary Ecology and Behavior

Chair: Stephen Hendrix

Professors: Richard C. Baker (Geology), Robert W. Cruden (Biological Sciences), Jeff T. Schabili (Biological Sciences), Holmes A. Semken (Geology), David Wiemer (Chemistry)

Associate professors: Russell L. Ciochon (Anthropology), Ann B. Budd (Geology), Stephen Hendrix (Biological Sciences), Diana Horton (Biological Sciences), George Malanson (Geography, James Gloor (Chemistry)

Programs and Facilities

The Department of Biological Sciences offers programs of study leading to the M.S. and Ph.D. degrees with specialization in ecology and evolutionary biology, emphasizing adaptation, population ecology, and community ecology. Particular strengths of the program are quantitative methods in ecology and evolutionary ecology, plant-animal interactions, population biology, and tropical biology. There is real and strong emphasis on balance between controlled experimentation and field observation. Laboratory research may include controlled breeding experiments in which heritability, behavioral, life history, or other traits are investigated. Field research emphasizes the adaptive significance of traits, interactions between species, and population and community dynamics.

Opportunities for field research are provided locally by the Macbride Nature Recreation Area just outside Iowa City, with lakes, temperate hardwood forests, and old fields. The Iowa Lakeside Laboratory on Lake Okoboji, with year-round laboratory facilities, housing, and a research vessel, provides the opportunity to study undisturbed prairie, marshland, and lake ecosystems.

Fieldwork by faculty and students also takes place worldwide. Recent studies have been conducted in East Africa, England, the Caribbean, Brazil, Mexico, Central America, the Great Smoky Mountains, the Mojave Desert, the American Rocky Mountains, and the Florida Keys. The Smithsonian Institution Laboratory on Barro Colorado Island in Panama and the Parque Nacional de Santa Rosa in Costa Rica are among sites used by staff and students.

The University of Iowa is a member of the Organization for Tropical Studies and regularly sends students to the Tropical Biology Course in Costa Rica. In addition, the University has a cooperative program with the University of the Andes in Merida, Venezuela.

Indoor facilities permit a wide range of studies, with varied equipment for observation and analysis, such as video-recorders, movie cameras, walk-in environment chambers, computer terminals, a GC-MS, and a PDP-12 computer. There is ample space for housing a variety of organisms, and a recently constructed 3,600-square-foot greenhouse provides room for research projects. The botany greenhouse contains a large collection of desert, jungle, aquatic, mesic, and economic flora. The botany herbarium contains more than 200,000 specimens. The Museum of Natural History, an institutional member of the American
Association of Systematic Collections, houses more than 900,000 natural science specimens, with birds and mammals particularly well represented among the vertebrates.

The atmosphere at Iowa is friendly and cooperative, and the approach multidisciplinary.

Students may design their graduate programs to take advantage of collaboration, consultation, course work, and cosponsorship opportunities with members of departments such as biological sciences, chemistry, computer science, geography, geology, mathematics, microbiology, physiology and biophysics, and statistics and actuarial science.

Students are encouraged to participate in departmental affairs and may hold positions of responsibility on faculty committees.

Financial Support

All graduate students are offered financial support. Teaching assistantships, research assistantships, tuition scholarships, and predoctoral training fellowships are available. The Bodine Fund assists student travel for study. Postdoctoral students may apply for the Postdoctoral Assistant-in-Instruction Program or the NSF fellowships for students in behavior, and may compete for seed grant money from the University. Computer funds are available for graduate students, postdoctoral researchers, and faculty members.

Iowa Quaternary Studies Group

Professors: Richard G. Baker (Geology), Lon D. Drake (Geology), Brian F. Glenister (Geology), Holmes A. Semken (Geology)

Associate professors: Ann B. Budd (Geology), Russell Cicchon (Anthropology), Diana G. Horton (Biological Sciences), George P. Malanson (Geography), Frank H. Weitzel (Geography), Mary Whelan (Anthropology)

Assistant professor: Luis A. Gonzalez (Geology)

Adjunct professors: William Green (Anthropology), George R. Hallberg (Geology)

Adjunct assistant professor: R. Sanders Rhodes (Geology)

Programs and Facilities

Students working towards master’s and doctoral degrees in the Departments of Anthropology, Biological Sciences, Geography, and Geology may develop programs emphasizing some aspect of Quaternary studies. Students with interests in Quaternary studies are encouraged to broaden their programs with courses in these collateral sciences as they progress toward a degree in their chosen fields.

Research by faculty and students includes paleoecological and paleoecological studies using pollen, vascular-plant macrofossils, bryophytes, mollusks, insects, vertebrates, and oxygen and carbon isotopes in cave stalagmites; studies of glacial geology, geomorphology, and stratigraphy; fluvial geomorphology, paleohydrology, and stratigraphy; soil stratigraphy and geomorphology; paleo-oceanography of reefs and shorelines; studies in wetland distribution, geography, and ecology; studies of hunter-gatherer societies and their environments; and studies of cultural development and its relation to environmental change.

Field areas have ranged from the arctic to the tropics, and from the Rocky Mountains across the Great Plains and Central Lowlands to the Caribbean.

Facilities available on campus include both trailer-mounted and hand-operated coring devices, laboratories for sedimentologic analyses, pollen preparation, vertebrate preparation, artifact preparation, X-ray equipment, optical microscopy, and scanning electron microscopy. Both microcomputers and the University’s Weeg Computing Center are accessible to graduate students and faculty.

The Museum of Natural History and individual departments have a number of important reference collections, including the Paleontological Repository (two million specimens including both vertebrates and invertebrates) and the Herbarium (over 200,000 specimens of vascular plants and about 45,000 specimens of bryophytes). The Office of the State Archeologist houses the State Archeological Repository, with over half a million specimens. Other specialized collections of more than 2,500 seeds and fruits and more than 1,600 pollen types are available in the geology department.

Departmental branches of the library have extensive holdings of books and journals in the biological sciences and geology departments, and the Office of the State Archeologist has a library as well.

Students may design programs that result in a degree from one of the cooperating departments but that involve considerable course work, research, and consultation with one or more other departments. A weekly seminar, Quaternary Studies, provides a forum for discussion of research topics.

Financial Support

Teaching and research assistantships are available on a competitive basis from each of the departments involved. Space and facilities are available for postdoctoral students. Some funding is available from individual departments for field expenses. Computer funds are available for graduate students, postdoctoral students, and faculty.

For further information, write directly to the Departments of Anthropology, Biological Sciences, Geography, Geology, or Statistics and Actuarial Science, or to the director of the Quaternary Studies Group.

Related Units

Although not directly connected with the Office of the Vice President for Research, these units have a special role in the conduct of research at the University. For further information on a particular unit, contact the appropriate college or department or the Office of the Vice President for Research. Some units are described briefly in the appropriate college sections of the Catalog.

Institutes

Dows Institute for Dental Research: College of Dentistry
Economic Research Institute: College of Business Administration
Financial Markets Institute: College of Business Administration
Industrial Relations Institute: College of Business Administration
Institute for Health, Behavior, and Environmental Policy: College of Medicine
Institute for Insurance Education and Research: College of Business Administration
Institute of Agricultural Medicine and Occupational Health: College of Medicine
Institute of Hydraulic Research: College of Engineering
Iowa Institute of Biomedical Engineering: College of Engineering
Ira B. McGladrey Institute of Accounting Research: College of Business Administration

Centers

Alzheimer’s Disease Research Center: College of Medicine
Asthma and Allergic Diseases Center: College of Medicine
Biostatistics Consulting Center: College of Medicine
Cancer Center: College of Medicine
Cardiovascular Research Center: College of Medicine
Center for Advanced Reproductive Care: College of Medicine
Center for Biocatalysis and Bioprocessing: College of Pharmacy
Center for Global and Regional Environmental Research: College of Engineering
Center for Health Effects of Environmental Contamination: College of Engineering
Center for Health Services Research: College of Medicine
Center for International and Comparative Studies: Graduate College
Center for International Rural and Environmental Health: Office of the Provost
Center for Laser Science and Engineering: Graduate College
Center for New Music: College of Liberal Arts
Center for the Study of Group Processes: College of Liberal Arts
Center for the Study of Recent History of the United States: University Libraries
Centers for Computer-Aided Design: College of Engineering
Interdisciplinary Programs

Nine interdisciplinary programs are represented in CICS. Five promote instruction and research with a geographical focus: the African Studies Program (ASP), the Global Studies Program (GSP), the South Asian Studies Program (SASP), the Latin American Studies Program (LASP), and the Russian, East European, and Eurasian Studies Program (REEES). These five also offer undergraduate instructional programs within the College of Liberal Arts. The remaining four programs pursue instructional and research activities along topical lines: the Program in Gender, Culture, and Politics (GCP), the International Health Program (IHP), the Project for International Communication Studies (PICS), and the Program for International Development (PID).

The African Studies Program (ASP): See the departmental section under “College of Liberal Arts” in the Catalog.

The Program in Gender, Culture and Politics (GCP) focuses on the theme of women and social movements, promoting research and study of gender issues in Third World nations. The program offers lectures, conferences, and seminars each year, supports curriculum development within the theme of women and social movements, and brings visiting scholars to the University to teach and conduct collaborative research in this area.

The Global Studies Program (GSP): See the departmental section under “College of Liberal Arts” in the Catalog.

The International Health Program (IHP) is an interdisciplinary program for students interested in pursuing a career in or related to international health and the environment. The program offers a two-year enrichment program designed for students in pre-health majors or in medical geography, medical anthropology, and medical history. Students are expected to fulfill all degree requirements of their own major and current plan of study. In addition, they are required to take five international health courses over the two year period. Through workshops and seminars, students have the opportunity to engage in dialogue with international health professionals. University-wide international internships are also available.

The Latin American Studies Program (LASP): See the departmental section under “College of Liberal Arts” in the Catalog.

The Project for International Communication Studies (PICS) concentrates on collecting and archiving international television materials and on developing courses and research projects that use these materials in foreign language and international studies. Created to promote use of authentic foreign video in teaching, PICS helps both students and faculty members improve their language skills. PICS provides videotapes and computer-controlled videodiscs for both structured classroom work and individual or personal use and publishes a variety of written materials to accompany them. It also sponsors lectures, teleconferences, workshops, and national and regional conferences.

The Program for International Development (PID) promotes instruction, research, teaching,
technical assistance, and communication support in Third World development. To this end, PID supports a diversity of activities. On-campus activities include lectures, symposia, and seminars involving development scholars, visiting faculty, policy makers, and development practitioners from all over the world. Off-campus activities include research projects, development consultancies, and technical assistance projects in the Middle East, Africa, Latin America, and the Caribbean. Through the Graduate College, the program offers a master’s degree in Third World development support. Designed for students planning to pursue or already pursuing careers in the formulation and implementation of development strategies, the degree program is one of the few in the United States that offers a social science education combined with training in development support.

The Russian, East European and Eurasian Studies Program (REEES): See the departmental section under “College of Liberal Arts” in the Catalog.

The South Asian Studies Program (SASP) brings together University specialists on South Asia and is dedicated to enhancing instruction and research and the dissemination of knowledge about India, Pakistan, Bangladesh, Afghanistan, Nepal, and Sri Lanka. SASP sponsors public lectures, conferences, seminars, colloquia, films, distinguished scholars, and in conjunction with a community-based performing arts circle, cultural events by dancers, musicians, and artists from South Asia. The program promotes interdisciplinary studies and research, builds on the language curriculum in Hindi and Sanskrit, and is involved with two interdisciplinary degrees offered by the Department of Asian Languages and Literature—a bachelor’s degree in Asian studies and a master’s degree in Asian civilizations. SASP faculty participate in teaching the Contemporary Asian News Colloquium and offer a graduate research seminar each academic year.

Affiliated Programs

The center also houses or works closely with five affiliated programs: the Artists, Artisans, and Traditional Technologists in Development Project, the Center for Asian and Pacific Studies, the Center for International Rural and Environmental Health, the International and Comparative Liberal Arts Program, and the Project for Advanced Study of Art and Life in Africa.

International Research

The center supports faculty research and curriculum development, awards graduate fellowships for the study of foreign languages, and awards undergraduate scholarships for international research and fieldwork abroad. It supports research projects in Africa, Asia, Europe, Latin America, countries of the former Soviet Union, the Middle East, and the United States as well as faculty and staff exchanges, technical assistance, development consultancies, and internships. In conjunction with The University of Iowa Libraries, CICS publishes faculty research in the Iowa International Papers and the Iowa International Bibliographic Guides. A number of visiting foreign scholars and research fellows are invited to spend from one month to a year in residence at the center annually. They offer workshops, seminars, and lectures as well as working on their own research.

Instructional Programs

The center supports instruction through courses, seminars, news colloquia, and curriculum development grants. In conjunction with academic units, it also offers certificates in African studies, global studies, and Latin American studies to undergraduates and minors in global studies and Latin American studies; bachelor’s degrees in African studies, global studies, and Russian, East European, and Eurasian studies; and a master’s degree in Third World development support.

Public Programs and Outreach

More than 100 public lectures, seminars, symposia, workshops, and conferences are sponsored by the center and its constituent programs each year. All public programs are free and open to the University community and the public. CICS also works with the Iowa City Foreign Relations Council, the State Board of Education, and Iowa businesses in providing speakers, teacher training workshops, executive training conferences, and other outreach resources.

Institute for Cinema and Culture

The Institute for Cinema and Culture draws on the University’s strong tradition of film studies to coordinate existing resources on campus and to initiate new ventures. It serves as an information bank concerning availability of films and film materials for faculty and students, and provides assistance to departments, faculty members, and student groups that bring to campus films and speakers who attract an interdisciplinary audience.

Each semester the institute sponsors a symposium and a related film series that focus alternatively on topics of general theoretical interest or those addressing a specific culture and moment. The Proseminar in Cinema and Culture (368B: 176 or 48:176) gives undergraduates and graduate students the opportunity to prepare for the symposia through weekly readings and screenings.

The institute also publishes the bilingual journal Iris.

Iowa Lakeside Laboratory

The Iowa Lakeside Laboratory, a biological field station on West Okoboji Lake, in northwest Iowa is the site of a cooperative program in teaching and research carried out under the auspices of Iowa State University, the University of Northern Iowa and The University of Iowa. Courses are offered in two five-week terms during June, July, and August. Facilities for year-round research are available. (See Iowa Lakeside Laboratory” in the College of Liberal Arts section of the Catalog.)

Project on Rhetoric of Inquiry

Project codirectors: Donald N. McCloskey, John S. Nelson

The Project on Rhetoric of Inquiry (POROI) involves faculty and students from across the campus in studies of rhetoric throughout scholarship and culture. POROI regards rhetoric in its ancient sense, as the whole art of argument. Its purpose is to improve persuasion in the arts, humanities, sciences, and professions.

POROI’S executive committee coordinates the project initiatives, working with faculty in University of Iowa colleges. In addition, an international board of distinguished scholars advises the committee about its programs, which include the Faculty Rhetoric Seminar, conferences and symposia, and publications.

The biweekly Rhetoric Seminar was founded in 1980 by a small group of Iowa faculty. The group grew to include some 100 colleagues, who participate in a year-round interdisciplinary seminar and other seminars on topics ranging from English to engineering. Before each seminar, POROI distributes discussion papers to faculty from many University of Iowa departments and from other colleges in Iowa.

POROI directs two book series, from the University of Wisconsin Press and the University of Chicago Press. The project also sponsors lectures and research projects by local and visiting faculty. Iowa faculty associated with POROI’s various programs teach both undergraduate and graduate courses inspired by rhetoric of inquiry.
The University's Main Library and its 11 departmental libraries, plus the Law Library, contain more than 7 million volumes. Departmental library holdings are: art, 76,530; biological sciences, 40,410; business administration, 26,920; chemistry-botany, 48,130; and psychology, 57,920. The Hardin Library for the Health Sciences contains 249,940 volumes, and the Law Library contains 728,000. (The Law Library is independent of University Libraries and is administered by the College of Law. See the College of Law section of the Catalog.)

The libraries at The University of Iowa make up the largest library system in Iowa. Among 108 university research libraries in the United States and Canada, the system ranks 27 in number of volumes held and 35 in expenditures for library materials.

The Main Library, its 11 departmental libraries, and the Law Library occupy more than 11 acres of space, provide seating for more than 7,000 users, and have more than 70 miles of shelving for collections.

Recent statistics show that each year, more than 1.8 million library materials are used. Library staff members answer nearly 389,000 questions and help nearly 2.4 million patrons.

University Libraries has developed a comprehensive user education program to provide information on its resources and services and instruction in their use. In 1992-93, more than 7,000 people participated in programs such as subject-based faculty/graduate seminars, course-related instruction, OASIS training, and reference咨询服务. Special programs included workshops for international students, programs for debaters in the Iowa National Summer Institute in Forensics, and programs on library use for student athletes. The Hardin Library for the Health Sciences provides MEDLINE training for individuals who want to do their own computer searches.

In addition to its holdings of bound volumes and access to numerous electronic databases, the libraries provide some 4 million microforms (microfilm, microcards, and microprint and microfiche sheets) as well as various other formats, including maps, video recordings, and sound recordings. The libraries also provide information resources in compact disc format and CD-ROM computerized indexes. Students and faculty can do computer searches on a wide variety of topics. Customized on-line database searching is available by appointment.

The Special Collections Department of the Main Library holds 85,000 rare books, 480 historical manuscript collections, and 10,000 cataloged manuscript letters and individual manuscripts. This department also manages the University Archives. The materials within the Special Collections Department cover a wide range of subjects, including works on the culinary arts, a major collection of Lincoln material, a rare collection of the history of hydraulics, and a large collection of railroadiana.

The Iowa Women’s Archives, located at the south end of the third floor, Main Library, collects, organizes, describes, and preserves personal papers, manuscripts of and about women of all walks of life, and organizational records pertaining to Iowa women. The archives also serve as a resource to stimulate and nourish creative teaching and learning through its collections and outreach programs.

The new Information Arcade facilitates integration of new information technologies into learning and research by providing students, staff, and faculty with a variety of resources for learning advanced information skills and for acquiring information in various formats. The arcade provides access to a wide range of electronic source materials, with an emphasis on textual and multimedia databases; to OASIS and to other online catalogs and information sources on the Internet; and to equipment and software to support independent learning, classroom instruction, and research.

Information Arcade facilities include information stations (Mac, IBM, and NeXT) primarily for research and independent learning; multimedia stations, including Mac and IBM computers, laser disk players, CD-ROM players, videotape players, read-write optical drives, Syquest disk drives, and scanners; a course preparation lab, which provides University faculty and staff with resources for research as well as for development of teaching materials, software, and multimedia presentations; and a classroom with two instructor stations (Mac and IBM) and 24 student stations (Mac). The classroom is fully networked, allowing the instructor and students to interact and work cooperatively on projects.

The Hardin Library for the Health Sciences houses a special collection of rare and classic medical works in the John Martin Rare Book Room, named after the principal donor of some 2,500 volumes in the collection. Martin, a retired neurosurgeon from Clarinda, Iowa continues to add to this world-famous collection.

The University Libraries and the Law Library are implementing OASIS (Online Access System for Information Sources), an automated on-line catalog that contains more than 1 million records representing more than 70 percent of the cataloged collections of the libraries. OASIS greatly enhances teaching and research. When the system is fully implemented, faculty and students will have a sophisticated tool for accessing information on library materials. From one database, the library user will be able to determine whether an item has been ordered, if it is awaiting cataloging, or whether it is in circulation, on reserve, or otherwise unavailable for checkout. The University telecommunications network makes much of this information available from terminals in the libraries and from laboratories, offices, dormitories, and homes.

Traditionally, the strength of a library system has been based primarily on the number of volumes it held. Because of the substantial, seemingly geometric growth in recorded information, and because of dwindling resources available to acquire this information, it is expected that an increasingly important measure of library effectiveness will be the staff’s ability to identify ownership of material not held locally and to borrow that material in a timely fashion.

The University of Iowa Libraries is a member of several consortiums: the Research Libraries Group; the Iowa Computer-Assisted Network; the National Library of Medicine’s Regional Medical Library Network; and a resource-sharing network for the CIC institutions (the Big Ten and the University of Chicago). Through these organizations, and especially through the Research Libraries Group, faculty and students at Iowa have gained greatly increased access to materials held at other institutions.
patients from the community, state, and region. The University of Iowa Health Sciences Center thus is simultaneously a center of learning and of service, especially to rural areas of Iowa. It is one of the most advanced, comprehensive health sciences centers in the United States.

It shares many skills off campus through cooperative programs with other Iowa colleges and community colleges and through a variety of continuing education programs for health practitioners—many of whom also come to the Iowa campus to update their knowledge through conferences, clinics, and refresher courses.

Programs, faculties, and courses of the Colleges of Dentistry, Medicine, Nursing, and Pharmacy are described in other sections of the Catalog. Other health sciences center units and related programs are described below.

The University of Iowa Hospitals and Clinics

Director: R. Edward Howell
Associate director: John H. Staley
Senior assistant directors: William W. Hesson, Amy B. O’Deen, William D. Stoddard
Assistant directors: Alan J. Burgener, Brandt Echternacht, Jeanne M. Coche

Administrative associates: Kenneth A. Marx, Christine R. Menke

Director, financial management and control: Kenneth H. Yerington
Director, public information: Eldean A. Borg

Clinical service heads: Anesthesia John H. Tinker; Dentistry, Daniel Lew; Dermatology, John S. Strauss; Family Practice, Charles E. Driscoll; Internal Medicine, Francois Abboud; Neurology, Antonio R. Damasio; Obstetrics and Gynecology, Jennifer Niebyl; Ophthalmology, Thomas A. Weinges; Orthopaedics, Reginald Cooper; Otolaryngology and Maxillofacial Surgery, Bruce Gantz (interim); Pathology, Kent Bottles (interim); Pediatrics, Frank H. Morris; Physical Therapy, Robert Robinson; Radiology, Wilbur L. Smith (interim); Surgery, Robert T. Soper; Urology, Richard D. Williams

The University of Iowa Hospitals and Clinics is among the largest university-owned teaching hospitals in the nation. It provides the clinical base of graduate and undergraduate studies for approximately 2,400 students in 35 disciplines, including medicine, dentistry, nursing, pharmacy, hospital administration, physical therapy, vocational training, pastoral studies, and social work.

University Hospitals and Clinics sponsors residency programs in which nearly 700 physicians, dentists, and pharmacists gain advanced clinical knowledge and skills in the health care specialties they have chosen to pursue.

The 891 beds in the hospital complex accommodate some 34,000 admissions annually, and 234 specialty clinics accommodate another 466,500 ambulatory patients. More than 15,000 major surgical procedures are performed annually in the hospitals’ 21 major operating rooms, and approximately 1,600 infants are born at University hospitals each year.

Highly specialized health services—for example, burn care, cardiac care, neonatal intensive care, and advanced technology for diagnosis and treatment—are easily accessible to Iowans who reside in communities without such resources. The hospitals’ transportation fleet of 14 vehicles travels more than one million passenger-miles each year, transporting approximately 10,000 Iowans. The Air Care emergency helicopter service carries specially trained medical and nursing teams to aid the most critically ill and injured and to transport them to the hospital for treatment. Many Iowans owe their lives to this service alone.

About 7,400 hospital staff members provide professional and support services needed to care for approximately 2,200 patients each day. The hospitals’ clinical staff includes 560 faculty physicians and dentists, and the house staff numbers 684 resident and fellow physicians and dentists. The hospital’s Department of Nursing is staffed by more than 1,550 professional nurses.

Other hospital staff members annually provide more than 203,000 X-ray examinations and treatments, conduct nearly 0.7 million laboratory tests, fill more than 2.7 million prescription orders, provide more than 113,000 physical therapy procedures, and prepare more than 33,407 blood and component transfusions.

Recent modernization provided new intensive care, cardiology, cornea center, and urology units. The seven-story Boyd Tower addition went into service in 1976, providing expanded and replacement facilities for a variety of inpatient and outpatient services. The Roy J. Carver Pavilion, named in recognition of a gift from the late Muscatine industrialist, provides facilities for a multispeciality trauma and emergency treatment center; physical therapy department; orthopedic, urology, and neurology inpatient units, clinics, and faculty offices; surgery and internal medicine inpatient units; cardiology and psychiatry clinics; and laboratories of the Department of Pathology.

The John W. Colloton Pavilion, opened in 1982, consolidates services of the Department of Pediatrics in the Iowa Children’s Health Care Center and provides faculty offices for the Department of Surgery. The Colloton Pavilion also houses a burn center, digestive diseases center, cardiac care center, and ambulatory surgery center. In 1989, a Patient and Visitor Activities Center, including a library, medical museum, and lounge accommodations, began services. Another phase of the Colloton Pavilion provided new surgical suites in 1992.

The John Pappajohn Pavilion provides adult and child psychiatric care accommodations as well as a sports medicine clinic, a spine diagnostic and treatment center, and a hand service. The John and Mary Pappajohn Clinical Cancer Center provides ambulatory patient clinics and inpatient accommodations for some 275 cancer patients daily.

The Pomerantz Family Pavilion, now under construction, will house a family care center to provide primary care for patients as well as training and clinical research opportunities for physicians and other health professionals in family practice, internal medicine, pediatrics, and other specialties. The pavilion also will provide modern replacement facilities for an eye institute; ear-nose-throat and dental institutes; the Iowa Women’s Health Center; and a geriatrics clinic.

Clinical departments of University Hospitals and Clinics collaborate in conducting accredited health professional education programs in dietetics, radiologic technology, medical technology, nuclear medicine technology, hospital pharmacy, physical therapy, physician’s assistantship, and cytotechnology. University Hospitals and Clinics also provides supervised clinical settings for Kirkwood Community College programs in nursing education, orthopedic physician’s assistant, operating room technology, and respiratory therapy.

Of the programs cited above, those conducted through collaboration of the hospitals and the Colleges of Medicine and Nursing are described in the appropriate college sections of the Catalog. The following courses are conducted exclusively by University Hospitals and Clinics staff.

University of Iowa Health Sciences Center
audiology offered by The University of Iowa Hospitals and Clinics (Division of Developmental Disabilities, Department of Pediatrics, Child Health Specialty Clinics, Department of Psychiatry-Child Psychiatry Service, Department of Otolaryngology-Head and Neck Surgery, Department of Neurology), the Veterans Affairs Medical Center in Iowa City; and the Department of Speech Pathology and Audiology.

**Dental Health Bureau**

The Oakdale office of the Dental Health Bureau is a branch of the Dental Health Bureau of the Iowa Department of Public Health. The bureau’s primary purpose is to promote the dental health of Iowans through planning, organizing, and providing support services. The bureau provides dental health education and preventive programs to children in schools and other settings. It conducts TEAM dental programs at Iowa elementary schools with the assistance of University of Iowa senior dental hygiene students, who work under the supervision of public health dental hygienists from the bureau. These programs include instruction in oral hygiene, good dental health practices, a fluoride rinse program, and nutrition as related to dental health.

The bureau also provides technical assistance and consultation to local agencies, which contract with the Iowa Department of Public Health to provide primary and preventive health care to mothers and children. The bureau makes dental cards available for schools and dental offices. The Iowa Department of Public Health provides personnel, salaries, equipment, and supplies for the bureau; the University provides office space.

**Dental Service**

The College of Dentistry Dental Clinics provide comprehensive dental care to anyone interested in receiving dental treatment. Patients may choose to be treated by students, graduate students, or private dentists. Because the student clinics are teaching clinics, dental procedures take longer and may require more visits to complete. However, treatment by students is provided on a reduced-fee basis.

The Dental Clinics operate on a fee-for-service basis payable at each visit by cash, check or credit card. Appointments or additional information may be requested through the clinics.

**Health Occupations Education**

The Program in Health Occupations Education collaborates with the State Department of Education to provide technical assistance, development of curricula, instructional materials and competency tests for continuing education, and short-term preparatory health occupations programs in Iowa’s 15 area community colleges and in public secondary schools. In addition, its staff members provide in-service programs and courses for development of community college and secondary teachers. They also serve as undergraduate advisers to students majoring in health occupations education.

**Hardin Library for the Health Sciences**

The Hardin Library for the Health Sciences serves the combined information and research needs of the Colleges of Dentistry, Medicine, Nursing, and Pharmacy; the Graduate Program in Hospital and Health Administration; and the Department of Speech Pathology and Audiology. The largest of the departmental libraries in the University library system, the Hardin library contains more than 285,000 volumes and receives more than 2,600 periodicals. In addition to providing ample space for these collections, the interior allows for enough reading and study space to accommodate approximately 1,100 students. Special features of the library include Healthnet, which provides computerized access to the latest health sciences literature, including citations from MEDLINE and other databases. Healthnet can be reached via workstations in the Hardin Library and from other computers equipped with modems or connected to the campus-wide electronic network. The Hardin Library also has a large collection of journals and books ranging from electronic journals to rare books in the John Martin Rare Book Room.

Users can contact the Hardin Library using electronic mail if they have reference questions or would like to order a copy of a journal article. As part of The University of Iowa’s library system, the Hardin Library uses the OASIS automated cataloging system. All materials acquired since 1980 are cataloged in OASIS, as are all current periodicals, a large number of government publications, and many older items. Several computerized indexes to journals in other sciences, the humanities, and social sciences also are on OASIS.

**Oakdale Research Campus**

The Oakdale Research Campus and adjacent Oakdale Research Park are located in Coralville, about ten minutes from the main University campus in Iowa City.

Among more than 20 health-related programs based on the Oakdale Research Campus are the Center for Advanced Drug Development, the University Hygienic Laboratory, the Institute of Agricultural Medicine and Occupational Health, and the Chemical Dependency Center.

Others include the dental research clinic, Animal Care Research Facility, biology laboratories, Iowa COMPASS, Iowa Drug Information Service, Pediatrics Bone Healing Laboratory, the Center for the Health Effects of Environmental Contamination, the Institute of Health Behavior and Environmental Policy, University Hospitals’ Air Care emergency helicopter service hanger and landing pad, and other College of Medicine research units.

Five health-related companies are tenants at the University’s Technology Innovation Center on the principle of the Oakdale Research Park.

The University of Iowa Research Foundation, which manages patents and licenses involving UI intellectual property, is on the Oakdale Research Campus.

The Oakdale Research Campus is administered by the Office of the Vice President for Research. For more information, see “Research and Interdisciplinary Activities” in this section of the Catalog.

**Ronald McDonald House**

In July 1985, a 21-bedroom Ronald McDonald House was opened to provide living quarters for families of seriously ill children who receive medical treatment at The University of Iowa Hospitals and Clinics. Many of these children and their families must travel long distances from their homes. To help make these families’ time here easier, a group of parents, volunteers, University Hospitals staff members, and McDonald’s restaurant owners established the Children’s Family Living Foundation, a not-for-profit corporation. The corporation helped plan and raise funds for the house, and leases from the University the wooded land on which the house was built. Since the Ronald McDonald House opened, more than 14,000 adults and children from 6,400 families have stayed at this home away from home.

**University (State) Hygienic Laboratory**

One of the University’s statewide health services, the University Hygienic Laboratory directs much of its effort to environmental analyses and concerns. As the state of Iowa’s environmental and public health laboratory, it offers diagnostic, surveillance, analytic, training, and consulting services in bacteriology, immunology, parasitology, industrial hygiene, serology, virology, molecular biology, toxicology, mycology, inorganic/organic chemistry, and radiation chemistry. It provides complete laboratory program support to the State Department of Health, the Bureau of Labor, and the Department of Natural Resources.

The laboratory provides a wide variety of environmental services related to water, wastewater, hazardous waste, and air quality monitoring and analyses; pesticide and herbicide analyses; and mineral and metal analyses. It also monitors the physical and chemical conditions of Iowa’s rivers, streams, and lakes.

The laboratory serves as Iowa’s primary laboratory for drinking water analyses and is one of few laboratories in the nation that meet specific criteria to perform analyses for hazardous waste sites under the USEPA Superfund Program. It is an accredited industrial hygiene laboratory and holds an interstate license permitting acceptance of human specimens for blood lead screening, screening for newborn metabolic errors, and for the AIDS virus (HIV).
Within The University of Iowa the, university Hygienic Laboratory provides instruction and training in diagnostic microbiology and virology as part of regular academic courses, as well as in environmental engineering studies. In addition, the laboratory provides classroom and individual bench training to University students and to laboratory and medical personnel interested in learning specific laboratory procedures. Laboratory staff members also are available to University faculty, health care staff, and students for technical consultation.

**Specialized Child Health Services**

The Iowa Specialized Child Health Services is an organization that administers several statewide health services for children. Among these are the Genetic Consultation Service, Coronary Disease Prevention Program, Cystic Fibrosis Program, Childhood Cancer Diagnostic and Treatment Program, Rural Comprehensive Care Program for Hemophilia Patients, Statewide Perinatal Care Program, Iowa Newborn Screening Program, and a program of Mobile and Regional Child Health Specialty Clinics.

At Mobile and Regional Child Health Specialty Clinics (CHSC) conducted in communities throughout the state, Iowa residents are provided with diagnosis and evaluation services in pediatrics, orthopedics, otolaryngology, speech pathology, audiology, physical therapy, nutrition, and clinical and educational psychology. CHSC also provides monitoring and follow-up services on special health problems related to special health care needs such as juvenile rheumatoid arthritis, muscular dystrophy, phenylketonuria, and hemophilia.

**University Hospital School**

As Iowa’s University-affiliated program for children and young adults with developmental disabilities, the University Hospital School offers clinical services under the auspices of the Division of Developmental Disabilities within the Department of Pediatrics. Its services are a component of the tertiary-level health services of The University of Iowa Hospitals and Clinics. Interdisciplinary staff in the professions of medicine, dentistry, education, nursing, nutrition, physical and occupational therapy, rehabilitation engineering, recreational therapy, psychology, social work, speech pathology and audiology, work with patients.

Outpatient services provide comprehensive evaluations of the disabilities of infants, children, and young adults. Programs to enhance function and quality of life are recommended in consultation with the patients, when appropriate, their family members, and community service providers. Continuity with local service is given high priority. Special clinics include the Child Development Clinic, Meningomyelocele Clinic, Metabolic Disorders Management Clinic, Infant and Young Child Clinic, and Child and Young Adult Clinic.

Short-term admissions to an inpatient unit may be arranged for relatively specific goals that can best be accomplished on an inpatient basis. The staff coordinates educational and community services for children and young adults.

The Iowa University Affiliated Program cooperates with a variety of state, regional, and local agencies to promote services for persons with disabilities, provide technical assistance, and disseminate information. It also offers a variety of educational and training activities for students, for community service providers, and for others. These activities include didactic courses, lectures, workshops, practicums, and seminars. They may take place at the University or in community settings.

Laboratories of the divisions of genetics and biochemistry, Department of Pediatrics, and the clinical site of the Department of Pediatric Dentistry are housed at the University Hospital School.

**Wendell Johnson Speech and Hearing Clinic**

Located in the Wendell Johnson Speech and Hearing Center, the clinic provides evaluations and consultation for individuals with speech, language, or hearing problems; habilitation or rehabilitation programs for persons who can come to the clinic for such service; a summer residential program for children with speech, language, hearing, and reading problems; and clinical practicum training for students in speech-language pathology and audiology. Any University of Iowa student may receive services without charge. Products (e.g., hearing aid supplies and accessories), devices (e.g., hearing aids), and hearing aid repair services are provided to University of Iowa students at cost plus handling expenses. Services include diagnostic examinations, consultations, individual and small-group sessions, hearing aid services, and referrals to other clinics as needed.

**Veterans Affairs Medical Center**

Medical students, residents, and others in health-related fields receive much of their clinical training in this 269-bed facility, which serves as a tertiary referral center for the Veterans Affairs medical centers at Knoxville and Des Moines, the VA outpatient clinics in Bettendorf, Iowa, and Quincy, Illinois, and the 230,130 veterans residing in its primary service area of eastern Iowa and western Illinois. A full range of inpatient medical, surgical, necrologic, and psychiatric care is provided. More than 25 outpatient primary and specialized services are provided, with some 6,000 admissions and 80,000 outpatient visits made to the center annually.

The Veterans Affairs medical center, formally affiliated with the University’s four health science colleges, offers unique training opportunities in clinical pharmacology, gastroenterology, cardiology, nephrology, oncology, and applied immunology. Modernization and construction of a new ambulatory care clinic has resulted in the latest facilities for radiology, nuclear medicine, clinical laboratory, and outpatient clinics.

Research also plays a major role at the medical center. Major research areas include the Diabetes and Endocrinology Research Center (DERC), Infectious Disease Laboratories, and Cardiovascular Laboratories. It ranks among the top three nationally in VA research funding.

**The Iowa Center for the Arts**

Located along the west bank of the Iowa River on The University of Iowa campus, the Iowa Center for the Arts is a major cultural resource not only for the University community but for the people of the state and the nation. The center, which celebrated its 50th anniversary in 1985-86, realizes a University dream of many generations: to bring the arts together in a single campus setting, near the geographical heart of the University.

The arts center facilities include many of the academic arts units in the College of Liberal Arts, together with performance and exhibit spaces in the Theatre Building, Music Building, School of Art and Art History, the Museum of Art, and Hancher Auditorium, the center’s largest performing arts showcase.

In addition to activities housed in these facilities, various educational programs in other parts of the campus reflect the University’s strong commitment to artistic creativity.

Financial support from many sources, both public and private, is reflected in the physical structures and the educational and cultural offerings of the Iowa Center for the Arts. In addition to resources from the state of Iowa and the federal government, private contributions from growing numbers of corporate and individual patrons play an important role in the quality and diversity of the center’s services to University students and to the people of Iowa and the surrounding region.

**School of Art and Art History**

The University of Iowa School of Art and Art History has been a pioneering force for art in America for more than half a century. The original Art Building dates from 1936. Major additions were made in 1968-69, greatly extending space for the Art Library, classrooms, and studios, and providing a new wing for ceramics, metalsmithing, and sculpture.

A small gallery within the building, used primarily for the display of works by students and visiting artists, is named for artist Eve Drewelowo, who in 1924 became the first recipient of the Master of Arts degree in studio art at The University of Iowa

The school’s Corroboree Gallery, multimedia studios, and video art studio are located in the International Center. New and experimental works are presented through exhibitions, lectures, live cablecasts, and performances that emphasize new concepts and directions in contemporary arts. Visiting artists and critics bring a wide range of ideas to students and visitors.
Established in 1982, Alternative Traditions in the Contemporary Arts is both a collection and a research program. Composed of art objects, performance relics, and artists’ books and papers, the collection provides students, faculty and visitors with hands-on access to pivotal works from the post-World War II period. It has generated topical workshops, exhibitions, interdisciplinary symposia, and publications.

The Fine Arts Dada Archive and Research Center was established in 1979 and has since attained national and international visibility through its publication program, symposia, and cross-disciplinary collaborative research activities. The project also houses one of the country’s most extensive photodocumentary archives of avant-garde visual works of the World War I era.

**Museum of Art**

As one of the two largest art museums in Iowa and the major art institution supported by the state, the University of Iowa Museum of Art (UIMA) recognizes its responsibility to serve a varied statewide audience. Although its primary constituency is the University community, especially students and their families, the museum’s reputation and growing permanent collection attract a national and international audience as well.

The UIMA collection of more than 9,000 objects has three notable strengths: late nineteenth and twentieth-century European and American painting, works on paper, and African art. Paintings number some 550, including Pollock’s *Mural*, Beckmann’s *Karmel*, and Miro’s *1939 A Tree of Dew Falling from the Wings of a Bird*. The museum’s 4,000 prints include impressions by Whistler, Cassatt, Rembrandt, Manet, Toulouse-Lautrec, and Goya; its collection of drawings represents artists from Boucher to Rothko.

The Stanley Collection, which features more than 800 examples of art from west, central, and east Africa, represents the entire sub-Saharan continent. A gift of the late Betty and Max Stanley of Muscatine, it is one of the most prized collections of the museum.

In the early 1960s, Owen and Leone Elliott of Cedar Rapids offered to the University their extensive collection of nineteenth- and twentieth-century paintings, prints, antique silver, and rare jade on the condition that a museum could be built to house it, along with the University’s existing and future acquisitions of art.

In response to this challenge, more than 2,000 individuals and business firms contributed funds for the museum’s construction cost. The museum opened in 1969 and quickly earned recognition as one of the nation’s finest university art museums. A gift from the late industrialist Roy Carver of Muscatine made possible the construction of a major addition opened in 1976.

The museum’s permanent collection also includes sculpture, European and American silver, American contemporary ceramics, nineteenth- and twentieth-century photographs, and Oceanic, Pre-Columbian, and Native American art. The museum presents an average of 22 special exhibitions per year as well as continuous rotation of the permanent collection. At any one time, the galleries provide a variety of exhibition and educational experiences for visitors of all ages offering presentations that range from the scholarly and esoteric to the popular.

Museum special events include slide-lectures by visiting artists, scholars, and collectors; “Music in the Museum,” a Sunday afternoon concert series; and “Perspectives,” a weekly program of lectures, discussions, and demonstrations. Museum docents lead groups on guided tours of the museum’s exhibitions, and catalogs of many exhibitions are available for purchase. Friends of the Museum of Art, a private support group, sponsors receptions, and exhibition openings and participates in active print, drawing, and ethnographic study clubs.

**Iowa’s University Theatres**

Iowa’s University Theatres is the production area of the Department of Theatre Arts, a pioneer in the study of all aspects of theatrical production. Emphasis is placed on the development and production of new and experimental works. The excellence of University productions is attested by the department’s unsurpassed record of success in the competition of the American College Theatre Festival.

In addition to productions during the spring and fall semesters, the department sponsors a professional summer repertory company, which presents a month-long season, Iowa Summer Rep has become unique among both college theaters and professional repertory companies by focusing each season on the work of a single contemporary playwright.

Iowa’s University Theatres welcomes all persons who want to participate in theatrical production. Information about the productions is available from the departmental office in the Theatre Building.

The Theatre Building is one of the finest educational theatre complexes in the country, housing four theatres and up-to-date facilities for classroom, laboratory, shop, and performance work. The E.C. Mabie Theatre, a continental-style, 477-seat proscenium playhouse, is one of the finest small theatres of its type in the United States. Theatre A is a “black box” production space with flexible seating units that accommodate from 140 to 225, permitting quick modification of space-audience relationships. Theatre B, seating 144, is an open-stage theatre dedicated primarily to the production of new and experimental works. The Playwrights Workshop. The Studio Theatre is an intimate, flexible space that features a floor designed for dance.

The theatres are equipped with state-of-the-art electronic lighting control and sound reproduction systems. Several shops for building, painting, maintaining, and storing scenery, costumes, and properties, as well as the specialized classrooms for acting and design complete the Theatre Building facilities.

The Playwrights Workshop, ranked among the nation’s most distinguished playwriting programs, is a unit of the Department of Theatre Arts. Each year the department presents more than a dozen productions of plays by Iowa writers, including an annual festival of new scripts from the workshop. The Playwrights Workshop also maintains close ties with the Writers’ Workshop.

**School of Music**

The School of Music enjoys a longstanding national reputation for excellence and innovation. It provides students with rich and diverse opportunities for music research and scholarship as well as extensive training in applied music.

School of Music faculty members are performers as well as teachers. They serve as mentors for students whose performance experience is wide-ranging—from playing in or conducting high school marching bands to singing opera on the concert stage to presenting new works in collaboration with their composers.

Each year, faculty artists and student ensembles present about 150 major public concerts, including performances by the University’s bands, orchestra, and choruses. Nearly 200 vocal and instrumental recitals are presented by students.

The school has produced opera since 1938. Like other major stage presentations, opera is interdepartmental in its opportunities for educational and performance experience, using the talents and resources of other units of the Iowa Center for the Arts, particularly dance.

The School of Music is at the vanguard of innovation in the arts, creating and performing works in new forms. Its Center for New Music, originally funded by the Rockefeller Foundation, is a laboratory and extension of the composition area. Faculty and student members of the Center for New Music form a repertoire ensemble for the performance of both new compositions and masterworks of the twentieth century. The Composers Workshop has extended the creative workshop concept that was pioneered in the literary arts to the development of young composers.

Two experimental music studios provide a wide range of technical capability for creative audio-musical forms, including computer-generated music. Works created in the studios are presented with other student compositions in an annual series of performances. Outstanding recording facilities link the various performance spaces of the School of Music/Hancher Auditorium complex with a central recording studio in the School of Music. The digital recording capability of both the School of Music has been used to produce commercial compact discs by major artists.

The Music Building, opened in 1971-72, was designed to include spacious and convenient performance facilities. Its broad corridors lead from rehearsal rooms to recital halls and to the stage of Hancher Auditorium.
Clapp Recital Hall, with its hand-crafted Cassavant tracker organ, seats 720 for public concerts. The 200-seat Harper Hall is both a classroom and the setting for many recitals. The school’s largest ensembles (symphony orchestra, bands, Opera Theater, and choirs) perform regularly in Hancher Auditorium. The Opera Studio, opened in 1983, is the scene for smaller productions of the Opera Theater, and the Krapf Organ Studio is the scene of many intimate performances.

**Hancher Auditorium**

Hancher Auditorium is a regional and national cultural resource of the first magnitude. The 2,664-seat facility opened in 1972 and in its first two decades has hosted audiences of nearly three million people. The auditorium is fully accessible to persons with disabilities and provides wheelchair seating. Hancher also has installed a hearing augmentation system, which is available free of charge to patrons who are hearing impaired.

The diversity of Hancher’s programming appeals to the broad range of tastes in the region and within the University community. In recent years, such world-famous artists as Vladimir Horowitz and Isaac Stern, Miles Davis and Dizzy Gillespie, and Rudolph Nureyev and Mikhail Baryshnikov have performed at Hancher, as well as experimental artists, including Sankai Juku, the Kronos Quartet, Laurie Anderson, and Philip Glass. National touring companies regularly present the Broadway hits; in 1991 eight performances of Les Miserables broke all Hancher box office records.

Hancher has highlighted international performers, including the electrifying Japanese drummers Kodo, the Dance Company of Senegal, and the South African play You Strike the Woman, You Strike the Rock From jazz to chamber to symphonic music, from Shakespeare to the Kiev Ballet of Russia, from the Peking Opera to the Grand Kabuki Theater of Japan, Hancher presents the full range of the world’s performing arts.

Hancher also has been an active catalyst for artistic creativity. In 1987, the auditorium co-produced The Jeffrey Ballet’s new production of The Nutcracker, which had its world premiere on the Hancher stage. The auditorium also has commissioned important new works for Pilobolus, The Parsons Dance Company, the Muir String Quartet, The Paul Dresher Ensemble, the Bill T. Jones/Amie Zane Dance Co., The Kronos Quartet, the Laura Dean Dancers, and many other artists and ensembles. It has been the primary sponsor of the Iowa Dance Residencies Program, which has brought important dance companies for extended residencies including workshops, master classes, and performances in communities throughout the region.

The auditorium has become a midwestern showcase. Handsome lobbies, a cafe and gift shop, excellent acoustics, and a surprising intimacy in its interior design make it one of the foremost concert halls in America. But it is much more than a showcase. It also is a splendid educational plant, designed as an extension of the classroom and laboratory facilities of all of the performing units of the Iowa Center for the Arts.

For students of the various theater arts, the auditorium has spacious scene construction and costume shops, nearly 50 sets of rigging for scenery changes, and a sophisticated lighting control and sound system. For music students, Hancher is an on-the-premises concert hall, the stage itself is an excellent educational resource. Its proscenium is 70 feet wide. With its adjacent wings, the stage area is 175 feet long, 55 feet deep, and eight stories high. Mobile units of a concert shell can be installed quickly on stage for various concert requirements. University students are entitled to purchase tickets at reduced prices. Nonstudent patrons regularly attend auditorium events from a wide region in Iowa and western Illinois.

**Arts Education/Outreach Program**

Cultural projects and programs that utilize the talents of faculty or student artists and other resources of the Iowa Center for the Arts are available to Iowa communities through the Arts Education/Outreach Program. Intended to share the University’s cultural resources as widely as possible throughout the state, the innovative program reaches new audiences and serves a variety of constituencies, including colleges, schools, arts councils, concert associations, museums, churches, centers for senior citizens and the handicapped, service organizations, and other special community organizations.

Consistent with the University’s resources, the educational outreach projects are tailored to meet local needs and interests. In addition to programming throughout the state, the Arts Education/Outreach office schedules on-campus conferences, workshops, performances for young audiences, and other educational projects.

**Department of Dance**

The Department of Dance, housed in Halsey Hall, enjoys some of the finest facilities in the nation: six studios, two classrooms, audio-video-computer rooms, and a 250-seat workshop and performing space in North Hall. Teaching responsibilities are shared by seven full-time faculty and four to six teaching assistants. Nine to twelve of the technique classes are accompanied by a staff of two full-time and several part-time accompanists, and a full-time technical director attends to all of the department’s production needs.

Students in the department have many opportunities to perform during the year: The University of Iowa touring company Dancers In Company (in collaboration with the Arts Education/Outreach Program), the yearly Dance Gala held in Hancher Auditorium, faculty, student, and thesis concerts in the Dance Department’s Space/Place Theater, the School of Music spring and summer operas, musical theater in conjunction with the Department of Theatre Arts, and community performances.

Teaching opportunities for graduate and undergraduate students can be found within the Arts Education/Outreach Program, Young Dancers Program, Saturday Dance Forum, Saturday and Evening Class Program, and graduate teaching assistantships.

By scheduling nearly every nationally known company to perform in its theater, Hancher Auditorium is an invaluable resource for dance students, enabling them to see performances, observe rehearsals, and take master classes from touring companies.

For the past 16 years, the dance department has participated in the American College Dance Festival Association (ACDFA) festivals. The department hosted ACDFA festivals in 1981, 1986, and 1993.

**Media Studies and Film**

A division of the Department of Communication Studies, Media Studies and Film fosters artistic and scholarly work in electronic and visual media. Its artists in video and film production often work with artists in other units of the Iowa Center for the Arts on projects with national as well as regional audiences. Their productions include a series of music videos with jazz artists and one produced in association with the Opera Theater staging of Puccini’s Madame Butterfly, which was featured on the Bravo! cable television channel.

**Writing Programs**

A longtime program of special distinction in the Department of English, the Writers’ Workshop provides opportunities for talented writers to work and learn with established poets and fiction writers.

The International Writing Program brings accomplished writers of many nationalities to the University for extended periods of new writing and translating their works into English and other languages.

These writing programs are renowned in many countries and have won widespread private support from foundations, business corporations, individuals, and the U.S. State Department.

**Center for the Bock**

The Center for the Book offers students opportunities to develop skills and explore creative possibilities in arts and technologies of the book. The center is home to the Windhover Press, a nationally distinguished hand printing workshop that publishes limited editions, and to the Papermaking Facility, which produces Western and Japanese handmade papers used in rare book conservation.

Close affiliates of the center include the conservation workshop in the Main Library, which sponsors classes in traditional and nontraditional binding techniques, and the offset workshop in the School of Art and Art History. The Iowa Review also is affiliated with the center; in its offices, students assist in the editorial work of selecting and producing the work published in the magazine.

The center also promotes the study of letter forms through calligraphy courses. Its relationships with the Main Library’s Special Collections Department and with the Art
Museum of Natural History

The Museum of Natural History, located in Macbride Hall, is an outgrowth of the Cabinet of Natural History, established in 1858 by an act of the Iowa General Assembly. It is the oldest university museum west of the Mississippi River.

To meet the needs of the general public and the various natural science departments of the University, the Museum of Natural History provides a repository and the proper care for objects and specimens that come to the University either by gift or through the efforts of its own collectors. These collections, with primary focus on Iowa the Midwest region, and North America are representative of the disciplines of biology, geology, and anthropology and are used for research and teaching by University faculty and students as well as for public exhibition and interpretation.

The Museum of Natural History, a department in the College of Liberal Arts, also supports a museum studies program that provides instruction in the history, philosophy, operations, and programs of museums.

The museum’s Iowa Hall gallery features 60 multisensory exhibits linked by space, theme, and time, illustrating Iowa’s natural heritage-its geology, native culture, and ecology. Exhibit highlights of Iowa Hall include the Marquette-Joliet diorama, Devonian reef, Mesquakie lodge, and a life-size reconstruction of an Ice Age giant ground sloth.

In Bird Hall, the Laysan Island cyclorama is a large and well-known bird habitat exhibit comprising a complete representation of a bird island of the Hawaiian group. Other habitat exhibits include the Bering Sea, Louisiana swamp, fall migration, and cranes on the South Dakota prairie. The crane exhibit includes both the cranes and the rare whooping crane as they appear on the prairie during migration. Mammal Hall habitat exhibits feature walrus, bison, antelope, mountain lion, musk-ox, and giant panda. Also displayed is a complete 47-foot-long skeleton of the rare Atlantic right whale.

The major invertebrate phyla are represented in several exhibits and include familiar groups such as insects and crustaceans, snails and clams, sea stars, and corals.

Ethnological exhibits in the museum present artifacts from many parts of the world, Indian and Eskimo materials, including beadwork and carved ivory received in the late nineteenth century, are exhibited. The ancestry of humans through 12 million years of time is portrayed in a display featuring replicas of fossil remains from Africa, Asia, and Europe.

Guided group tours of exhibit halls are offered daily and can be arranged by advance reservation. The Museum of Natural History also supports formal outreach programming to area schools and sponsors a weekend lecture and field trip series for the general public.

Old Capitol

Iowa’s Old Capitol, a National Historic Landmark, has served Iowa for nearly 150 years as a seat of government and education. Built in the early 1840’s, it served as Iowa’s third territorial capitol from 1842 to 1846 and as the first state capitol from 1846 until 1857, when westward expansion drew the government to Des Moines. Old Capitol then became the University’s first permanent building.

An example of Greek Revival architecture, Old Capitol was restored in the 1970s to reflect its history and to serve as a living museum, providing space for ongoing University functions. Two rooms have been returned to the 1920’s décor to reflect the University’s long and continuing use. Other rooms have been authentically refurbished, some with what may be original pieces used by state legislators in the 1840’s. One of the building’s most unusual features is its reverse spiral staircase, which dominates the central hallways.

Old Capitol is located on the Pentacrest, at the center of The University of Iowa campus. Guided tours and a video presentation are offered daily without charge. Reservations are required for group tours.

Other Services

Evaluation and Examination Service

The Evaluation and Examination Service administers placement and exemption tests to help entering students and their advisers make decisions related to course selection. In addition, the office provides registration materials for and administers national standardized test programs, including the American College Testing Program (ACT), College Level Examination Program (CLEP), Medical College Admission Test (MCAT), Graduate Record Examination (GRE), Graduate Management Admission Test (GMAT), Law School Admission Test (LSAT), and the Test of English as a Foreign Language (TOEFL).

The exam service duplicates, scores, and analyzes classroom tests; helps plan and process course and instructor evaluations; conducts institutional research; prepares reports and technical bulletins pertaining to evaluation and measurement issues; and provides consultation on questionnaire design and data collection and processing.

Printing Department

The Printing Department is the University’s authorized in-house printer, serving faculty, staff, and students. This full-production facility offers design, editorial, composition, typesetting, proofreading, pasteup, platemaking, printing and binding, color copying, and duplicating services.

The department also functions as a service facility for desktop publishers, with a wide range of equipment, fonts, and software; a high-resolution printer; color output capability; and a computer consultant on staff.

Experienced customer service staff members are available to advise clients on printing and to help plan print-related orders. The department’s ten satellite copy centers, conveniently located throughout campus, offer 24-hour turnaround on copying, duplicating, and finishing services, such as collating and stapling.

Radio Broadcasting Services

WSUI and KSUI-FM extend the resources and activities of the University to the people of eastern Iowa with 24 hours of daily broadcasting. The broadcast schedule consists of educational, cultural, and informational programming not generally available elsewhere. An affiliate of National Public Radio (NPR), WSUI contributes program materials to a national network of more than 400 noncommercial radio stations. The main studios and offices are located in the Engineering Building and a free copy of the WSUI-KSUI Program Guide is available.

The University of Iowa Alumni Association

Since its organization in 1867, The University of Iowa Alumni Association has worked to encourage graduates, former students, and friends to continue their involvement with the University. In addition to offering traditional programs such as class reunions, the association provides alumni enrichment programs, sponsors a network of alumni clubs that take the University to alumni throughout the state and nation, recognizes distinguished alumni, and publishes a magazine, the Iowa Alumni Quarterly, to keep its 46,000 members up-to-date on University news and alumni achievements.

Iowa students are an important part of the Alumni Association’s work on behalf of the University. Not only does the association help recruit prospective students, it also provides the on-campus Career Information Network for students exploring careers, and it sponsors the Student Alumni Ambassadors, who plan and conduct the annual fall Parents Weekend.

Outreach activities of the Alumni Association are supported primarily by membership dues.

University of Iowa Foundation

The University of Iowa Foundation was organized in 1956 to help the University obtain the greatest possible educational benefit from private giving. The foundation is the preferred channel for private gifts to The University of Iowa through annual giving programs, anniversary class gifts, planned gifts such as bequests and trusts, and capital and other special-purpose campaigns.
The foundation is a nonprofit corporation empowered to solicit and receive gifts and bequests; to accept trusts subject to the conditions imposed on them; and to hold, administer, manage, use, or distribute gifts, bequests, and trusts—all for the benefit of The University of Iowa. The foundation is constantly at work to provide more funds for student financial aid, faculty support, research, library and equipment acquisitions, and other needs throughout the University.

The foundation has recently completed a nationwide major gifts campaign, Iowa Endowment 2000: A Covenant with Quality, surpassing by $75 million its goal of raising $150 million in support of human resources. For generations to come, endowed faculty chairs, fellowships for graduate and professional students, scholarships, academic excellence funds for the University’s colleges, and The University of Iowa Libraries will benefit from the campaign.

University of Iowa Press

The University of Iowa Press was established to publish significant results of original scholarly research and outstanding creative work in the arts. The press annually publishes 30-35 new books in a variety of fields—works that are reviewed nationally by a wide spectrum of magazines, journals, and newspapers. The press reports directly to the vice president for research and to an advisory board appointed by the vice president.

Office of University Relations

The Office of University Relations (OUR) works to promote understanding of, participation in, and support of the University’s mission and activities, both within the University community and among the general public. It seeks to maintain an effective communication program including the use of internal and external media. It counsels the University administration on public relations, community relations, and communication needs. It also serves as a liaison to facilitate communication between the central administration and appropriate University, governmental, civic, and other groups.

University relations programs are implemented through the coordinated efforts of the department’s University relations office, University News Service (UNS), Arts Center Relations, Health Sciences Relations, and University Relations Publications. The staff members of these units who specialize in coverage of the performing arts, the health sciences, and women’s intercollegiate athletics, as well as general news and broadcast news. They supply news and information to print and electronic media in a variety of ways.

University Relations Publications publishes Spectator for alumni and friends of the University; Parent Times for students’ parents; fyi, the University’s newsletter for faculty and staff; Arts Iowa, featuring forthcoming arts activities; and specialized materials for prospective students, in association with the Office of Admissions. The department also produces other special- and general-interest publications for external audiences, in collaboration with other University departments and colleges.

OUR also serves as the executive office of the Parents Association.

University Ombudsperson

The Office of the University Ombudsperson responds to problems and disputes brought forward by all members of the University—students, staff, and faculty. The ombudsperson investigates claims of unfair treatment or erroneous procedure and serves as a neutral and detached listener, information resource, adviser, intermediary, and mediator. See “University Ombudsperson” in the Student Life at Iowa section of the Catalog.
The Main Library's Information Arcade
## College of Liberal Arts

Aerospace Military Studies  
(Air Force ROTC)  63
African Studies  67
Aging Studies  69
American Indian and Native Studies  70
American Studies  71
Anthropology  73
Applied Mathematical and Computational Sciences  78
Art and Art History  78
Asian Languages and Literature  87
Biochemistry  92
Biological Sciences  94
Chemistry  100
Classics  102
Communication Studies  105
Comparative Literature  110
Computer Science  112
Dance  117
Economics  119
English  122
Exercise Science  127
French and Italian  132
Genetics  135
Geography  136
Geology  142
German  147
Global Studies  149
History  151
Interdepartmental Studies  156
Iowa Lakeside Laboratory  158
Journalism and Mass Communication  159
Latin American Studies  163
Letters  165
Liberal Studies  165
Library and Information Science  166
Linguistics  170
Literature, Science, and the Arts  173
Division of Mathematical Sciences  174
Mathematics  174
Microbiology  179
Military Science (Army ROTC)  181
Molecular Biology  182
Museum Studies  182
Music  183
Neuroscience  190
Philosophies and Ethics of Politics, Law, and Economics  190
Philosophy  191
Physical Education Skills  193
Physics and Astronomy  193
Political Science  198
Psychology  201
Religion  207
Rhetoric  210
Russian  211
Russian, East European, and Eurasian Studies  213
Science Education  215
Social Studies  218
Social Work  219
Sociology  223
Spanish and Portuguese  227
Speech Pathology and Audiology  233
Sport, Health, Leisure, and Physical Studies  239
Statistics and Actuarial Science  240
Theatre Arts  245
Third World Development Support  248
Transportation Studies  250
Unified Program  252
Urban and Regional Planning  252
Women’s Studies  255

Dean: Judith P. Aikin  
Associate dean for academic programs: James B. Lindberg  
Associate dean for development and research: John D. Fix  
Associate dean for faculty: Kate E. Gfeller  
Director of honors: David E. Klemm
The College of Liberal Arts provides undergraduate students with a comprehensive liberal arts education and graduate students with advanced education in specialized areas. Students and faculty participate in the creation, preservation, and dissemination of knowledge. The college encompasses educational programs in the fine arts, the humanities, the natural sciences, the social sciences, and mathematics, as well as interdisciplinary programs. These programs can lay the necessary foundation for specialized training in dentistry, medicine, nursing, pharmacy, business, law, and education. They provide students with a general education that prepares them for participation in the complex and ever-changing economic and political life of their community and society. More than fifty majors are available, each offering extensive study of a particular academic discipline or set of related disciplines. The range and scope of the college help every student achieve breadth of knowledge and exposure to a variety of analytical approaches. The liberal arts curriculum exposes all undergraduate students—regardless of their majors—to work in rhetoric, quantitative or formal reasoning, history, natural sciences, humanities, social science, foreign languages, and foreign civilizations and cultures. Soon the college also will provide each student with opportunities to explore the fine arts and the cultural diversity of society. This breadth is achieved through the college’s General Education Requirements, which are designed to enable students to understand the physical world in which they live, the social organizations in which they act, and the values of past and present civilizations that form their own culture and the cultures of others. This general education provides the basis for and supplements the insights of specialized study with a comprehensive understanding that helps students to raise significant questions, find answers, evaluate their attitudes and beliefs, and adapt to change.

College Organization

The College of Liberal Arts is multifaceted. Its schools, departments, and programs offer majors, certificates, and minors described in detail in the departmental sections of the Catalog. The college is closely linked with the University’s professional colleges. Undergraduate students planning to graduate from the Colleges of Business Administration, Medicine, and Nursing all begin their course of study in the College of Liberal Arts. Students admitted to the Teacher Education Program in the College of Education receive their degrees from the College of Liberal Arts. Students planning to graduate from the Colleges of Business Administration, Medicine, and Pharmacy. Students in Teacher Education receive their degrees from the College of Education. Nurturing students who wish to declare or change majors, file the second-grade-only option, or request special permission for a dean’s signature to register late, add or drop a course late, or withdraw an entire registration after the established deadlines.

Staff members answer questions about the General Education Requirements, graduation requirements, and collegiate policies affecting students; coordinate the advising of candidates for the B.A. in interdepartmental studies; conduct interviews with students on academic probation; conduct reviews of students on academic probation and take dismissal actions; and respond to requests for reinstatement after dismissal. The Office of Academic Programs also considers evidence and recommends appropriate disciplinary action for student plagiarism, cheating, forgery, and other academic misconduct. Students requesting exceptions to the rules and requirements of the college petition the Student Appeals Committee through the Office of Academic Programs.

Advising

Every student in the college has an adviser to consult about academic and other issues. Most undergraduates are advised during their first semester by professional advisers at the Undergraduate Academic Advising Center. Others are advised in their major departments. Advising by faculty advisers in the student’s major department is always available by junior year or earlier. Each department also identifies a specific honors adviser.

Honors Program

The University Honors Program offers special academic and extracurricular opportunities to outstanding students. Freshmen and sophomores may take advantage of honors seminars that fulfill General Education Requirements and special honors sections are offered in some General Education Requirement courses. At the junior and senior level, most departments offer honors seminars, independent research, and the opportunity to pursue a senior project under the guidance of a faculty member. Successful completion of a senior honors project leads to a baccalaureate degree “with honors” in the major (see “Graduation with Honors” in this section of the Catalog).

The Shambaugh House Honors Center is a meeting place and study center for students in the honors program. It houses a reference library, study lounges, and computer terminals. Each year the Associated Iowa Honors Students plans a variety of recreational, social, cultural, and academic activities. Entering students with strong academic records are invited to join the honors program, but any student whose grade-point average meets the required minimum (3.20) may join at any time. For more information see “Honors Program” in the “Academic Programs” section of the Catalog, or contact the Honors Program, Shambaugh House Honors Center.

Degrees Offered

Students graduating from the College of Liberal Arts may 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.), and Bachelor of Music (B.M.) degrees.

Major Fields

The college confers degrees as indicated in the following major fields. The B.S. degree is awarded with no major designation.

- Actuarial science– B.S.*
- African-American world studies –B.A.
- American studies– B.A.*
- Ancient civilization –B.A.
- Anthropology-B.A.
- Art- B.A., B.F.A.
- Art history –B.A.
- Asian languages and literature –B.A.
- Asian studies –B.A.
- Astronomy -B.A., B.S.
- Biochemistry -B.A., B.S.
- Biology -B.A., B.S.
- Botany –B.A., B.S.
- Chemistry -B.A., B.S.
- Classics– B.A.
- Communication studies –B.A.*
- Comparative literature –B.A.
- Computer science –B.A., B. S.*
- Dance– B.A., B.F.A.
- Economics– B.A., B.S.
- Elementary education– B.A., B. S.*
- English -B.A.
- Exercise science –B.S.*
- French –B.A.
- Geography -B.A., B.S.
- Geology -B.A., B.S.
- German -B.A.
- Global Studies –B.A.*
- Greek– B.A.
- Health occupations education– B.A., B.S.
- History -B.A.
- Interdepartmental studies– B.A.
- Italian -B.A.
- Journalism and mass communication– B.A., B. S.*
- Latin -B.A.
- Leisure Studies –B.S.*
- Linguistics -B.A.
- Literature, science, and the arts-B.A.
- Mathematics-B.A., B.S.
- Microbiology -B.S.
- Music– B.A., B.M.
- Philosophy –B.A.
- Physical education –B.S.
- Physics -B.A., B.S.
- Political science– B.A., B.S.
- Portuguese -B.A.
- Psychology -B.A., B.S*
- Religion -B.A.
- Russian –B.A.
- Russian, East European, and Eurasian studies –B.A.
- Science education– B.S.
- Social studies –B.A.
- Social work– B.A.*
- Sociology -B.A., B.S.
Spanish –B.A.
Speech and hearing science –B.A.
Statistics –B.S.
Theatre arts -B.A.

*Students who wish to major in actuarial science, American studies, communication studies, elementary education, exercise science, global studies, journalism and mass communication, leisure studies, or social work, or to earn a B.S. degree in computer science or psychology, must complete an application procedure before they are admitted to the major. Admission to these programs is based on grades in specified prerequisite courses, cumulative grade point average, and/or other criteria.

Teaching Licensure

Students may indicate a major in one of the fields of education or an interest in secondary education at the time of admission, or they may change their majors to one of these fields at any time after enrolling. In order to be allowed to enroll in the courses for an education major or licensure, the student must be admitted to the teacher education program (TEP).

To be admitted to the TEP, a student must have attained sophomore standing (30 semester hours) and must have earned a total cumulative grade point average of at least 2.50. Transfer students will meet these standards may apply to the TEP upon admission to the University. In order to remain in the TEP, a student must maintain a 2.50 total cumulative grade-point average and a 2.50 grade-point average at The University of Iowa.

Application forms for admission to the TEP are available from the Office of Student Services and Field Experiences in the College of Education. For more information, see the College of Education section of the Catalog.

Double Majors

A student may meet the major requirements in more than one department, and if the departments award the same degree, the student may earn a single bachelor’s degree with two or more majors (e.g., a B.A. in history and English or a B.S. in psychology and sociology). For more information, see “Double Majors” under “Requirements for the Major” in this section of the Catalog.

Specializations within Degree Programs

Many degree-granting units in the college offer internal specializations. Some of these are formal options within degree programs. For example, the Department of Communication Studies offers media studies and film, and the Department of Geography offers urban and regional studies. Athletic training is a specialization within the B.S. in exercise science. Specializations in Chinese, Hindi, Japanese, or Sanskrit are available to students seeking a B.A. in Asian languages and literature. The School of Music has several different tracks leading to a bachelor’s degree: performance, composition, jazz studies, music history, music education, and music therapy. These are only a few examples of the many options within degree programs.

Other specializations can be developed with combinations of courses taken from several areas—for example, a specialization in public relations and advertising, with courses taken in the Department of Communication Studies and the School of Journalism and Mass Communication; public service, with courses taken from the Departments of Political Science, History, and Social Work; or a specialization in management, with courses taken in various social sciences departments.

For more information on specializations within and between programs, see the program descriptions in the Catalog and advisers in the appropriate departments.

Certificates

The College of Liberal Arts offers certificates in six interdisciplinary programs: African studies; aging studies; American Indian and native studies; global studies; Latin American studies; and philosophies and ethics of politics, law, and economics. A seventh certificate program, international business, is administered jointly by the College of Business Administration and the College of Liberal Arts.

Certificates require from 18 to 36 semester hours of prescribed course work. Specific requirements are listed in the departmental sections of the Catalog.

A minimum grade-point average of 2.00 is required in all course work applied toward a certificate. Each certificate program sets its own policy on the acceptance of transfer course work; students are advised to check with the program chair. Certificates are awarded only upon completion of a bachelor’s degree. Holders of Iowa baccalaureate degrees may return to the University to complete the requirements for a certificate. Courses applied toward a certificate also may be used to satisfy the General Education Requirements or the requirements for a major or a minor. A student may not be awarded both a minor and a certificate in the same area.

Minors

Students may earn minors in more than 50 programs in the College of Liberal Arts or in other colleges of the University. Most minors require a minimum of 15 semester hours of course work.

The college offers minors in the following fields: actuarial science, Afro-American studies, aging studies, American studies, American Indian and native studies, ancient civilization, anthropology, art, art history, Asian languages (Chinese, Hindi, Japanese, Sanskrit), Asian studies, astronomy, biology, botany, chemistry, classics, communication studies, comparative literature, computer science, dance, economics, English, French, geography, geology, German, global studies, Greek, history, Italian, journalism and mass communication, Latin, Latin American studies, leisure studies, linguistics, mathematics, microbiology, music, philosophy, physical education, physics, political science, Portuguese, psychology, religion, Russian, social work, sociology, Spanish, statistics, theatre arts, and women’s studies.

The general requirements for minors are described below, under “Minors.” Specific requirements are listed in the departmental sections of the Catalog.

Interdisciplinary Programs

A number of interdisciplinary programs in the College of Liberal Arts offer majors, minors, or certificates. These programs include African studies (certificate or option in B.A. in African-American world studies); African-American world studies (B.A. or minor); aging studies (minor or certificate); American studies (B.A. or minor); American Indian and native studies (minor or certificate); ancient civilization (B.A. or minor); comparative literature (B.A. or minor); global studies (minor, certificate, or honors major); interdepartmental studies (B.A.); international business (certificate); Latin American studies (minor or certificate); literature, science, and the arts (B.A.); philosophies and ethics of politics, law, and economics (certificate); Russian, East European, and Eurasian studies (B.A.); science education (B.S.); and women’s studies (minor).

Specific requirements for these interdisciplinary degree programs, minors, and certificates are described in the departmental sections of the Catalog.

Baccalaureate with Early Admission to Medicine or Dentistry

Students who are working toward a baccalaureate degree from the College of Liberal Arts after early admission to the Colleges of Medicine or Dentistry or to any accredited medical or dental school in the United States that offers advanced degrees.

To be eligible for a baccalaureate degree from the College of Liberal Arts after early admission to the Colleges of Medicine or Dentistry, students must meet certain requirements. Before enrolling in the medical or dental college, students must have:

- satisfied the General Education Requirements;
- completed the requirements for a major;
- earned at least 94 semester hours as undergraduates; and
- satisfied the residence requirement of the College of Liberal Arts.

Students who have successfully completed the first year of medical or dental school are permitted up to 30 semester hours of ungraded elective credit toward a baccalaureate degree from the College of Liberal Arts.

Students who plan to accept early admission to the College of Medicine or Dentistry and who wish to receive a baccalaureate degree from the College of Liberal Arts should request a degree evaluation from the Office of the Registrar.
before their final semester in the College of Liberal Arts.

Combined Degree Programs

Business Administration and Liberal Arts

Students may earn two University of Iowa baccalaureate degrees in a combined program in the Colleges of Business Administration and Liberal Arts. Successful candidates are awarded a B.B.A. (Bachelor of Business Administration) by the College of Business Administration 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.

To enter the combined degree program, students must be eligible for admission to the College of Business Administration and the College of Liberal Arts. Interested students should contact an adviser in the Undergraduate Programs Office in the College of Business Administration. Students must be approved for candidacy in the combined degree program by the College of Business Administration and must be admitted to both the College of Business Administration and the College of Liberal Arts.

To enter the combined degree program, students must be eligible for admission to the College of Business Administration and the College of Liberal Arts. Interested students should contact an adviser in the Undergraduate Programs Office in the College of Business Administration. Students must be approved for candidacy in the combined degree program by the College of Business Administration and must be admitted to both the College of Business Administration and the College of Liberal Arts.

Students who enter the program are required to complete the General Education Requirements and the requirements for the major in the College of Liberal Arts. To qualify for both degrees in the combined degree program, candidates must complete an overall total of 158 semester hours of credit, including at least 30 semester hours of courses offered by the College of Engineering and at least 30 semester hours of courses offered by the College of Liberal Arts.

Medicine and Liberal Arts

Students may earn two University of Iowa baccalaureate degrees in a combined program in the Colleges of Medicine and Liberal Arts. Although students begin their academic program in the College of Liberal Arts, they must be eligible for admission to the College of Medicine baccalaureate program in medical technology or nuclear medicine technology.

Students who select this program must meet the baccalaureate degree requirements specified by both colleges and usually do so 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 combined degree program are assigned two faculty advisers, one in the major department of the College of Medicine and the other in the major department of the College of Liberal Arts.

Candidates must satisfy all requirements for both degrees and complete an overall total of 154 semester hours of credit, including at least 30 semester hours of courses offered by the College of Medicine and at least 30 semester hours of courses offered by the College of Liberal Arts.

Students interested in the combined degree program should see the director of the baccalaureate program of their choice in the College of Medicine.

Nursing and Liberal Arts

Students may earn two University of Iowa baccalaureate degrees in a combined program in the Colleges of Nursing and Liberal Arts. Successful candidates are awarded a B.S.N. (Bachelor of Science in Nursing) by the College of Nursing 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.

Students in the combined program usually are able to meet the baccalaureate 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 area of study selected in the College of Liberal Arts and the length of time required to complete the prerequisites for the College of Nursing. Students who enter the combined degree program are assigned two advisers, one for prenursing/nursing and the other in their major department in the College of Liberal Arts.

Although students begin their academic program in the College of Liberal Arts, they must be admitted to the College of Nursing’s baccalaureate program in order to receive both degrees. Students apply for admission to the College of Nursing during their last semester of prerequisite course work. Students in the combined program are required to complete the General Education Requirements and requirements for the major in the College of Liberal Arts as well as requirements for the major in Nursing.

It is crucial that students enroll in the proper nursing prerequisite courses early to expedite the completion of their programs. Long-range planning with an adviser helps ensure timely completion. To qualify for both degrees in the combined degree program, candidates must complete an overall total of 158 semester hours of credit, including at least 30 semester hours of courses offered by the College of Nursing and at least 30 semester hours of courses offered by the College of Liberal Arts.

Two Bachelor Degrees

Students may be awarded two different bachelor’s degrees from the College of Liberal Arts, either simultaneously or successively, if they meet the requirements described below. For example, a student may earn a B.S. in biology and a B.A. in English, or a B.A. in mathematics and a B.M. (Bachelor of Music). Students may not earn two different bachelor’s degrees with the same major (for example, a B.A. and a B.S. in psychology).

Simultaneous Degrees

Students who wish to earn two different bachelor’s degrees at the same time in the College of Liberal Arts must complete 30 semester hours beyond the 124 required for a single degree, for a total of 154 semester hours, besides satisfying the requirements for both degrees, The B.L.S. and B.A. in interdepartmental studies may not be awarded simultaneously with another degree.

Returning for a Second Degree

Students who already have been awarded a bachelor’s degree from the College of Liberal Arts and are not enrolled in a graduate or professional program may earn an additional, different bachelor’s degree. These students must be readmitted to the college and must complete at least 30 additional consecutive semester
hours of study in residence in the college beyond the first degree (or 60 additional semester hours if they wish to earn two more different degrees).

Students may not earn a second B.A. if they already have a B.A. from the College of Liberal Arts, nor may they earn a second B.S. if they already have a B.S. from the college. Instead, these students should consider completing a second major (see “Returning for a Second Major” under “Requirements for the Major” in this section of the Catalog).

Students with a bachelor’s degree from another college or university may earn a different bachelor’s degree from the College of Liberal Arts by meeting the requirements described above. They may not earn a second, identical degree.

Holders of B.A. or B.S. degrees are considered to have satisfied all the General Education Requirements except foreign language if the degree was awarded in a liberal arts discipline. Holders of other degrees must satisfy the General Education Requirements.


**Classification of Students**

<table>
<thead>
<tr>
<th>Rank (semester hours earned)</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman (0-29)</td>
<td>A1</td>
</tr>
<tr>
<td>Sophomore (30-59)</td>
<td>A2</td>
</tr>
<tr>
<td>Junior (60-89)</td>
<td>A3</td>
</tr>
<tr>
<td>Senior (90 or more)</td>
<td>A4</td>
</tr>
<tr>
<td>Special (nondegree) student</td>
<td>A9</td>
</tr>
</tbody>
</table>

**Total Hours Earned**

Students who enter as beginning freshmen must earn a minimum of 124 semester hours of credit. The number required of a transfer student is indicated on the student’s admission degree evaluation.

**Satisfactory Grade-Point Average**

The general requirements for graduation are based on the quality as well as the quantity of work completed.

Candidates for the B.A., B.S., B.F.A., and B.M. degrees satisfy the qualitative requirements for graduation by earning a minimum grade-point average of C (2.00) in all college work attempted, all work undertaken at The University of Iowa and all advanced courses attempted.

Candidates for the B.L.S. degree must earn a grade-point average of at least 2.00 in all course work applied toward the degree, all course work completed after admission to the program, and all upper-level course work.

**Residence**

Students must satisfy the College of Liberal Arts residence requirement. This may be met by earning the final 30 consecutive semester hours in residence, or 45 of the final 60 semester hours in residence, or an overall total of 90 semester hours in residence.

Resident instruction includes course work in the College of Liberal Arts and in other University of Iowa colleges (e.g., Business Administration, Engineering, Nursing), with the 30-semester-hour limitation noted below under “Restrictions and Limits on Semester Hours Applied Toward a Degree.”

Nonresident instruction includes course work at colleges and universities other than The University of Iowa and all work by correspondence, including University of Iowa Guided Correspondence Study courses.

B.L.S. students are not subject to the residence requirement but must earn at least 30 semester hours of credit at The University of Iowa after they are admitted to the program.

**General Education Requirements**

Students must complete the following General Education Requirements for the B.A., B.S., B.F.A., B.L.S., and B.M. degrees: Rhetoric, Physical Education, Foreign Language, Foreign Civilization and Culture, Historical Perspectives, Humanities, Natural Sciences, Quantitative or Formal Reasoning, Social Sciences.

**Unified Program**

The Unified Program (UP) is a four-semester sequence of general education courses for a small group of students who choose the program when they are admitted to The University of Iowa. The UP satisfies all of the College of Liberal Arts General Education Requirements except the foreign language and physical education requirements. Each UP course is interchangeable with an equivalent approved course. AU UP students take the same courses in a given semester. Students may leave the program at any time and satisfy the General Education Requirements in other ways, but only freshmen may enter the UP. See “Unified Program” in the departmental section of the Catalog.

**Students with Disabilities and the General Education Requirements**

Students with documented learning disabilities or physical disabilities may need accommodation in order to satisfy one or more of the General Education Requirements. Accommodations are arranged by the Office of Student Disability Services in consultation with departments and the Office of Academic Programs.

**Rhetoric**

All students must register for their assigned rhetoric course at their first or second registration, as required, and continue to enroll in rhetoric courses until the requirement is completed. Students are not permitted to drop rhetoric courses.

All transfer students, regardless of the number of hours they transfer, must satisfy the rhetoric requirement. The admission degree evaluation shows whether a student must take a rhetoric class, and if so, which one(s).

The rhetoric requirement may be completed in one of the following ways:

- by passing 10:1 and 10:2 Rhetoric I and II (8 s.h.); by passing 10:3 Accelerated Rhetoric (4 s.h.);
- by passing the speech test and 10:4 Writing and Reading (3 s.h.);
- by passing the essay test and 10:6 Speaking and Reading (3 s.h.);
- by passing both the speech and essay tests.
- by a combination of APP credit and 10:6 Speaking and Writing;
- by a combination of transfer course work and University of Iowa course work or exemption tests.

**Proficiency Examinations**

Placement and exemption tests are given during the first week of classes for students registered in rhetoric courses. Exemption from part or all of the requirement may be awarded on the basis of these tests. Academic credit is not given. For further information, see “Rhetoric” in the current Schedule of Courses.

**Physical Education**

The physical education requirement may be satisfied in one of the following ways:

- by completing four 1-semester-hour courses in physical education skills (28S:1 or 28S:2), for a total of 4 semester hours or;
- by completing 28S:5 Fitness and Wellness for Life (2 s.h.) and two 1-semester-hour courses in physical education skills, for a total of 4 semester hours.

Students also may earn exemption from part or all of the requirement by passing tests in specific physical education skills (see below).

Only courses 28S:1, 28S:2, and 28S:5 may be used to satisfy the requirement. Courses 28S:1 and 28S:2 are graded satisfactory/fail only; 28S:5 awards letter grades only. 28S:1 and 28S:2 are skills courses, and sections under these numbers have activity or sports titles and levels of proficiency. 28S:1 designates courses that meet for the first half of the semester or for the eight-week summer session; 28S:2 designates those that meet for the second half of the semester. 28S:5 Fitness and Wellness for Life (2 s.h.), a lecture-discussion course, meets for the entire semester.

If a student repeats the same skills course or takes a more elementary one, the Office of the Registrar assesses a penalty for either duplication or regression. In removing incomplete or using
the second-grade-only option, students must complete or retake the same activity or sport at the same level.

**EXEMPTION TESTS**

Students may be awarded exemption from part or all of the physical education requirement for successful completion of comprehensive tests in specific physical education activities or sports. Each test has both written and performance components. Successful completion of a proficiency test results in exemption from 1 semester hour of the physical education requirement. Academic credit is not awarded, only exemption. For more information, see “Physical Education Skills” in the current Schedule of Courses.

**TRANSFER STUDENTS**

Transfer students may satisfy the physical education requirement in one of the following ways:

- by transferring 4 semester hours of college physical education course work (skills, sports, and activities);
- by completing comprehensive tests in the same level.

**OLDER STUDENTS**

Students who have passed their twenty-third birthday before their first enrollment at the University or will pass their twenty-eighth birthday before the day of their graduation are excused from the physical education requirement.

**VETERANS**

Veterans may be exempted from this requirement by presenting to the Registrar official evidence of having completed a basic training program in a branch of the armed forces. Academic credit is not given.

**B.L.S. STUDENTS**

Candidates for the B.L.S. degree are exempt from the physical education requirement.

**PHYSICAL EDUCATION MAJORS**

Physical education majors in the Teacher Education Program are exempt from the physical education requirement.

**Foreign language**

The foreign language requirement may be satisfied by high school courses, college courses, combinations of high school and college courses, or satisfactory performance on a proficiency examination.

All degree candidates (B.A., B.S., B.F.A., B.L.S., and B.M.) admitted to the College of Liberal Arts must satisfy the foreign language requirement in one of the following ways:

- by completing the fourth-year level of a foreign language in high school;
- by completing the fourth-semester level of a foreign language at The University of Iowa at another college or university, or during study abroad;
- by completing sequential years of one language in high school followed by sequential semesters of the same language in college; one year of high school study in a foreign language is considered the equivalent of one semester of college work; students must successfully complete the fourth-semester (college level) of a foreign language to satisfy the requirement or
- by passing an achievement test measuring proficiency equivalent to that usually attained after four semesters of college study.

Students who enrolled at The University of Iowa before fall semester 1990 and who will graduate with a B.L.S. degree by August 1997 are exempt from the foreign language requirement.

**FOREIGN LANGUAGE PLACEMENT**

Entering students are required to take a University of Iowa foreign language placement test if they have studied French, German, Latin, or Spanish. Students who have completed four years of a single foreign language in high school (or four semesters at the college level) are exempt from this requirement unless they wish to participate in the Foreign Language Incentive Program (see below).

Results from the placement test are used to determine the level at which students begin their language study at The University of Iowa. In determining placement, academic advisers also may consider number of years studied in high school or college, grades earned, and experience abroad or with native speakers if such consideration would result in a higher placement.

Entering students who place at the third-semester level or higher may:

- continue study in that language at the third-semester level or higher for full credit, or
- begin study of a different language for full credit.

Entering students who place below the third-semester level in French, German, or Spanish may:

- complete the appropriate review course in that language for full credit, or
- begin study of a different language for full credit.

Students who have met the unit (admission) requirement in French, German, or Spanish but who place below the third-semester level are not permitted to register for a first- or second-semester course in that language. If these students continue study of that language, they must register for the designated review course (e.g., 9:10 First-Year French Review, 13:14 First-Year German Review, or 35:5 Elementary Spanish Review).

**FOREIGN LANGUAGE INCENTIVE PROGRAM**

The Foreign Language Incentive Program enables entering students to earn extra college credit. Entering students who place into a fourth-semester language course and complete the course with a grade of B- or higher receive credit for the prerequisite third-semester course. Those who place into a fifth-semester or higher level course and complete it with a grade of B- or higher receive credit for the two prerequisite third- and fourth-semester courses. The credit is ungraded but counts toward the hours required for graduation. Incentive credit is not granted for college courses for which transfer credit has been received.

Students are eligible for incentive credit only during their first and second registrations at The University of Iowa.

For more information on eligibility and restrictions, see the handout “Foreign Language Incentive Program,” published by the Office of Academic Programs.

**SATISFYING THE REQUIREMENT BY EXAMINATION**

Students proficient in a language for which they have received no formal instruction (or instruction below the fourth-semester level) may be able to validate their proficiency on an examination.

**FOREIGN LANGUAGES OFFERED AT IOWA**

Foreign Languages Offered at Iowa

Students proficient in French or Spanish should take one of The University of Iowa placement examinations regularly administered to entering students during the summer orientation programs and at the Evaluation and Examination Service on a monthly basis. Proficiency examinations in Chinese, ancient Greek, Hindi, Italian, Japanese, Latin, Portuguese, Russian, Sanskrit, Swahili, and Yoruba are arranged by contacting the appropriate department. Academic credit is not awarded for successful completion of these examinations.

Students who earn satisfactory scores on Advanced Placement Program examinations in French, German, Latin, or Spanish may be awarded academic credit. Complete information is available from the Evaluation and Examination Service.

**FOREIGN LANGUAGES NOT OFFERED AT IOWA**

Foreign Languages Not Offered at Iowa

Students proficient in a foreign language not regularly offered at The University of Iowa may apply to the Office of Academic Programs for assessment. In some cases, arrangements can be made for an on-campus proficiency evaluation. Evaluations are available for only a limited number of foreign languages, however. Currently, arrangements can be made for individual evaluations in American Sign Language, Arabic, Danish, Farsi, modern Greek, modern Hebrew, Korean, Latvian, Mesquakie, Norwegian, Polish, Punjabi, Rumanian, Swedish, Urdu, and Vietnamese. Academic credit is not awarded for successful completion of these evaluations. Students proficient in a language for which testing is not available must complete the requirement by another approved method.

**FOREIGN STUDENTS AND THE FOREIGN LANGUAGE REQUIREMENT**

Foreign students who hold nonimmigrant student visas may use English to satisfy the foreign language requirement if they have completed secondary school in a language other than English and if they meet the college’s English proficiency requirement. The English proficiency requirement may be satisfied in any one of the following ways: (a) a score of 600 or
above on the Test of English as a Foreign Language (TOEFL); (b) successful completion of required English courses as determined by an evaluation conducted by the linguistics department; or (c) validation of English proficiency by the coordinator of English as a Second Language.

Foreign students who completed secondary school (grades 9-12 or 10-12) in English may not use English to meet the foreign language requirement. These students must satisfy the foreign language requirement by another approved method, perhaps by using their native language.

SEQUENCES OF COURSES THAT SATISFY THE FOREIGN LANGUAGE REQUIREMENT

Languages offered at The University of Iowa to satisfy the foreign language requirement are Chinese, French, German, ancient Greek, Hindi, Italian, Japanese, Latin, Portuguese, Russian, Sanskrit, Spanish, Swahili, and Yoruba.

Chinese: 39:1-2 or 39J:8-9
French: 9:1-2 or 9:10 followed by 9:11-12, or 9:27-12, or 9:27-26, or 9:27-28
Greek: 14:1-2-1 1-12
Hindi: 39:31-32-33-34
Italian: 18:1-2-11-12 or 18:103-11-12
Latin: 20: 1-216-17 or 20:15-16-17 or 20:117-16-17
Portuguese: 38: 1-2 or 38: 100 followed by 38: 11-12 or 38:101
Russian: 41: 123-4 or 41:101-102
SANSKRIT: 39:2-21-22-23-24
Spanish: 35: 1-2 or 35:8-9 or 35:3 or 35:5 followed by 35:1 1-12 or 35:13
Swahili: 103:15-16-17-18 (same as 129:15-16-17-18 or 141:15-16-17-18)
Yoruba: 103:25-26-2728 (same as 129:2526-27-28 or 141:25-26-2728)

Foreign Civilization and Culture

Students must complete at least 3 semester hours from the courses listed below. Some courses used to satisfy this requirement also may be approved by the coordinator of English as a Second Language.

1 H:5 Western Art and Culture Before 1400 3 s.h.
1 H:5 Western Art and Culture After 1400 3 s.h.
1 H: 13 Islamic Art and Civilization 3 s.h.

IH: 16 Asian Art and Culture 3 s.h.
IH:20 Introduction to African Art 3 s.h.
8:13 The Classical Views 3 s.h.
8G: 14 Literatures of the African Peoples 3 s.h.
9: 113 French Civilization 3 s.h.
9: 142 French and Francophone Literature and Culture 3 s.h.
9: 147 French Cinema 3 s.h.
13:105 German Cultural History 3 s.h.
13: 115 Contemporary German Civilization 3 s.h.
13: 118 The Third Reich and Literature 3 s.h.
14: 13 The Classical Views 3 s.h.
16: 1 Western Civilization to 1792 3 s.h.
16: 2 Western Civilization Since 1792 3 s.h.
16: 5 Civilizations of Asia: Premodern China and Japan 3 s.h.
16: 6 Civilizations of Asia: Modern China and Japan 3 s.h.
16: 7 Civilizations of Asia: South Asia 3 s.h.
16: 30 Science and Medicine in World Perspective 3 s.h.
16E: 106 Society of Ancient Near East and Greece 3 s.h.
16E: 107 The Hellenistic World and Rome 3 s.h.
16E: 110 Medieval Civilization 3 s.h.
16E:113 Economic and Social History of Medieval Europe 3 s.h.
16E:117 History of the Medieval Church 3 s.h.
16E 19 Women, Marriage, and Family in Medieval Europe 3 s.h.
16E 121 The Italian Renaissance: Cultural Transmission of Learning, Law, and Art 1250-1550 3 s.h.
16E 122 European Religious Reformations, 1250-1750 3 s.h.
16E: 125 Society and Gender in Europe 1200-1789 3 s.h.
16E: 126 Early Modern France and the French Revolution, 1500-1800 3 s.h.
16E:127 European History in Text and Film, 1500-1945 3 s.h.
16E: 134 Nineteenth-Century Europe 3 s.h.
16E: 135 Nineteenth-Century Europe 3 s.h.
16E: 138 Society and Gender in Europe 1750-present 3 s.h.
16E: 148 Society and Gender in Europe 1750-present 3 s.h.
16E 155 Germany 1786-1914: Nationhood, Society, and Culture 3 s.h.
16E: 156 Germany Since 1914: Weimar, Hitler, and After 3 s.h.
16E 174 Medieval Russia 3 s.h.
16E 175 Muscovite Russia: 1280-1598 3 s.h.
16E 176 Imperial Russia: 1598-1801 3 s.h.
16E 177 Imperial Russia: 1801-1917 3 s.h.
16E 178 Soviet Union 1917-1953 3 s.h.
16E 179 Soviet Union 1953-1991 3 s.h.
16W:111 Colonial Latin America 3 s.h.
16W: 112 Introduction to Modern Latin America 3 s.h.
16W: 113 The Mexican Revolution 3 s.h.
16W: 194 Imperialism and Modern India 3 s.h.
16W: 195 Traditional China 3 s.h.
16W: 196 Modern China: 1800 to the Present 3 s.h.
19:157 Third World Development Support 3 s.h.
25: 103 World Music I 3 s.h.
30: 141 Soviet and Post-Soviet Government and Politics 3 s.h.
30:142 Politics in Post-Communist Societies of Eastern Europe and Asia 3 s.h.
30: 143 Government and Politics of the Far East 3 s.h.
30: 144 Latin American Government 3 s.h.
30: 145 Major States of Latin America 3 s.h.
30: 146 African Development 3 s.h.
30: 148 The Politics of southern Africa 3 s.h.
32: 4 Living Religions of the East 3 s.h.
32: 8 Asian Humanities: India 3 s.h.
32: 9 Asian Humanities: China 3 s.h.
32: 169 Religion in India 3 s.h.
32: 176 Chinese Religions 3 s.h.
32: 182 Religion in Japan 3 s.h.
35: 20 Contemporary Latin American Narrative 3 s.h.
36F: 105 French Cinema 3 s.h.
38:20 Contemporary Brazilian Narrative 3 s.h.
38: 114 Culture and Civilization of the Portuguese-Speaking World 3 s.h.
39: 16 Asian Art and Culture 3 s.h.
39:18 Asian Humanities: India 3 s.h.
39:19 Asian Humanities: China 3 s.h.
39: 20 Asian Humanities: Japan 3 s.h.
39:55 Civilizations of Asia: Premodern China and Japan 3 s.h.
39: 56 Civilizations of Asia: Modern China and Japan 3 s.h.
39: 57 Civilizations of Asia: South Asia 3 s.h.
39: 64 Living Religions of the East 3 s.h.
39: 134 Imperialism and Modern India 3 s.h.
39: 153 Traditional China 3 s.h.
39: 154 Modern China: 1800 to the Present 3 s.h.
39: 161 Chinese Religions 3 s.h.
39: 167 Religion in India 3 s.h.
39: 178 Government and Politics of the Far East 3 s.h.
39: 125 Japanese Society and Culture 3 s.h.
39: 161 Religion in Japan 3 s.h.
41: 186 Russia Today 3 s.h.
41: S: 100 Introduction to the Commonwealth of Independent States 3 s.h.
44:157 Third World Development Support 3 s.h.
44:161 African Development 3 s.h.
44: 164 Geography of the Middle East 3 s.h.
113: 18 Social Anthropology of the Caribbean 3 s.h.
113: 125 Japanese Society and Culture 3 s.h.
113: 127 Ethnology of Oceania 3 s.h.
113: 131 Latin American Economy and Society 3 s.h.
129:8 Literatures of the African Peoples 3 s.h.
129: 115 Social Anthropology of the Caribbean 3 s.h.
131: 119 Women, Marriage, and Family in Medieval Europe 3 s.h.
131: 181 Society and Gender in Europe 1200-1789 3 s.h.
131: 182 Society and Gender in Europe 1750-present 3 s.h.
141: 14 Literatures of the African Peoples 3 s.h.
141:30 Introduction to African Art 3 s.h.
141:46 African Development 3 s.h.
141: 148 The Politics of southern Africa 3 s.h.

Historical Perspectives

Students must complete at least 6 semester hours from the courses listed below. Some courses used to satisfy this requirement also may be used to satisfy the foreign civilization requirement.
and culture requirement. APP, CLEP, and transfer course work may be used to satisfy part of this requirement.

1H:5 Western Art and Culture Before 1400 3 s.h.
1H:6 Western Art and Culture After 1400 3 s.h.
1H:13 Islamic Art and Civilization 3 s.h.
1H:16 Asian Art and Culture 3 s.h.
14:30 Greek Civilization 3 s.h.
14:103 Women in Antiquity 3 s.h.
16:1 Western Civilization to 1792 3 s.h.
16:2 Western Civilization Since 1792 3 s.h.
16:5 Civilizations of Asia: Premodern China and Japan 3 s.h.
16:6 Civilizations of Asia: Modern China and Japan 3 s.h.
16:7 Civilizations of Asia: South Asia 3 s.h.
16:10 Issues in Human History: Foundations of Science from Copernicus to Einstein 3 s.h.
16:11 Issues in Human History: The Vietnam War in Historical Perspective 3 s.h.
16:12 Issues in Human History: Women in Historical Perspective 3 s.h.
16:13 Issues in Human History: The Cold War 3 s.h.
16:14 Issues in Human History: Twentieth Century Crisis 3 s.h.
16:15 Issues in Human History: The Decolonization 3 s.h.
16:16 Issues in Human History: Medieval Society 3 s.h.
16:21 Issues in Human History: Modernization 3 s.h.
16:20 Issues in Human History: Decolonization 3 s.h.
16:30 Science and Medicine in World Perspective 3-4 s.h.
19:91 Cultural and Historical Foundations of Communication 3 s.h.
20:30 Roman Civilization 3 s.h.
20:116 The Concept of the City: Rome 3 s.h.
25:144 History of Music I 3 s.h.
25:146 History of Music II 3 s.h.
26:33 Philosophy and Human Nature 3 s.h.
26:34 Philosophy and the Just Society 3 s.h.
32:1 Judeo-Christian Tradition 3 s.h.
32:2 Living Religions of the East 3 s.h.
32:55 History of Christianity to 1500 3 s.h.
32:132 The Reformation and its Medieval Backgrounds 3 s.h.
39:16 Asian Art and Culture 3 s.h.
39:53 Civilizations of Asia: Premodern China and Japan 3 s.h.
39:56 Civilizations of Asia: Modern China and Japan 3 s.h.
39:57 Civilizations of Asia: South Asia 3 s.h.
39:64 Living Religions of the East 3 s.h.
49:2 Theatre and Society 3 s.h.
113:12 Introduction to Prehistory 3 s.h.

FOREIGN STUDENTS AND THE HISTORICAL PERSPECTIVES REQUIREMENT

In addition to the courses listed above, foreign students who hold nonimmigrant student visas may use the following courses to satisfy the historical perspectives requirement.

16A:61 American History 1492-1877 3 s.h.
16A:62 American History 1877-Present 3 s.h.

Humanities

Students must complete 9 semester hours of course work in humanities, including 8G:1 The Interpretation of Literature (3 s.h.). APP credit and transfer work may be used to satisfy part of this requirement. Some courses used to satisfy this requirement also may be approved to satisfy the foreign civilization and culture requirement.

1H:1 Concepts and Context: Art and Culture 3 s.h.
1H:2 Art of Africa, Oceania, and Pre-Columbian America 3 s.h.
1H:4 Masterpieces: Art and Cultural Paradigms 3 s.h.
1H:10 Freshman and Sophomore Tutorial: Introduction to the History of Art 3 s.h.
1H:66 Introduction to American Art 4 s.h.
7S:112 Introduction to Museology 3 s.h.
8:13 The Classical Views 3 s.h.
8:40 Major Texts in World Literature I 3 s.h.
8:41 Major Texts of World Literature II 3 s.h.
8:115 Classical Mythology 3 s.h.
8:184 Contemporary Theatre and Drama 3 s.h.
8G:2 Biblical and Classical Literature 3 s.h.
8G:3 Medieval and Renaissance Literature 3 s.h.
8G:4 Epic and Tragic Literature 3 s.h.
8G:5 Comedy and Society 3 s.h.
8G:6 Narrative Literature 3 s.h.
8G:7 Lyric Poetry 3 s.h.
8G:8 Literature of the Theater 3 s.h.
8G:9 American Lives 3 s.h.
8G:11 Literature and Sexuality 3 s.h.
8G:12 Comic and Tragic Literature 3 s.h.
8G:13 Literatures of the Latino/a Peoples 3 s.h.
8G:14 Literatures of the African Peoples 3 s.h.
8G:15 Women and Literature 3 s.h.
8W:1 Creative Writing Studio Workshop 3 s.h.
13:118 The Third Reich and Literature 3 s.h.
13:183 The Faust Tradition and Goethe’s Faust 3 s.h.
14:13 The Classical Views 3 s.h.
14:103 Women in Antiquity 3 s.h.
14:107 Ancient Views of Justice 3 s.h.
14:108 Greek Drama in Translation 3 s.h.
14:112 Classical Mythology 3 s.h.
20:113 Religion and the Occult in Antiquity 3 s.h.
24:102 Introduction to Museology 3 s.h.
25:13 Masterpieces of Music 3 s.h.
25:14 Masterpieces of Music 3 s.h.
25:59 Performance Instruction for Non-Majors 3 s.h.
25:82 Group Piano I Non-Music Majors 1 s.h.
25:103 World Music I 3 s.h.
25:104 World Music II 3 s.h.
25:159 Survey of Music Masterpieces I 3 s.h.
25:160 Survey of Music Masterpieces II 3 s.h.
26:61 Introduction to Philosophy 3 s.h.
26:102 Introduction to Ethics 3 s.h.
28:72 Leisure and the Liberal Arts 3 s.h.
28:102 Introduction to Museology 3 s.h.
30:30 Introduction to Political Thought and Political Action 3 s.h.
32:2 Religion and Society 3 s.h.
32:3 Quest for Human Destiny 3 s.h.
32:8 Asian Civilizations: India 3 s.h.
32:9 Asian Civilizations: China 3 s.h.
32:10 Introduction to Religious Studies 3 s.h.
32:15 New Testament Survey 3 s.h.
32:51 Religious Thinkers of the West 3 s.h.
32:65 Power and Justice in the Good Life 3 s.h.
32:111 Religion and Women 3 s.h.
32:164 Religion and the Occult in Antiquity 3 s.h.
33:121 The Good Society 2-4 s.h.
33:154 Human Nature and the Impact of Science 2-4 s.h.
33:161 Form and Milieu in the Arts 2-4 s.h.
35:20 Contemporary Latin American Narrative 3 s.h.
36F:2 Survey of Film 3 s.h.
36F:21 European Film History 3 s.h.
38:20 Contemporary Brazilian Narrative 3 s.h.
39:18 Asian Civilizations: India 3 s.h.
39:19 Asian Civilizations: China 3 s.h.
39:20 Asian Civilizations: Japan 3 s.h.
39:50 Non-Western Literary Traditions 3 s.h.
41:151 Russian Literature in Translation 1800-1860 3 s.h.
41:152 Russian Literature in Translation 1860-1917 3 s.h.
45:1 American Values 3 s.h.
45:30 Introduction to Afro-American Culture 3 s.h.
48:40 Major Texts in World Literature I 3 s.h.
48:41 Major Texts of World Literature II 3 s.h.
48:50 Non-Western Literary Traditions 3 s.h.
49:1 Art of the Theatre 3 s.h.
49:20 Basic Acting II 3 s.h.
49:62 Basic Playwriting 3 s.h.
49:94 Oral Interpretation of Literature 3 s.h.
49:112 History of Theatre and Drama 3 s.h.
49:113 History of Theatre and Drama I 3 s.h.
49:114 Contemporary Theatre and Drama 3 s.h.
49:118 American Women Playwrights: 19th and 20th Century 3 s.h.
49:180 Greek Drama in Translation 3 s.h.
49:184 English Renaissance Drama 3 s.h.
97:115 Introduction to Museology 3 s.h.
113:103 Introduction to Museology 3 s.h.
129:8 Literatures of the African Peoples 3 s.h.
129:61 Introduction to Afro-American Culture 3 s.h.
131:111 Religion and Women 3 s.h.
137:1 Beginning Tap 1-2 s.h.
137:2 Beginning Jazz 1-2 s.h.
137:3 Beginning Ballet 1-2 s.h.
137:4 Beginning Modern Dance 1-2 s.h.
137:7 Continuing Tap 1-2 s.h.
### Liberal Arts

#### 137: 12 Continuing Jazz  
1-2 s.h.

#### 137: 13 Continuing Ballet  
1-2 s.h.

#### 137: 14 Continuing Modern Dance  
1-2 s.h.

#### 137: 21 Low Intermediate Tap  
2 s.h.

#### 137: 22 Low Intermediate Jazz  
1-2 s.h.

#### 137: 23 Low Intermediate Ballet  
1-2 s.h.

#### 137: 24 Low Intermediate Modern Dance  
1-2 s.h.

#### 137: 33 Intensive Training for the Male Dancer  
2 s.h.

#### 137: 80 Dance and Society  
3 s.h.

#### 137: 103 Major Ballet I  
1-2 s.h.

#### 137: 104 Major Modern Dance I  
1-2 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.

#### 141: 14 Literatures of the African Peoples  
3 s.h.

#### 143: 50 Honors Seminar in the Natural Sciences  
3 s.h.

#### Quantitative or Formal Reasoning

This requirement may be satisfied by completing one of the courses listed below or by completing a more advanced course that has one of these courses as a prerequisite. Transfer course work or CLEP or APP credit may be used to satisfy this requirement. Students should fulfill the requirement by the end of the second year in residence or during the first 60 semester hours of study at The University of Iowa.

- **7P:** 25 Elementary Statistics and Inference
- **22C:** 16 Introduction to Programming with Pascal
- **22M:** 9 Elementary Functions
- **22M:** 10 Finite Mathematics
- **22M:** 11 Introduction to Calculus with Applications
- **22M:** 15 Mathematics for the Biological Sciences
- **22M:** 16 Calculus for the Biological Sciences
- **22M:** 17 Quantitative Methods I
- **22M:** 25 Calculus I
- **22M:** 35 Engineering Calculus I
- **22M:** 45 Accelerated Calculus I
- **22S:** 2 Statistics and Society
- **22S:** 8 Quantitative Methods II
- **22S:** 25 Elementary Statistics and Inference
- **26:** 36 Principles of Reasoning
- **36C:** 40 Theory and Practice of Argument
- **103:** 13 Language and Formal Reasoning

#### Social Sciences

Students must complete at least 6 semester hours. Transfer course work or CLEP or APP credit may be used to satisfy part of this requirement. Some of the courses approved to satisfy this requirement may also be approved to satisfy the foreign civilization and culture requirement.

- **6E:** 1 Principles of Macroeconomics
- **6E:** 2 Principles of Macroeconomics
- **7E:** 99 Politics of Education
- **16:** 50 Introduction to Afro-American Society
- **19:** 90 Social Scientific Foundations of Communication
- **23A:** 140 National Security Forces in Contemporary American Society
- **28:** 70 Social Scientific Perspectives on Leisure and Play
- **30:** 1 Introduction to American Politics
- **30:** 30 Introduction to Political Thought and Political Action
- **30:** 40 Introduction to the Politics of the Industrial Democracies
- **30:** 41 Introduction to the Politics of Russia, Eastern Europe and Eurasia
- **30:** 42 Introduction to the Politics of Developing Areas
- **30:** 50 Introduction to Political Behavior

#### General Education Requirements

- **50:** 60 Introduction to International Relations
- **50:** 61 Introduction to American Foreign Policy
- **50:** 70 Introduction to Political Communication
- **140:** Government and Politics of Western Europe
- **146:** African Development
- **179:** Crises in the Middle East
- **31:** Elementary Psychology
- **31:** General Psychology
- **31:** Introduction to Clinical Psychology
- **31:** Introduction to Child Development
- **31:** Introduction to Mental Processes
- **31:** Introduction to Comparative Psychology
- **34:** 1 Introduction to Sociology: Principles
- **34:** 2 Social Problems
- **36C:** 60 Communication Theory in Everyday Life
- **36M:** 25 Mass Media and Mass Society
- **44:** 1 Introduction to Human Geography
- **44:** 11 Introduction to Social Geography
- **44:** 19 Contemporary Environmental Issues
- **44:** 30 Introduction to Economic Geography
- **44:** 161 African Development
- **47:** 1 Global Interdependence and Human Survival
- **103:** 11 Language and Society
- **113:** 3 Introduction to the Study of Culture and Society
- **113:** 10 Anthropology and Contemporary World Problems
- **113:** 14 Language and Human Behavior
- **113:** 119 Urban Anthropology
- **129:** 60 Introduction to Afro-American Society
- **141:** 146 African Development

### General Education Restrictions and Waivers

Pass/Nonpass: No course used to satisfy any of the General Education Requirements may be taken pass/nonpass.

Courses from the major department: Students may use approved courses from their major department to satisfy the General Education Requirements. Courses approved by the college are listed above.

No more than three courses from one department: Students may use no more than three approved courses from any one department to satisfy the General Education Requirements in all areas except physical education and foreign language. In satisfying the physical education or foreign language requirement, students may use up to four approved courses from a single department.

Departmental waivers of General Education Requirements: Departmental waivers are no longer permitted for B.A. or B.S. candidates.
However, with the approval of the Educational Policy Committee, departments may waive up to 7 semester hours of General Education Requirements for their B.F.A. and B.M. candidates in the area closest or most relevant to the students’ programs. Approved waivers are listed in the current Schedule of Courses and in the departmental sections of the Catalog.

Placement and Exemption Examinations for General Education

Satisfactory performance on tests administered at The University of Iowa may lead to full or partial exemption from the rhetoric, mathematics, physical education, or foreign language requirements. Academic credit is not awarded.

Exemption and, in some cases, academic credit may be awarded for satisfactory scores on examinations administered by the Advanced Placement Program (APP) and the College-Level Examination Program (CLEP) in the following General Education Requirement areas: rhetoric, foreign language, historical perspectives, humanities, natural sciences, quantitative or formal reasoning, foreign civilization and culture, and social sciences. Specific information about the application of credit for APP and CLEP is available from the Evaluation and Examination Service.

Transfer Students

Transfer students who have taken courses elsewhere that are similar to those approved for general education at Iowa may count these courses toward the General Education Requirements. Acceptance of these courses is shown on the student’s admission degree evaluation. Students who transfer fewer than enough hours to meet a General Education Requirement may use only approved courses to complete the remainder of the requirement.

Students with A.A. Degrees

Students who receive A.A. degrees from Iowa Area Community Colleges participating in the Iowa Community College/Regents Articulation Agreement are considered to have met all the General Education Requirements, except foreign language and foreign civilization and culture, if the program of study for which the A.A. degree was awarded includes the following:

- a minimum of 60 semester hours (90 quarter hours) of credit acceptable toward graduation; mathematics courses comparable to 22M:1 Basic Algebra I, 22M:2 Basic Algebra II, and 22M:3 Basic Geometry are not accepted toward graduation;
- completion of an agreed-upon group of courses at the community college; and
- a grade-point average of at least 2.00.

Students who use the provisions of the articulation agreement are granted a maximum of 62 semester hours of degree credit from all sources toward the 124 semester hours required for a bachelor’s degree at Iowa. If a student has earned more than 62 semester hours of degree credit in completing the A.A. degree, the excess credit is used in computing the grade-point averages and may be used to satisfy course requirements, but the excess credit does not count toward the bachelor’s degree.

Representatives from the community colleges and the Regents universities meet annually to review the provisions of the articulation agreement.

Restrictions and Limits on Semester Hours Applied Toward a Degree

- A maximum of 16 semester hours of credit with a grade of P (pass) and 16 with a grade of S (satisfactory) is accepted toward the 124 semester hours required for graduation.
- The second-grade-only option may be applied to a maximum of three courses.
- A maximum of 30 semester hours of credit by correspondence from all approved sources is accepted toward the 124 semester hours required for graduation. B.L.S. students are not subject to this restriction.
- A maximum of 32 semester hours of credit by examination from all approved sources is accepted toward the 124 semester hours required for graduation.
- A maximum of 30 semester hours of credit earned in other colleges of the University while the student is enrolled in the College of Liberal Arts may be accepted toward the 124 semester hours required for graduation. Undergraduate courses in the College of Education are exempt from this rule.
- A maximum of 62 semester hours of degree credit from two-year colleges is accepted in transfer toward meeting the 124 semester hours required for graduation. If a student has earned more than 62 semester hours of degree credit from two-year colleges, the credit and grades are used in computing the grade-point averages and may be used to satisfy course requirements, but the credit does not count toward the total hours needed for graduation.
- A maximum of 50 semester hours of credit from one academic department is accepted toward a B.A. or B.S.; 62 toward a B.F.A.; and 40 toward the B.A. in interdepartmental studies.
- Candidates for the B.A. in interdepartmental studies may count no more than 18 semester hours of advanced course work from any one department toward the 36-semester-hour advanced course requirement.
- A maximum of 16 semester hours of vocational-technical credit is accepted in transfer toward the 124 semester hours required for graduation.
- A maximum of 20 semester hours of ROTC credit is accepted toward the 124 semester hours required for graduation.

Courses without Degree Credit

Courses 10:8, 10:9, 10:89, 22M:1, 22M:2, and 22M:3 carry no degree credit. Students who take these courses, or courses equivalent to them at another college or university, must complete additional semester hours beyond the 124 required for graduation. Although these courses carry no degree credit, grades awarded in them are used in computing grade-point averages, and the hours count toward semester loads for all official purposes (e.g., full-time and half-time status, minimum semester-hour requirement, reasonable academic progress, dean’s list eligibility, and so forth).

A student’s degree evaluation gives the correct number of “hours taken” toward the 124 semester hours required for the degree by subtracting any hours from courses without degree credit. However, a student’s permanent record (official transcript) includes these hours in “hours earned” even though they do not count toward the 124 semester hours required for graduation.

Duplication

Duplication occurs when a student takes the same course more than once or takes a course that duplicates the content of a satisfactorily completed course. Duplication also may involve credit earned for satisfactory scores on APP or CLEP exams. Duplication hours do not count toward the total number of hours required for graduation. Grades for both courses, however, are used in computing the grade-point averages.

Regression

Regression occurs when a student takes a lower-level or prerequisite course after having satisfactorily completed a more advanced course in the same or related subject. Hours earned by regression do not count toward the total number of hours required for graduation.

Requirements for the Major

Specific requirements for majors offered in the College of Liberal Arts are listed in the departmental sections of the Catalog. Students should confer with their advisers in outlining plans for a major.

A maximum of 50 semester hours of credit from one academic department is accepted toward a B.A. or B.S. degree; 62 toward a B.F.A.; and 40 toward the B.A. in interdepartmental studies. This includes both University of Iowa and transfer course work. Special considerations for double majors are described below.

Departments have different policies on the acceptance of transfer credit toward the requirements for a major. Students are advised to check with their major department.

Courses in the major department may not be taken on a pass/nonpass basis except by departmental action for courses that are not to be applied toward the major. This restriction
applies to both University of Iowa and transfer course work. Courses required for the major in cognate or related areas may be taken pass/nonpass, if available, at the discretion of the major department. S (satisfactory) grades may be earned in the major.

A maximum of 16 semester hours of credit by examination may be awarded in the major. See “Credit by Examination in the Major or Minor” in this section of the Catalog.

Declaring or Changing Majors

Liberal arts students who are advised at the Undergraduate Academic Advising Center can declare or change majors at UAAC until they have earned 30 semester hours of credit. All students in the College of Liberal Arts can declare or change majors in the Office of Academic Programs, 116 Schaeffer Hall, where staff members make the changes and assign new advisers.

Students who wish to major in actuarial science, American studies, communication studies, exercise science, global studies, journalism and mass communication, leisure studies, or social work, or who wish to earn the B.S. degree in computer science or psychology, must complete an application procedure before they can be admitted to the major. Admission to these programs is based on grades in specified prerequisite courses, cumulative grade-point average, and/or other criteria.

Liberal arts students wishing to declare a major in another college of the University first must be admitted to that college.

Students interested in earning a B.A. in interdepartmental studies first must schedule an interview with an academic adviser in the Liberal Arts Office of Academic Programs to discuss areas of concentration and preparation of a plan of study.

Students seeking the Bachelor of Liberal Studies (B. L. S.) must formally apply for admission in the Center for Credit Programs.

Application forms for admission to the teacher education program may be obtained in the Office of Student Services and Field Experiences in the College of Education, N310 Lindquist Center.

Double Majors

Students may earn a single bachelor’s degree with two or more majors if they meet the requirements for each major and if the departments or programs offer the same degree in the College of Liberal Arts. For example, a student may earn a B.A. in history and English or a B.S. in psychology and sociology.

When a single department offers a degree in more than one subject area (such as physics and astronomy or Spanish and Portuguese), students may earn a double major, a major and a minor, or two minors involving these degree programs. All students must earn a minimum of 56 semester hours in courses taken outside that department.

Students seeking double majors in the programs within the Division of Mathematical Sciences (actuarial science, computer science, mathematics, and statistics) must earn a minimum of 56 semester hours in courses taken outside the division.

Students seeking double majors in the teacher education programs must earn a minimum of 56 semester hours in courses taken outside the College of Education.

Candidates for the B.A. in interdepartmental studies may not earn other majors.

Returning for a Second Major

Students who already have earned a B.A. or B.S. degree from the College of Liberal Arts and who are not enrolled in a graduate or professional program may complete the requirements for another major. These students must apply for readmission to the College of Liberal Arts, declare the appropriate major on the application, and register as seniors (A4).

Students who return to the University to complete another major must meet only the requirements for that major; they need not meet the residence requirement. It is the student’s responsibility to apply to graduation analysis in the Office of the Registrar upon completion of the requirements for the second major so that a notation can be placed on the permanent record. Students who hold a bachelor’s degree from another college or university may not complete a second major at The University of Iowa.

Students may return to the college to complete the requirements for a second major developed from their liberal arts minor.

Minors

Liberal Arts Minors

Students graduating from the College of Liberal Arts may earn a minor or minors in any degree-granting program in the college outside of their major field or in another college of the University. The minor may relate directly to the major or may allow a student to follow an interest entirely different and separate from the major.

Requirements

The requirements given below are the general requirements for a minor in the College of Liberal Arts. Requirements for specific minors are described in the departmental sections of the Catalog.

A minimum of 15 semester hours must be taken in the minor department or program.

At least 12 of the 15 semester hours must be taken at The University of Iowa in advanced courses acceptable to the academic unit granting the minor. Neither transfer credit nor credit by examination is accepted toward the 12 semester hours of advanced work. Students should check with the minor department to identify acceptable courses.

Students must have a grade-point average of at least 2.00 in all work attempted in the minor department or program.

No course accepted toward the minor may be taken pass/nonpass.

Guidelines

Each academic unit determines which of its advanced courses it considers acceptable for a minor. Students seeking information about acceptable courses should contact the minor department.

Some programs in the college that do not offer a bachelor’s degree offer minors. For example, minors may be earned in aging studies, American Indian and native studies, Latin American studies, and women’s studies.

Students do not “declare” a minor; rather, they indicate their desire to have a minor listed on their record when they apply for a degree. If the student has completed the requirements for a minor, a notation is placed on the permanent record.

Students who already have earned a bachelor’s degree from The University of Iowa and are not enrolled in a graduate or professional program may complete the requirements for a minor and apply to the Office of the Registrar to have a notation regarding the minor placed on their permanent record.

Course work applied toward the minor also may be used to satisfy the General Education Requirements.

Course work applied toward the minor also may be used to satisfy major requirements in cognate or related areas. Cognate requirements are those courses outside of the major department that are required as part of the major. (Students may not apply the same course to both the major in American studies and a minor in a cognate department.)

University of Iowa Guided Correspondence Study courses count toward the minor.

Restrictions

Course work applied toward a minor may not be used to satisfy the requirements for a major. (Students earning minors in American Indian and native studies or Latin American studies may count up to 6 semester hours from their major departments toward the minor.)

Course work applied toward a minor may not be used to satisfy the requirements for another minor.

Candidates for the B.L.S. are not eligible to earn minors.

The following degree-granting programs do not offer minors: biochemistry; elementary education; exercise science; health occupations education; interdepartmental studies; liberal studies; literature, science, and the arts; Russian, East European, and Eurasian studies; social studies; and speech and hearing science. A minor in science education is offered through the College of Education.
Accelerated Professional Track

at The University of Iowa. A grade-point average of at least 2.00 is required in all courses taken for the minor and in all of these courses taken at Iowa.

Students in Business Administration, Engineering, Medicine, and Nursing may earn liberal arts minors by satisfying College of Liberal Arts requirements for minors. (For restrictions, see appropriate college sections of the Catalog.)

Minor in Business Administration

Students in the College of Liberal Arts may elect a minor in business administration. The courses listed below satisfy all requirements for the minor. At least 15 semester hours of courses listed below satisfy all requirements for the minor. At least 15 semester hours of courses listed below satisfy all requirements for the minor. At least 15 semester hours of courses listed below satisfy all requirements for the minor. At least 15 semester hours of courses listed below satisfy all requirements for the minor. At least 15 semester hours of courses listed below satisfy all requirements for the minor.

Business calculus (22M: 16, 22M: 17, 22M:25, or 22M:35) 3-4 s.h.
Statistics (22S:8, 22S:39, 22S:102, 22S:120, 31:142, or 7P:143) 3-4 s.h.
6E:1 Principles of Macroeconomics 3-4 s.h.
6E:2 Principles of Macroeconomics 3-4 s.h.
6A:1 Introduction to Financial Accounting 3 s.h.
6A:2 Introduction to Managerial Accounting 3 s.h.
6K:70 Computer Analysis 3 s.h.
*6M: 100 Introduction to Marketing 3 s.h.
*6F: 100 Introductory Financial Management (or 57: 14) 3 s.h.
*6J: 100 Administrative Management 3 s.h.
*Must be taken in junior or senior year

Accelerated Professional Track

For superior students in the College of Liberal Arts who plan to continue for a Master of Business Administration (M.B.A.) at The University of Iowa, the accelerated professional track offers an alternative to the business minor. Students pursue an undergraduate degree in a field other than business while taking M.B.A. foundation courses. Upon receiving the bachelor’s degree, students enter the Graduate College to complete the M.B.A. degree. More information is available from the Academic Programs Office, College of Business Administration.

Minors in Education

Liberal arts students who are pursuing the B.A. or B.S. degree may earn minors in the College of Education. The four minors offered by the College of Education are educational psychology, general education, human relations, and science education. Contact the Office of Student Services and Field Experiences in the College of Education for specific requirements.

Registration

See “Registration” in the Learning at Iowa section of the Catalog.

Changes in Registration

Student Responsibility for Changes in Registration

Students must initiate changes in registration, obtain the proper signatures on the proper forms, and deliver the forms to the Registration Center before the deadlines. Confirmation that changes have been made is the revised computer printout generated at the Registration Center.

Adding and Dropping Courses

Once classes have begun, courses may be added during the first three weeks of the semester (or the first one and one-half weeks of the summer session) with the signatures of both the adviser and instructor on a Change of Registration form. The form must be processed at the Registration Center. Courses may be dropped at any time during the first ten weeks of the semester (or first five weeks of the summer session) with the approval of the adviser and the instructor. Students who wish to add independent study, directed readings, or honors research may do so during the first eight weeks of the semester (or first four weeks of the summer session); however, a dean’s signature is required after the third week of the semester (or first one and one-half weeks of the summer session). Students may request the dean’s signature in the Office of Academic Programs.

Special courses that meet on a different schedule or that start or end at times other than the beginning and end of the semester, and are so listed in the Schedule of Courses, may be added with the necessary signatures any time during the first one-fifth of the course’s duration and dropped any time during the first two-thirds of the course’s duration. Proportionally similar deadlines operate during the usual eight-week summer session and for other special session courses.

Students who fail to attend class are not dropped from the course automatically. A student who wishes to drop a course must obtain the necessary signatures on a Change of Registration form and take it to the Registration Center. Only under special conditions may an instructor drop a student from a course.

Adding and Dropping Courses Late

Students who wish to add or drop courses after the deadlines may do so only with the signature of the associate dean for academic programs in addition to the signatures of the adviser and instructor. Students may request permission for the dean’s signature in the Office of Academic Programs. Approval to add or drop courses late is granted only in extraordinary circumstances and only with appropriate documentation.

Instructor’s Option to Drop for Nonattendance

To provide vacancies in crowded classes, instructors may drop students who have not attended any class session during the first eight calendar days of the semester (or first four calendar days of the summer session), unless the students have offered acceptable reasons for beginning the course late. This provision is for the benefit of students who otherwise would be unable to enroll in crowded classes; it should not be used when these circumstances do not exist. These drop actions are made without the assignment of a W (withdrawn). The Registration Center notifies each student dropped from a course and the student’s adviser.

Students should not assume that they have been dropped automatically from a course because they have not attended it.

Withdrawn (w)

Undergraduate students are assigned the grade of W (withdrawn) for any course in any undergraduate college dropped after the third week of the semester (or first one and one-half weeks of the summer session). For courses that start or end at times other than the beginning and end of the semester, students may drop the course anytime within the first one-fifth of the course’s duration without being assigned a W.

Limits on Withdrawing from Courses

Liberal Arts students may not drop the same course with the grade of W more than twice. Students who do so are placed on disciplinary probation.

Students admitted as degree candidates to the College of Liberal Arts fall semester 1991 and after are limited to an overall maximum of five Ws while they are enrolled in the College of Liberal Arts. Freshmen entering the University directly from high school with no prior full-time college experience are permitted to exclude Ws they receive during their first two sessions of enrollment.

All other liberal arts students will be limited to a maximum of five Ws beginning with their fall semester 1994 registration. Ws earned by these students before fall semester 1994 will not count toward the maximum of five.

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 will not be removed from the record. Requests for such exclusions are made in the Office of Academic Programs.

Changes in Variable and Arranged Credit

Students who have registered for courses offered for variable or arranged credit may change the number of semester hours according to the rules for adding and dropping courses. Students may increase the number of hours during the first three weeks of the semester (or first one and one-half weeks of the summer session) and may decrease the number during the first ten weeks of the semester (or first five
weeks of the summer session). To change the number of semester hours, a student drops the course and adds it for the desired hours.

**Withdrawal of Registration**

Students may withdraw their entire registration any time before the end of the twelfth week of the semester or sixth week of the summer session. No credit is given for the semester or session. Students who withdraw registration may not be reinstated after the deadline for that session. Withdrawal cards are obtained in the Office of the Registrar.

**Auditing Courses**

Students in the College of Liberal Arts may audit a course (reduce to zero the number of semester hours) if approval is granted by the instructor of the course and the adviser. The instructor assigns a grade of R (registered) if the student’s attendance and performance are satisfactory; if they are unsatisfactory, the grade of W (withdrawn) is assigned. Courses offered only for zero credit are graded R/W. Courses offered for zero credit as well as for credit hours, when taken for zero credit, are graded R/W. Audited courses completed with a mark of R do not meet college requirements and carry no credit toward graduation.

To register as an auditor during early registration, a student must obtain special permission approval from the instructor. To add a course for audit after the opening of the semester, a student registers for zero credit on a Change of Registration form.

Changes from credit to audit or from audit to credit must be made within the first three weeks of the semester (or first one and one-half weeks of the summer session), using a Change of Registration form and obtaining the necessary signatures. No changes are accepted after the deadline.

**Late Registration**

Students are not permitted to register after the third week of the semester or the first one and one-half weeks of the summer session.

**Maximum Schedule**

The maximum permitted registration is 18 semester hours during a semester, 9 semester hours during a summer session. Students in good academic standing may request permission to register for more hours than the maximum allowed in the Office of Academic Programs.

To qualify for full-time status, students must register for 12 semester hours during a fall or spring semester or 6 semester hours during a summer session. The recommended schedule for students who wish to complete a degree in eight semesters (four year) is 15-16 semester hours each semester.

**Degree Evaluation**

Students who are currently enrolled in the College of Liberal Arts receive a degree evaluation each semester. The degree evaluation is a complete summary of a student’s academic progress from admission to graduation. Questions may be referred to Graduation Analysis, Office of the Registrar.

**Application for Degree**

To be considered for graduation, students must file an application for a 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 permanent record must inform the Office of the Registrar when they file the degree application, so that completion of the requirements for the minor can be verified.

**Grading**

**Grading System**

The following grading system is used in the College of Liberal Arts.

<table>
<thead>
<tr>
<th>Grade description</th>
<th>Grade point for each semester hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>4.33</td>
</tr>
<tr>
<td>A Superior</td>
<td>4.00</td>
</tr>
<tr>
<td>A</td>
<td>3.67</td>
</tr>
<tr>
<td>B+</td>
<td>3.33</td>
</tr>
<tr>
<td>B Above average</td>
<td>3.00</td>
</tr>
<tr>
<td>B</td>
<td>2.67</td>
</tr>
<tr>
<td>C+</td>
<td>2.33</td>
</tr>
<tr>
<td>C Average</td>
<td>2.00</td>
</tr>
<tr>
<td>C</td>
<td>1.67</td>
</tr>
<tr>
<td>D+</td>
<td>1.33</td>
</tr>
<tr>
<td>D Below average</td>
<td>1.00</td>
</tr>
<tr>
<td>D</td>
<td>0.67</td>
</tr>
<tr>
<td>F Failing</td>
<td>0</td>
</tr>
<tr>
<td>1 Incomplete</td>
<td>Not used in computing CPA</td>
</tr>
<tr>
<td>N Nonpass</td>
<td>Not used in computing CPA</td>
</tr>
<tr>
<td>O No grade reported</td>
<td>Not used in computing GPA</td>
</tr>
<tr>
<td>P Pass</td>
<td>Not used in computing CPA</td>
</tr>
<tr>
<td>R Registered</td>
<td>Not used in computing GPA</td>
</tr>
<tr>
<td>S Satisfactory</td>
<td>Not used in computing CPA</td>
</tr>
<tr>
<td>W Withdrawn</td>
<td>Not used in computing GPA</td>
</tr>
</tbody>
</table>

**Policies for Plus/Minus Grading**

The grading system was expanded to include plus and minus grades effective with grades reported for the summer session 1988. The following policies govern the use of plus/minus grading in the College of Liberal Arts.

The use of plus and minus is optional: departments and individual instructors are free to use the old system (with the grades of A, B, C, D, F) or the new system (which permits the assignment of plus and minus). Within either system, instructors may use any or all of the points on the grading scale.

The grading system used by an instructor must be applied to all students in a given class.

The grading system must be the same in all sections of a multicourse course.

Instructors should announce at the beginning of the semester or summer session the grading system to be used in the class.

**Grade-Point Average (GPA)**

The cumulative grade-point average (GPA) is computed by:

(a) multiplying the number of semester hours in each course by the appropriate grade points;
(b) totaling the grade points earned to date; and
(c) dividing the sum in (b) by the number of hours undertaken, excluding courses in which grades of I, N, O, P, R, S, or W have been given.

Grades of F are included in hours attempted and are used in computing the GPA. Although grades of A+ have a value of 4.33 in calculating a student’s GPA, the cumulative GPAs displayed at the bottom of the permanent record are truncated so as not to exceed 4.00.

The cumulative GPA includes all college work attempted, both at the UI and at all transfer institutions.

**Incomplete (I)**

Instructors may report a grade 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; the work is unfinished for reasons acceptable to the instructor; and the student’s standing in the course is satisfactory. Courses may not be repeated to remove incomplete. Incomplete grades must be removed by completing the unfinished part of the work.

The work must be completed and submitted to the course instructor three and one-half weeks before the close of the examination period of the next session for which the student is registered, except that students with incomplete from the spring semester are exempt from the need to complete the work during the succeeding summer session. Failure to remove the I by that date results in an F being assigned for each incomplete.

**No Grade Reported (O)**

A grade of O is assigned by the Office of the Registrar when an instructor fails to report a grade or reports an invalid grade.

The O designation on a student’s permanent record must be changed to a valid grade according to the procedures for incomplete described above. Failure to remove the O by the designated deadline will result in an F being assigned for each O.

**Pass/Nonpass Option (P/N)**

Students in the College of Liberal Arts have the option of taking elective courses on a P/N basis. The instructor assigns a standard letter grade, which is converted automatically in the Office of the Registrar. Grades of A+, A, A-, B+, B, B-, C+, C, and C- are converted to P; grades of D+, D-, F, and N are converted to N.

Grades of P and N are not used in computing grade-point averages; the grade of N does not count as hours earned for graduation.

Students may register for P/N beginning the first day of classes through the end of the third
week of the semester (first one and one-half weeks of the summer session). For courses that start or end at times other than the beginning and end of the semester, students may register for P/N anytime during the first one-fifth of the duration of the course. Signatures of both the instructor and the adviser must be obtained on a P/N form, and the form must be submitted to the Registration Center before the deadline. A P/N registration may not be changed after the deadline.

**Restrictions**

Students on academic probation may not use the P/N grading option.

P/N grading may be used in elective courses only. Courses used to satisfy the General Education Requirements may not be taken P/N. Course work in the major department is not available on a P/N basis, except by departmental action for courses that are not to be applied toward the major. This restriction applies to both University of Iowa and transfer course work. Courses required for the major in cognate or related areas may be taken P/N, if available, at the discretion of the major department. No course accepted toward the minor may be taken P/N.

A maximum of 16 semester hours of P grades from all colleges is accepted toward the bachelor’s degree. Transfer students admitted to the University with fewer than 60 semester hours of credit may earn the maximum of 16 semester hours of P grades. Those admitted with 60 or more semester hours are limited to 8 semester hours.

A maximum of two P/N courses may be taken in any session.

**Satisfactory/Fail Grading (S/F)**

Certain courses in the College of Liberal Arts are offered S/F and are so designated in the Schedule of Courses. All students registered for these courses receive either an S or an F.

The grade of S is not used in computing grade-point averages, but the grade of F is used. Credit with the grade of S may be applied toward the General Education Requirements or toward requirements in the major or minor. The grade of F does not count as hours earned for graduation.

Special forms are not necessary for registration in S/F courses, since all students enrolled in such courses automatically receive either an S or an F.

A maximum of 16 semester hours with the grade of S is accepted toward the bachelor's degree.

**Second-Grade-Only Option**

Unless regression is involved, students may repeat courses taken at The University of Iowa and have only the grade and credit of the second registration used in calculating total hours earned as well as The University of Iowa cumulative and total cumulative grade-point averages. Under the provisions of this option, the Office of the Registrar marks the permanent record (with the symbol #) to show that a particular course has been repeated. Both grades remain on the permanent record, but only the second one is used in calculating the grade-point averages and hours earned.

Students who wish to use this option register in the usual manner for the course they decide to repeat or add it during the regular period for adding courses (the first three weeks of the semester or the first one and one-half weeks of the summer session). Students also must file for the option in the Office of Academic Programs. Unless this is done, both grades continue to be counted in the grade-point averages.

**Restrictions**

The second-grade-only option may be used only for University of Iowa courses, including courses in the Saturday and Evening Class Program, telecourses, and off-campus courses. A course taken at another college or university may not be repeated at The University of Iowa under the second-grade-only option, nor may a University of Iowa course be repeated at another institution under the second-grade-only option.

Students may apply the option to a maximum of three courses. The option may be used only once per course, and it may not be used if regression has occurred.

If the course was taken for a grade the first time, it must be taken for a grade the second time. If the course was taken pass/nonpass the first time, it may be taken pass/nonpass or for a grade the second time.

A course taken through regular registration may not be repeated through Guided Correspondence Study (GCS) under the second-grade-only option. A course taken through GCS maybe repeated through GCS or regular registration.

The option became available to students in the fall semester 1969. Courses taken or repeated before that time are not eligible.

The option may not be used if a student already has been awarded a degree from The University of Iowa.

**Mid-Semester Reports**

At mid-semester, instructors are asked to report grades for students whose work is below C-. The Office of the Registrar distributes these reports to advisers and to individual students, but these grades are not recorded on the permanent record.

**Academic Standards**

Students in the College of Liberal Arts are expected to maintain satisfactory academic standards and to demonstrate reasonable progress toward a degree. Academic probation serves as a warning that students will not graduate unless their academic performance improves.

**Academic Probation**

Students must achieve the following minimum University of Iowa and total cumulative grade-point averages or they are placed (or continued) on probation.

- **Freshmen (O-29 s.h.): 1.70**
- **Sophomores (30-59 s.h.): 1.85**
- **Juniors (60-89 s.h.): 2.00**
- **Seniors (90 or more s.h.): 2.00**
- **Special students (A9): 2.00**

Students on academic probation are restored to good standing if their University of Iowa and total cumulative grade-point averages equal or exceed the grade-point averages designated above.

The pass/nonpass (P/N) grading option may not be used by students on academic probation; however, S/F courses are allowed.

Entering freshmen and transfer students may be admitted on probation if they fail to meet the minimum stated standards for admission (see “Admission Requirements,” below).

**Dismissal**

Freshmen admitted unconditionally (not on academic probation) are subject to dismissal from the college after one semester on academic probation.

Freshmen admitted on academic probation and transfer students admitted on academic probation are subject to dismissal after two consecutive semesters on academic probation. Very poor academic work in the first semester on academic probation, however, may result in dismissal at the close of that semester.

Continuing students who are placed on academic probation are subject to dismissal after two consecutive semesters on academic probation. Very poor academic work in the first semester of academic probation may result in dismissal at the close of that semester.

Students in the second semester on academic probation who withdraw their entire registration after the eighth week of the semester are subject to dismissal at the close of that semester.

**Right to Appeal**

Students who can document that their unsatisfactory academic record was the result of extenuating circumstances, such as a disabling illness or personal crisis, may appeal for revocation of a dismissal. A student dismissed in January must appeal in writing no later than 4:30 p.m. on the second day of spring semester classes. A student dismissed in May must appeal in writing no later than June 15. Detailed information on the appeals procedure is available in the Office of Academic Programs. Appeals should be addressed to the Student Appeals Committee, Office of Academic Programs, 116 Schaeffer Hall. The decision of the committee is final. No appeals are considered for revocation of a dismissal that would permit enrollment in a summer session.

**Reinstatement to the College**

Students dismissed for unsatisfactory scholarship for the first time 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 or in person and should be addressed to the assistant director, Office of Academic Programs, 116 Schaeffer Hall. Arrangements for a reinstatement interview must be made and the interview must take place between March 1 and July 15 for reinstatement to a fall semester or between October 1 and December 15 for reinstatement to a spring semester. Late requests are deferred to the following semester.

Students who are permitted to register following a 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, however, may result in dismissal at the close of that semester.

Notification and Records

Students placed on academic probation, continued on academic probation, or dismissed from the college are notified in writing of these actions by the associate dean for academic programs. Students admitted on probation have the notation “admitted on probation” entered on their permanent records. The notation “on academic probation” is placed on the permanent records of those students who have been placed or continued on academic probation. “Not permitted to register” is entered on the permanent records of students who have been dismissed from the college. When reinstatement has been granted, “permitted to register” for a particular semester or session is entered on the permanent record.

Class Attendance, Final Examinations, and Student Conduct

Class Attendance

Individual instructors, course directors, or departments determine the policy on class attendance. Students are required to observe the regulations as announced for the course. However, University policy requires that students be permitted to make up examinations missed because of illness, mandatory religious attendance. Students are required to observe the regulations as announced for the course.

Excused Absences

For permission to be absent from class to participate in authorized University activities, students are expected to present to each instructor before each absence a written statement signed by a responsible official specifying exactly the dates and times it is necessary to miss class. Excused absences are granted to members of athletic teams, the marching band, debate teams, and other recognized University groups and to participants in University field trips. Participation in the National Guard also is considered an authorized activity.

Students who are absent for medical or personal reasons are expected to present evidence to verify the reason. Students report absences from class of five days or less by completing an “Explanatory Statement of Absence from Class” form, available at the Registration Center, and by presenting the forms to instructors. Students who are absent for more than five days may request the Registration Center to send notification of the absence to each instructor.

Final Examinations

A suitable period for the administration of examinations is set aside at the end of each semester, during which time no classes are held. With the exception of any changes authorized by the associate dean for academic programs, all final examinations must be given according to the schedule as announced in the Schedule of Courses. During the summer session, there is no designated final examination period; final examinations are scheduled before the official end of the summer session, either during a regular meeting time or at a time determined by the instructor of the course in consultation with the students in the class.

For a more complete discussion of policies governing final examinations, see the college’s Classroom Manual, available in the Office of the Dean, 108 Schaeffer Hall.

Student Conduct

The Office of Academic Programs publishes a handout on student academic misconduct, which includes information on plagiarism, cheating, and forgery.

Plagiarism and Cheating

An instructor who suspects a student of plagiarism or cheating must inform the student as soon as possible after the incident has been observed or discovered. An instructor who comes to the conclusion that a student has plagiarized or cheated may, in consultation with the departmental executive officer (DEO), decide to reduce the student’s grade in the course, even to assign an F. The DEO sends a written report of the case to the associate dean for academic programs; a copy is sent to the student.

The associate dean for academic programs or the Committee on Student Academic Conduct may uphold, as the offense may warrant, the following or other penalties: placement on disciplinary probation until graduation, suspension from the college for a semester or longer, or recommendation of expulsion from the University by the president.

If a student feels that the finding of plagiarism or cheating is in error or the penalty unjust, he or she may request a hearing. Information on the appeal procedures is available in the Office of Academic Programs, 116 Schaeffer Hall.

Forgery

The Code of Student Life prohibits forgery of University records, documents, or student identification cards. The Office of Academic Programs interviews students suspected of forgery and takes disciplinary action based on the interview and verification provided by the adviser, instructor, or dean whose signature is in doubt.

Classroom Disruption

Students who are physically or verbally disruptive in a class may be dealt with summarily by the instructor or referred to the dean of students, 114 Jessup Hall. The instructor reports in writing to the dean of students any disciplinary action undertaken against a student.

Student Complaints Concerning Faculty Actions

A student who has a complaint is responsible for following the procedures described below. These procedures apply to complaints about any member of the teaching staff in the College of Liberal Arts and may concern grading grievances, inequities in assignments, inappropriate course materials, inappropriate faculty conduct, or incompetence in oral communication.

The student ordinarily should attempt to resolve the matter with the instructor first. If the complaint is not resolved to the student’s satisfaction, the student should go to the course supervisor (if the instructor is a teaching assistant), to the departmental executive officer, or in some departments, to the person designated to hear complaints.

If the matter remains unresolved, the student may submit a written complaint to the associate dean for academic programs, Office of Academic Programs, 116 Schaeffer Hall.

The associate dean will attempt to resolve the complaint and, if necessary, may convene a special committee to recommend appropriate action. In any event, the associate dean will respond to the student in writing regarding the disposition of the complaint. For complaints involving the assignment of grades, it is college policy that grades cannot be changed without the permission of the department concerned.

If the complaint cannot be resolved through the mechanisms described above, the student may file a formal complaint, which will be handled under the procedures established for dealing with alleged violations of the statement on professional ethics and academic responsibility. A description of these formal procedures may be obtained in the Office of Academic Programs.

Recognition for Academic Achievement

Dean’s List

Liberal arts students who achieve grade-point averages of 3.50 or above during a given semester on 12 or more semester hours of graded work (excluding University of Iowa Guided Correspondence Study courses) and who have no hours of 1 (incomplete) or 0 (no report) are recognized by inclusion on the
Admission

The Office of the Registrar certifies to the dean at least four graded honors courses with at least 45 semester hours (whichever comes second), they complete a “B” in each. The Honors Commendation includes a Certificate of Commendation from the University Honors Program, public recognition in the Daily Iowan, Honors Recognition Week issue, and a letter of commendation from the University President.

Honors Commendation Award

Students in the Honors Program may earn the Honors Commendation Award if, by the end of their second year or their first 59 semester hours (whichever comes second), they complete at least four graded honors courses with at least a “B” in each. The Honors Commendation includes a Certificate of Commendation from the University Honors Program, public recognition in the Daily Iowan, Honors Recognition Week issue, and a letter of commendation from the University President.

Graduation Honors

High scholastic achievement is recognized upon graduation in two ways: graduation with distinction, based upon grades only; and graduation with honors in a particular field, based on both grades and the completion of special work as outlined by the college and the major department.

Graduation with Distinction

The Office of the Registrar certifies to the dean of the college 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 prior to the final registration.

To be eligible for graduation with distinction, students must complete a minimum of 60 semester hours in residence in The University of Iowa College of Liberal Arts, of which at least 45 semester hours must have been completed before the student’s final registration.

Graduation with Honors

The director of the University Honors Program certifies to the dean of the college the names of graduating students eligible to graduate “with honors.” To be eligible, students must be recommended by their major department and be approved by the Honors Council and the dean of the college.

Admission Requirements

Students are admitted to the College of Liberal Arts on the basis of three criteria: completion of a set of high school unit requirements; high school class rank or college transfer grade-point average; and ACT/SAT results or a combination of high school/college records and standardized test scores. Some programs within the College of Liberal Arts have selective admission procedures. Admission to these programs is based on grades in specified prerequisite courses, cumulative grade-point average, and/or other criteria.

The University of Iowa requires all freshmen and transfer students who present fewer than 24 semester hours of transferable credit to complete either the ACT Assessment Test (ACT) or the Scholastic Assessment Test (SAT 1: Reasoning Test) and have their scores reported to the University before they register for classes. These examinations are used as a criterion for admission, for placement purposes, for advising, and for awarding University-administered scholarships and loans. Applicants whose native language is not English must present scores on the Test of English as a Foreign Language (TOEFL).

Unit Requirements

The College of Liberal Arts faculty recognizes the need for entering students to be prepared for college course work immediately upon matriculation at the University. Students who enter with a strong college preparatory curriculum have a better chance to succeed academically and are more likely to be admitted to the degree program of their choice.

To qualify for unconditional admission to the College of Liberal Arts, applicants are required to have completed the following set of high school courses or their equivalents, in addition to the other requirements listed below. These high school unit requirements, effective fall semester 1990, apply to entering freshmen who graduated from high school after 1985; transfer students with fewer than 24 semester hours of transferable credit who graduate(d) from high school after 1985; and transfer students with 24 or more semester hours of transferable credit who graduate(d) from high school in 1991 or after.

Four years of English/language arts, with emphasis on writing, speaking, and reading as well as understanding and appreciation of literature

Three years of mathematics (two years of algebra and one year of geometry are required)

Two years of a single foreign language

Three years of natural science (two years must be chosen from biological sciences, chemistry, and physics)

Three years of social studies (American history, anthropology, economics, geography, government, world history, psychology, and sociology)

The following preparation is not required but is strongly recommended for admission to the College of Liberal Arts.

One year of the visual arts, performing arts, and/or humanities (cinema, dance, drama, music, photography, studio art, theater, visual arts, and survey courses in the arts and humanities)

A fourth year of mathematics (analytic geometry, trigonometry, or calculus)

An additional two years of the same foreign language

Students whose high school curriculum did not provide the courses necessary to complete the unit requirements or who experienced difficulties in scheduling the required courses may apply to the director of admissions for an exception.

Entering Freshman

Entering freshmen with deficiencies in the unit requirements may be offered conditional admission to the College of Liberal Arts if they meet the high school class rank or index requirements for admission. As a condition of admission, these students are required to complete specified college-level courses with a passing grade; they may not take the specified courses P/N. Courses taken to remove deficiencies do not count toward the General Education Requirements, with the exceptions of rhetoric and foreign language.

With prior approval of the Office of Admissions, these courses may be taken at an accredited college, university, or community college. Courses taken to remove deficiencies should be completed by the beginning of the student’s second year of study at The University of Iowa. Applicants whose high school verifies in writing that a two-year sequence of the same foreign language was not available to them at their high school are offered conditional admission if they meet all other unit, high school class rank, and index requirements. They must complete specified college-level foreign language courses with a passing grade.

In general, one semester of college work in a core curriculum area (3 semester hours or 4 quarter hours) is required to remove a deficiency of one year or less of high school credit.

Transfer Students

Transfer students who have received an A.A. degree from an Iowa community college participating in the Iowa Community College/Regents Articulation Agreement are considered to have fulfilled the unit requirements.

Other transfer students may use college courses taken elsewhere to make up high school deficiencies. Courses must be completed with a passing grade; they may not be taken P/N. Courses taken to remove deficiencies do not count toward the General Education Requirements, with the exceptions of rhetoric and foreign language.

Removal of Deficiencies through testing

Deficiencies in mathematics or foreign language may be removed by satisfactory scores on proficiency examinations administered by The University of Iowa. Applicants also may remove deficiencies in English, mathematics, natural science, or social studies by earning acceptable scores on approved standardized tests. Test scores used to remove deficiencies may not also be used to satisfy General Education Requirements.

Education Requirements, with the exceptions of rhetoric and foreign language.
Entering Freshmen

Applicants seeking admission as entering freshmen must have the high school from which they graduated provide a certificate of high school credits, including a complete statement of high school record, class rank, and certification of graduation. Applicants may be admitted tentatively after they have completed the junior year in high school, but admission is not final until receipt of the final transcript and certification of high school graduation.

Graduates of approved Iowa high schools who are in the upper one-half of their graduating class generally are admitted after certification of graduation.

Graduates of accredited high schools in other states who are in the upper 30 percent of their graduating class are generally admitted after certification of graduation.

Applicants who do not meet the high school class rank criteria are admitted if they meet a minimum admission index, which is calculated by multiplying the ACT composite score by two and adding the percentile rank in class. A comparable index is used for students who submit SAT instead of ACT scores. The minimum index for admission varies from year to year. For Iowa residents it ranges from 90 to 100 and for nonresidents from 100 to 110. If a given high school does not rank its graduates or if the high school graduating class is small, the applicant’s credentials are reviewed by the admissions review committee.

Applicants also may be considered for admission based on other characteristics that indicate definite promise of success. At the discretion of the admissions officer, such students may be admitted unconditionally, admitted on probation, required to enroll for a trial period during a preceding summer session, or denied admission.

Graduates of nonapproved high schools must submit all the information required above and must take examinations that demonstrate their general competence to do successful college work.

Admission without High School Graduation

Applicants who are not high school graduates must submit all the information required above, take examinations to demonstrate general competence to do college work, and provide evidence of specific competence for admission to a given curriculum.

Transfer Students

Transcripts of records are given full value if they come from colleges or universities accredited by the North Central Association of Colleges and Secondary Schools or similar regional associations. The recommendations contained in the current issue of the Transfer Credit Practices of Designated Educational Institutions, published by the American Association of Collegiate Registrars and Admissions Officers, is followed for schools not regionally accredited.

Applicants must submit an official transcript from each college or university they have previously attended. Applicants also must submit high school transcripts, scores on standardized tests, and any other records or letters the College of Liberal Arts may require to support their applications for admission.

Transfer applicants who have a minimum of 24 semester hours of graded credit from regionally accredited colleges or universities and who have maintained a grade-point average of 2.25 (based on a 4-point system) on all college work previously attempted are admitted.

Students with fewer than 24 semester hours of college credit are considered for admission based on a combination of high school and college academic records and scores on the ACT or SAT.

In general, transfer applicants under academic suspension from the last college attended are not considered for admission during the period of suspension, or if suspended for an indefinite period, are not considered until one year has passed since the last date of attendance.

Transfer applicants under disciplinary suspension are not considered for admission until a clearance and a statement of the reason for suspension from the previous college are filed. When it becomes proper to consider an application from a student under suspension, the college must take into account the previous suspension. Applicants granted admission under these circumstances are admitted on probation, and their admission is subject to cancellation.

Non-Native Speakers of English

The University of Iowa has an English proficiency requirement to assure that non-native speakers know English well enough to study without being hindered by language problems, to understand lectures, and to participate successfully in class discussions. For that reason, applicants whose native language is not English are required to submit scores on the Test of English as a Foreign Language (TOEFL) with their applications for admission and supporting academic documents. Automatic waivers from this policy are granted to persons who already have received a baccalaureate or equivalent degree from a university in the United States, the United Kingdom, Canada (excluding French Quebec), Africa (English-speaking), Australia, or New Zealand.

Foreign Applicants

REGULAR ADMISSION

A minimum TOEFL score of 530 is required for regular admission and to begin study in a degree program. Newly admitted students whose TOEFL scores are 600 or above may begin academic course work without restriction. Applicants whose academic credentials indicate that they should be admitted, but whose TOEFL scores fall between 530 and 599, are required to complete an English proficiency evaluation before their first registration for courses.

Based on the results of the evaluation, these students may:

- be allowed to take a full academic course load (excluding English as a Second Language courses);
- be required to enroll in credit-bearing English as a Second Language courses; or
- be required to enroll in the Iowa Intensive English Program until their language proficiency reaches an appropriate level.

CONDITIONAL ADMISSION

Applicants who meet the academic requirements for admission but whose TOEFL scores fall between 450 and 530 may be considered for conditional admission to the College of Liberal Arts. As space permits, conditionally admitted students may enroll in the Iowa Intensive English Program (IEP) for up to one year. To change their admission status from conditional to regular (a prerequisite for beginning study in a degree program), students must attain a minimum TOEFL score of 530 and complete an English proficiency evaluation.

Based on the results of the evaluation, these students may:

- be allowed to take a full academic course load (excluding English as a Second Language courses);
- be required to enroll in credit-bearing English as a Second Language courses; or
- be required to continue in the IIEP until their language proficiency reaches an appropriate level.

Students without TOEFL scores or with scores below 450 are not considered for admission to the College of Liberal Arts. These students may enroll in the IIEP. However, IIEP enrollment without conditional admission to the College of Liberal Arts does not imply or guarantee admission to an academic program at The University of Iowa.

U.S. Citizens and Permanent Residents

U.S. citizens and permanent residents whose native language is not English are required to submit scores on the TOEFL before registering for courses. Exceptions to this requirement are made in the cases of:

- graduates of Iowa high schools whose ACT composite score is 24 or above (SAT I combined score of 900 or above) and whose ACT English subscore is 21 or above (SAT I 430); and
- nonresidents of Iowa whose ACT composite score is 25 or above (SAT I combined score of 1020 or above) and whose ACT English subscore is 21 or above (SAT I 430).

Admitted applicants whose TOEFL scores are 600 or above may begin academic course work without restriction. Those whose TOEFL scores fall below 600 are required to complete additional English language proficiency testing before they register for courses.

Applicants seeking exceptions are directed to the coordinator of English as a Second Language, 3006 Main Library.
English Proficiency Evaluations
On-campus proficiency evaluations are conducted by the Department of Linguistics. If such evaluation warrants, students are required to enroll in credit-granting courses in English as a Second Language or in the noncredit Iowa Intensive English Program until their language proficiency reaches the appropriate level. Once such proficiency has been established, students are allowed to take a full academic course load, exclusive of English as a Second Language courses. Such students may begin their academic course work only upon the written recommendation of the coordinator of English as a Second Language. (Courses for non-native speakers of English are described under “Linguistics” in the Catalog.)

Special (Nondegree) Students
Students may be admitted to the college as nondegree candidates. These students are classified as special students (A9) and may enroll in courses for personal enrichment, to prepare for admission to professional or graduate college, or to complete a specified technological certificate program. Students enrolled in courses as special students are subject to the rules of the college for academic probation and dismissal.

Re-Entry
Students who have been absent from the University for 12 months or more must apply to the Office of Admissions for re-entry. Students who have been absent for less than 12 months are not required to file an application for re-entry; they should report directly to the Registration Center to begin the registration process.

Students who have been enrolled in another college or university after leaving The University of Iowa are required to submit official transcripts along with their application for re-entry.

Completed application materials must be received two weeks before the opening of classes. Applications received after that date are considered on an individual basis.

Students who have been dismissed from the college for unsatisfactory scholarship have earlier deadlines and must complete an interview in the Office of Academic Programs. See “Reintroduction to the College” under “Academic Standards” in this section of the Catalog.

Credit for Military Service
The admissions officer is authorized to evaluate transcripts from the military services according to the recommendations contained in the American Council on Education’s Guide to the Evaluation of Experiences in the Armed Forces, with the understanding that any inconsistencies between such recommendations and the standards of the College of Liberal Arts will be referred to the Office of Academic Programs. Arm Forces Institute correspondence courses may be accepted for credit under appropriate circumstances.

Credit by Examination
A maximum of 32 semester hours of credit by examination from all approved sources is accepted toward the 124 semester hours required for graduation. Credit by examination may be used as elective credit or it may be applied toward the General Education Requirements or requirements in the major or minor. Credit awarded through the Foreign Language Incentive Program is considered credit by examination.

A student must have earned 12 semester hours of graded, classroom credit at The University of Iowa before credit by examination is granted and placed on the permanent record. Hours of F, 1, N, O, R, and W do not count toward the 12 semester hours earned.

Placement and Exemption Examinations for General Education
Full or partial exemption from the requirements in rhetoric, mathematics, physical education, or foreign language may be awarded for satisfactory performance on tests administered at The University of Iowa. In addition, exemption and academic credit may be awarded in most general education areas for satisfactory scores on examinations administered by the Advanced Placement Program (APP) or the College-Level Examination Program (CLEP). See below.

Credit by Examination in the Major or Minor
Departments may administer examinations covering required courses or areas of instruction in the major field and may grant credit with a grade of P for the successful completion of such examinations. The maximum credit by examination that may be awarded in the major field is 16 semester hours. Credit toward graduation is awarded to foreign language major only for passing examinations covering the third- and fourth-semester level or above.

Credit by examination may not be applied to the 12 semester hours of advanced courses required for the minor.

Advanced Placement Program (APP)
Students who pursue college-level learning while still in high school may use the APP testing program to demonstrate their level of achievement. This program was designed by the College Board to provide a means for colleges and universities to evaluate the college-level preparation of participating students and to provide opportunities for high school students to begin college-level study while still in high school.

Scores earned by students are evaluated to determine whether course credit or advanced placement is warranted. Credit awarded through APP may be applied to the General Education Requirements, to requirements in the major or minor, or to elective credit.

Specific credit policies and further information is available from the University’s Evaluation and Examination Service.

College-Level Examination Program (CLEP)
CLEP is an achievement testing program offered by the College Board that allows students to demonstrate college-level competence they may have achieved outside of formal college instructional programs. General examinations cover broad content areas such as natural sciences and social sciences/history; subject examinations cover more narrow ranges of content, as typically dealt with in a single college course. Scores on the general examinations can be used to determine whether students have satisfied all or a portion of the General Education Requirement in the area(s) covered by the examination(s) taken. Those who earn a high enough score on a subject examination are eligible to receive credit for the corresponding University course.

The CLEP program is administered by The University of Iowa Evaluation and Examination Service. Students who wish to participate in CLEP are encouraged to do so prior to their first enrollment so that test results can be used to plan their first semester schedules.

Specific credit policies and further information is available from the University’s Evaluation and Examination Service.

Transfer Credit by Examination
Results of CLEP and APP tests brought to The University of Iowa on transcripts from other institutions will be evaluated by the Office of Admissions under the same rules as other transfer credit. If 12 semester hours or more of graded classroom credit is accepted by transfer, CLEP and APP credit will be accepted from the transfer institution without reevaluation of individual scores by The University of Iowa.

Validation of Credit
Students with educational experience obtained at a nonaccredited institution or in a formal training program in which there is no standardized procedure for evaluation of credit may request the validation of this credit. The Office of Academic Programs and the department concerned should be consulted for approval to take the appropriate examinations.

Nondepartmental courses
000:003 Preparatory Summer Program 0 s.h.
000:21 Intercollegiate Athletic Participation 1 s.h.
000:101 Introduction to Lesbian, Gay, Bisexual Studies 3 s.h.
000:200 Historical, cross-cultural perspectives on lesbian, gay, bisexual lives; histories, cultures, identities, sexualities, politics, harassment or higher standing required.
000:120 Bisexual Identities and Communities 3 s.h.
000:120 Bisexual Identities and Communities 3 s.h.
Historical, cross-cultural perspectives on lesbian, gay, bisexual lives; histories, cultures, identities, sexualities, politics, harassment or higher standing required.
Professional Officer Course

The professional officer course (POC) consists of four 3-semester-hour AFROTC courses. 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 two years in school.

Leadership Laboratory

Leadership laboratory is cadet centered and largely cadet planned. It provides leadership training that improves a cadet’s ability to perform as a U.S. Air Force officer. To be considered a cadet, students must be enrolled in an academic class and in a 23A course titled Leadership Laboratory.

Field Training

All POC applicants must successfully complete field training at a U.S. Air Force base during a summer, usually between the sophomore and junior years. There are two types of field training: a four-week course for cadets who have applied to the four-year and three-year programs and a six-week course for two-year program applicants.

Field training consists of aircraft, aircrew, career, and survival orientation; junior officer training; physical training; small arms training; human relations education; and equal opportunity training. The six-week field training provides 60 hours of academic work that a student normally would have taken as a freshman and sophomore.

Students receive authorized pay and allowances when they attend field training.

Special Activities

The Cadet Corps sponsors many social events, including informal parties, formal dinners, and a military ball. The advanced training program is a voluntary program in which selected cadets may go on active duty for two or three weeks during the summer following their junior year. Cadets get hands-on experience and receive authorized pay and allowances.

Selected AFROTC cadets may attend airborne training and upon completion wear the Army parachute jump wings.

Financial Aid

Scholarships are available, based on merit, for one, two, and three years of study. They provide full tuition, a stipend for books, laboratory fees, and $100 per month, tax-free. Applicants are selected on both objective and subjective factors. Students should apply directly to the professor of aerospace military studies.

All cadets in the last two years of AFROTC receive $100 per month, tax-free. AFROTC books and uniforms are furnished.

Education Delay

Cadets may request an education delay to postpone entry to active duty until after completion of art advanced degree or professional training program.

Courses

23A:10 The Air Force Today AS 100 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.

23A:11 AFROTC Leadership Laboratory (LLAB) AS 100-FA 0 s.h.
A progression of experiences designed to develop leadership ability; includes military customs and courtesies, drill and ceremonies, military professional development, and the life and work of a junior officer; leadership skills in a practical, supervised military lab setting. Offered fall semesters. Corequisite: 23A:10.

23A:12 The Air Force Today AS 100 1 s.h.
Continuation of 23A:10.

23A:13 AFROTC Leadership Laboratory (LLAB) AS 100-SP 0 s.h.

23A:20 The Development of Air Power AS 200 1 s.h.
Air power from Civil War hot air balloons through World War II; emphasis on developments in U.S. Air Force.

23A:21 AFROTC Leadership Laboratory (LLAB) AS 200-FA 0 s.h.

23A:22 The Development of Air Power AS 200 1 s.h.
Continuation of 23A:20. Air power from post World War II environment to present; emphasis on developments in U.S. Air Force.

23A:23 AFROTC Leadership Laboratory (LLAB) AS 200-SP 0 s.h.

23A:130 Management and Leadership AS 300 3 s.h.
Emphasis on management, leadership, and communication skills required of an Air Force officer. Prerequisite: junior standing or above or consent of instructor.

23A:131 AFROTC Leadership Laboratory (LLAB) AS 300-FA 0 s.h.

23A:132 Management and Leadership AS 300 3 s.h.
Continuation of 23A:130. Prerequisite: junior standing or above or consent of instructor.

23A:133 AFROTC Leadership Laboratory (LLAB) AS 300-SP 0 s.h.

23A:140 National Security Forces in Contemporary American Society AS 400 3 s.h.
Examination of America’s evolving national security policy. GER: social sciences. Prerequisite: junior standing or above or consent of instructor.

23A:141 AFROTC Leadership Laboratory (LLAB) AS 400-FA 0 s.h.

23A:142 National Security Forces in Contemporary American Society AS 400 3 s.h.
Continuation of 23A:140. Emphasis on the professional qualities required of an Air Force officer. Prerequisite: junior standing or above or consent of instructor.

23A:143 AFROTC Leadership Laboratory (LLAB) AS 400-SP 0 s.h.

23A:150 Readings in Contemporary Military Issues AS 100-FA 1-4 s.h.
Individual research. May be repeated. Consent of department head required.

23A:151 AFROTC Leadership Laboratory (LLAB) AS 500-FA 0 s.h.
See 23A:11. Offered fall semesters.
Undergraduate Program

Bachelor of Arts

Students may earn a Bachelor of Arts with a major in African-American world studies by following one of three programs of study: the Afro-American Studies Option (30 semester hours), the African-American World Studies Option (39 semester hours), or an African Studies option (33 semester hours).

The Afro-American studies option focuses on Blacks in the United States and gives some attention to their culture and history in relation to the culture and history of Blacks elsewhere in the world. The African-American world studies option places greater emphasis on the interrelationships of Black history and cultures in various places in the world. The African Studies option places emphasis on Africa. Students must earn a grade-point average of 2.00 or higher in all courses in their major program.

Afro-American Studies Option

### REQUIRED COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>129:60</td>
<td>Introduction to Afro-American Society</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:61</td>
<td>Introduction to Afro-American Culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:80</td>
<td>Critical Skills Seminar</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:99</td>
<td>Senior Seminar</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:116</td>
<td>Afro-American Literature I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:117</td>
<td>Afro-American Literature II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:159</td>
<td>African American History</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:189</td>
<td>Senior Seminar</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:197</td>
<td>Senior Seminar</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:25-26</td>
<td>African Studies Option</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

### ELECTIVES

Students must take 6 semester hours of electives in 129-prefix courses, not including 129:175 or 129:176.

African American World Studies Option

### REQUIRED COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>129:08</td>
<td>Introduction to African-American Culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:116</td>
<td>Afro-American Literature I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:117</td>
<td>Afro-American Literature II</td>
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<tr>
<td>129:197</td>
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<td>3 s.h.</td>
</tr>
<tr>
<td>129:25-26</td>
<td>African Studies Option</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

### ELECTIVES

Students must take 6 semester hours of electives in 129-prefix courses, not including 129:175 or 129:176. Students are encouraged to take at least 3 semester hours of these electives in courses focused on Africa or Blacks in the Caribbean.

African Studies Option

The language requirement for the African-American world studies option is four semesters, or the equivalent, in any language, other than English, that is regularly spoken in Africa. The languages currently taught at The University of Iowa that satisfy this requirement are Swahili, Yoruba, French, Portuguese, and Spanish.

### REQUIRED COURSES

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<tr>
<td>129:159</td>
<td>African American History</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:189</td>
<td>Senior Seminar</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

### ELECTIVES

Students must complete 33 semester hours of coursework in addition to four semesters, or the equivalent, of instruction in an African language.

The following courses are required. For course descriptions, see the appropriate departmental sections of the Catalog.

### CORE COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>129:08</td>
<td>Introduction to African-American Culture</td>
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<tr>
<td>129:159</td>
<td>African American History</td>
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</tr>
<tr>
<td>129:189</td>
<td>Senior Seminar</td>
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</tr>
</tbody>
</table>

African American World Studies Option

### REQUIRED COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>129:8</td>
<td>Literatures of the African Peoples</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:60</td>
<td>Introduction to African-American Society</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
Students also may fulfill the language requirement by demonstrating competence in another African language. Students who declared the African studies option before fall semester 1992, and who already had achieved sophomore status by that time, may fulfill the requirement by taking four semesters or the equivalent in French, Portuguese, or Spanish.

HUMANITIES ELECTIVES

Two courses (6 semester hours) focused on Africa, chosen from the following, art, history, and literature courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>141:30</td>
<td>Introduction to African Art</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:107</td>
<td>Art of West Africa</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:108</td>
<td>Art of Central Africa</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:202</td>
<td>Seminar: Problems in African Art</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>16W:119</td>
<td>African and Afro-American Interactions</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:123</td>
<td>Topics: Modern African History</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:124</td>
<td>Women in African History</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:14</td>
<td>Literatures of the African Peoples</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:103</td>
<td>African Drama</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:119</td>
<td>African Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:163</td>
<td>Francophone Literature of the African Diaspora</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:227</td>
<td>Three African Writers</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:240</td>
<td>Studies in African Francophone Literature</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

SOCIAL SCIENCE ELECTIVES

Two courses (6 semester hours) focused on Africa, chosen from the following.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>141:146</td>
<td>African Development</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:148</td>
<td>The Politics of Southern Africa</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:157</td>
<td>Peoples and Cultures of Africa</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:158</td>
<td>Myth, Magic, and Mind</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>141:159</td>
<td>Anthropology of African Art</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

AFRICAN CONTENT ELECTIVE

One course (3 semester hours) in African studies or having a significant African content, chosen from the following.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1H:2</td>
<td>Art of Africa, Oceania, and Pre-Colombian America</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>30:150</td>
<td>The Political Economy of the Third World</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>30:350</td>
<td>Political Economy and Public Policy in Developing Countries</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>42:273</td>
<td>Women, Men, and Global Social Change</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>44:35</td>
<td>World Cities</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>44:131</td>
<td>Medical Geography: Health Services</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>44:157</td>
<td>Third World Development support</td>
<td>(same as 19:157)</td>
</tr>
<tr>
<td>44:162</td>
<td>Geography of Underdevelopment</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>44:194</td>
<td>Geographic Perspectives on Development</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>44:262</td>
<td>Political Economy of Regional Development</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>44:264</td>
<td>Agrarian Change and Rural Development in the Third World</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>91:296</td>
<td>Law in Radically Different cultures</td>
<td>arr.</td>
</tr>
<tr>
<td>141:110</td>
<td>African News Colloquium</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

DIASPORA ELECTIVE

One course (3 semester hours) focused on the experience of Blacks in the Diaspora, chosen from courses offered by the African-American World Studies Program (see “African-American World Studies” in this section of the Catalog).

Honors

The African-American world studies honors program offers students the opportunity to pursue special interests in individual, in-depth research. Honors candidates in African-American world studies must be members of the University Honors Program.

Under the guidance of the undergraduate honors adviser, the honors candidate defines a research project using primary sources. Project proposals are made by the end of the candidate’s junior year. Each candidate completes a project under the guidance of a supervising faculty member and may register for up to 6 semester hours in 129:95 Honors Project. Results are presented in a senior essay to a committee of three faculty members, including the supervising faculty member, the honors adviser, and a third faculty member of the student’s choice. When the honors adviser is the supervising faculty member, the candidate may select second and third faculty members. The candidate’s committee may choose to hear an oral defense of the final project, usually in the twelfth week of the student’s last semester.

Minor

The African-American World Studies Program offers an undergraduate minor in Afro-American studies. The requirements conform to the general requirements for minors in the College of Liberal Arts. In consultation with their adviser, students select 15 semester hours (five courses) in designated African-American world studies courses. Four of these courses (12 semester hours) must be numbered 100 or above and must be taken at The University of Iowa.

Students must earn a grade-point average of at least 2.00 in all courses in the minor program. Courses numbered 100 and above may be selected from 129-prefix courses in the list at the end of this section of the Catalog but 129:175 and 129:176 may not be counted toward the minor.

Students who wish to pursue a minor in Afro-American studies should consult with an adviser in the African-American World Studies Program. The requirements include at least one-half of the courses in the M.A. curriculum from those numbered above 200.

Comprehensive Examinations

Each student is required to pass a written comprehensive examination in Afro-American studies. The comprehensive examination is prepared and evaluated by a committee of faculty members who teach courses in the African-American World Studies Program. A component of the comprehensive examination is based on a reading list prepared by the student and approved by the African-American World Studies Program faculty. An oral examination may be required as a follow-up to the written one.

The thesis/project requirement

A thesis is not required but is an option for a Master of Arts in Afro-American studies. If a student elects to write a thesis, the thesis must explore a topic of African-American culture and/or experience and must use research from more than one discipline. The maximum credit for a thesis is 4 semester hours.
Students who do not prepare a thesis are required to develop, in consultation with an adviser, a project related to Afro-American culture and/or experience. When completed, this project must be presented and defended before an appropriate class in Afro-American studies. Credit for the thesis or project usually is earned through registration in 129:312 Advanced Research in Afro-American Culture (4 semester hours).

**Admission**

In addition to the general requirements of the Graduate College, unconditional graduate admission to the African-American World Studies Program requires that students have an appropriate educational background in literature and the social sciences, at least 6 semester hours of collegiate credit in Afro-American literature and/or history courses, and a minimum grade-point average of 2.70 in previous college courses in Afro-American studies. Students may be asked to take, without credit toward the master’s degree, courses needed to remedy deficiencies in undergraduate preparation.

Applicants for admission are expected to provide three letters of recommendation from former professors and a sample of written scholarly work.

Recommendations for admission are made by the admissions subcommittee of the African American World Studies Program.

**Concentration in American Studies Ph.D.**

Generally, a student seeking a Ph.D. in American studies with a concentration in Afro-American studies is preparing to be a teacher or research scholar at the college or university level.

Ordinarily, students seeking a concentration in Afro-American studies take a minimum of 36 semester hours of graduate study in African-American world studies, identify two Afro-American studies fields within their plan of study, and write a dissertation on a topic in Afro-American culture. An Afro-American studies field is defined as one in which the majority of courses are drawn from those listed under “Courses” at the end of this section of the Catalog: Students interested in such a concentration should consult both the chair of the African-American World Studies Program and the chair of the American Studies Program for more information.

**Cognate Areas, Special Fields**

It is possible for students to take concentrations of Afro-American studies courses as cognate areas or special fields in Ph.D. programs in history, English, and other disciplines. For further details, consult an adviser in the African-American World Studies Program.

**Related Courses**

Although they are not offered by the African-American World Studies Program, the following courses are recommended for interested students. For course descriptions, see the appropriate departmental sections of the Catalog.

**Anthropology**

- 113:151 Sociology of the Third World 3 s.h.
- 113:51 African-American Society 3 s.h.

**Art and Art History**

- 1H:310 Seminar: Problems in African Art 2-3 s.h.

**Comparative Literature**

- 48:50 Non-Western Literary Traditions 3 s.h.
- 48:160 Cultural Identity in Caribbean Literature 3 s.h.

**Education**

- 7F:104 Education in the Third World 2-3 s.h.
- 7F:130 Educational Sociology 2-3 s.h.
- 7F:154 Education, Race, and Ethnicity 2-3 s.h.
- 7U:133 The Culturally Different in Diverse Settings 3 s.h.

**Geography**

- 44:157 Third World Development Support 3 s.h.

**History**

- 18A:41 American History 1492-1877 3 s.h.
- 16A:62 American History 1877-Present 3 s.h.
- 16A:127 American Intellectual History 1607-1865 3 s.h.
- 16A:128 American Intellectual History from 1870 3 s.h.
- 16A:164 Civil War and Reconstruction 3 s.h.
- 16A:165 The Gilded Age in America 3 s.h.
- 16A:166 The Progressive Era in America 3 s.h.
- 16A:167 The New Era and the New Deal 1920-1940 3 s.h.
- 16A:168 The Contemporary United States 1940-Present 3 s.h.

**Sport, Health, Leisure, and Physical Studies**

- 28:74 Inequality in Sport 3 s.h.

**Political Science**

- 30:146 African Development 3 s.h.
- 30:148 The Politics of Southern Africa 3 s.h.
- 30:150 The Political Economy of the Third World 3 s.h.

**Sociology**

- 34:166 Social Inequality 3 s.h.

**Social Work**

- 42:147 Racism and Discrimination 3 s.h.

**Co-curricular Activities**

**Black Action Theater**

Academically sponsored through the African-American World Studies Program, Black Action Theater gives participants instruction and experience in theatrical productions of works by Black authors.

**Afro-American Cultural Center**

The African-American World Studies Program 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 interracial understanding among all members of the University community. See “Cultural Centers” in the Student Life at Iowa section of the Catalog.

**Student Association**

The African-American World Studies Student Association attempts to promote interest in Black culture by sponsoring programs on various topics. Any University of Iowa student interested in African-American world studies is eligible to become a member.

**Courses**

**For Undergraduates**

- 129:000 Cooperative Education Internship 0 s.h.
- 129:000 Cooperative Education Internship 0-15 s.h.
- 129:000 Cooperative Education Internship 0-17 s.h.
- 129:25 Elementary Yoruba I 4 s.h.
- 129:26 Elementary Yoruba II 4 s.h.
- 129:27 Intermediate Yoruba I 4 s.h.
- 129:28 Intermediate Yoruba II 4 s.h.
- 129:29 Intermediate Yoruba III 4 s.h.
- 129:30 Elementary Yoruba IV 4 s.h.
- 129:31 Elementary Yoruba V 4 s.h.
- 129:32 Elementary Yoruba VI 4 s.h.

**Interdisciplinary Introduction to Black Culture in the U.S. through significant contributions of the humanities—music, art, literature, drama, philosophy—to development of Black culture.**

**For Graduates**

- 129:75 Individual Study 0 s.h.
- 129:75 Individual Study 3 s.h.
- 129:75 Individual Study 4 s.h.
- 129:75 Individual Study 5 s.h.
129:80 Critical Skills Seminar 3 s.h.
Skill development in writing, analysis, research techniques essential to advanced study. Open only to majors.
129:95 Honors Project arr.
Independent research and writing on interdisciplinary topic. Consent of instructor required.
129:99 Senior Seminar 3 s.h.
Comparative study of Afro-American, African, and Afro-Caribbean culture and experience intended to synthesize students' earlier studies. Open only to senior majors. Consent of instructor required.

For Advanced Undergraduates and Graduates

129:103 African Drama 3 s.h.
Dramas by contemporary Africans; plays for staging, one-act plays, radio plays. Same as 141:103.
129:107 Art of West Africa 3 s.h.
Same as 101:107, 141:107.
129:10 Art of Central Africa 3 s.h.
Same as 101:108, 141:108.
129:13 Africans in the New World 3 s.h.
Social and cultural history of Black populations in the New World. Same as 113:113.
129:114 Race and Ethnic Relations 3 s.h.
Multidisciplinary study of intergroup relations; social, historical, political issues in study of African minority groups. Same as 34:155, 113:155.
129:115 Social Anthropology of the Caribbean 3 s.h.
GER: foreign civilization and culture. Same as 113:118.
129:16 Afro-American Literature I 3 s.h.
Afro-American writers from eighteenth century to 1940 examined in relation to culture, social, literary, historical influences. Same as 8:116.
129:117 Afro-American Literature II 3 s.h.
Literary developments among Afro-Americans from 1935 to present; writers and works in relation to cultural, political, social, literary influences on Afro-Americans. Same as 8:117.
129:119 African Literature 3 s.h.
129:120 Images of Black Women in Modern American Fiction 3 s.h.
Characterization and symbolic treatment of American Black woman by modern writers; literature by Black and white, male and female authors. Same as 8:130.
129:122 African-American Music and Culture 3 s.h.
Musical idioms and their social settings; emphasis on cultural heritage and development, economics, hegemony and liberation, parallels and variations in musical traditions in African diaspora. Same as 113:122.
129:124 Black Culture and Experience 3 s.h.
Advanced examination of Black culture and experience, both nationally and internationally, as revealed through humanities and social sciences. Primarily for graduate students.
129:125 Readings in Afro-American Culture 3 s.h.
Topics vary when offered as formal course. May be taken as independent study by advanced undergraduates and graduate students who have completed basic studies of Afro-American culture.
129:127 Black Women Writers 3 s.h.
Evolution of Black women's literature in the United States, Caribbean, and Africa; selections taken from various genres. Same as 8:118, 131:127.
129:128 The Black Woman in America 3 s.h.
History of the Black woman in American society, with particular attention to the relationship between stereotypic images and actual roles. Same as 131:128.
129:129 African-American Communities 3 s.h.
Classic and contemporary ethnographic studies of African-American communities; emphasis on culture, identity, class, power; research methods, circumstances surrounding their creation. Same as 113:129.
129:130 History of Black Music 3 s.h.
History of Black music in America from the seventeenth century to present; emphasis on significant forms, styles, and contributors and their sociological settings. Open to freshmen. Same as 25:106.
129:131 Topics in Black Music 3 s.h.
Selected topics for students interested in work beyond 129:130.
129:133 Race and Cultural Identity in the United States 3 s.h.
Institutional character of cultural and political racism in the United States; creation of stereotypes as cultural images; how these images are used to justify political-economic marginalization of minority groups. Same as 113:133.
129:134 Diaspora African Cultural and Political Movements 3 s.h.
Political-economic foundations of Diaspora African sociocultural movements from eighteenth to twentieth centuries; Rastafarians, Nation of Islam, African-American nationalist and pan-Africanist movements. Prerequisites: an introductory course in anthropology or sociology, or a course in African/Diaspora African history, or graduate standing, or consent of instructor. Same as 113:134.
129:135 Francophone Literature of the African Diaspora 3 s.h.
Same as 9:163, 141:163.
129:136 Race and Gender in Africa and the Caribbean 3 s.h.
Same as 113:137.
129:137 History of Slavery in the U.S.A. 3 s.h.
Same as 16A:147.
129:138 African and Afro-American Interactions 3 s.h.
The slave trade, its legacy in Africa, the Americas; cultural, political interaction between Africans and African-Americans; images of Africa in African-American thought Afrocenm, its African critics. Same as 16W:119, 141:142.
129:141, 143 Black Women: Reproduction and Resistance 3 s.h.
African-American women's bodies in political, cultural, sociological, and personal context; how African-American women have been depicted and how they define themselves. Same as 145:145.
129:151 Race, Ethnicity, and International Relations 3 s.h.
Study of Black women's roles in economic development, urban society, political life. Same as 100:126, 131:162, 141:124.
129:155 Myth, Magic, and Mind 3 s.h.
Evolution of Black women's lives in nineteenth and twentieth centuries; gender relations in Africa; women and African slavery; women's roles in economic development, urban society, political life. Same as 100:126, 131:162, 141:124.
129:156 Precolonial African History 3 s.h.
Africans 1800; introduction of oral tradition, other sources: political development; ecological change; slavery and the slave trade. Same as 16W:120, 141:120.
129:164 African History Since 1800 3 s.h.
Africa in colonial, post-colonial periods; economic, political structures of colonialism; social change and political life in the twentieth century. Same as 16W:121, 141:121.
129:171 Elementary Yoruba I for Graduates 3 s.h.
Same as 103:135, 141:135.
129:172 Elementary Yoruba II for Graduates 3 s.h.
Same as 103:136, 141:136.
129:173 Intermediate Yoruba I for Graduates 3 s.h.
Same as 103:137, 141:137.
129:174 Intermediate Yoruba II for Graduates 3 s.h.
Same as 103:138, 141:138.
129:175 Black Action Theater 3 s.h.
Theory and performance; study of history and theory related to stage presentations or performances by Black Americans. Same as 16W:120, 141:120.
129:176 Black Action Theater 3 s.h.
Same as 129:175, with focus on different plays. Open to freshmen. Offered spring semesters. Same as 149:190.
129:179 Independent Study in Black Culture arr.
Consent of instructor required.
129:180 Afro-American Drama 3 s.h.
Developments in drama by Afro-Americans since 1923. Same as 8:154, 49:192.
129:185 Introduction to African-American History 3 s.h.
Topics vary. Same as 16A:184.
129:186 Topics in Modern African History 3 s.h.
Various topics. May be repeated. Same as 16W:123, 141:123.
129:187 The History of South Africa 3 s.h.
Rise and fall of the apartheid regime; economic structures of apartheid; social history, African political movements. Same as 16W:125, 141:143.
129:188 Topical Issues in Social Science About Blacks 3 s.h.
Significant issues of the Black experience examined through materials, methods of one or more selected social science disciplines.
129:189 Themes in African-American History 3 s.h.
Same as 16A:185.
129:192 American Popular Arts 3 s.h.
History, interpretation, criticism of such popular arts as best-selling fiction, the movies, or television. Same as 45:192.

For Graduates

129:210 Readings in the Culture of Black America 3 s.h.
Social, economic, political, religious experiences that have influenced Black Americans.
129:211 Introduction to Research in Afro-American Culture arr.
Methodologies, bibliographies, issues, resources significant in study of Afro-American culture. Consent of instructor required. Same as 16:244, 45:210.
129:212 Advanced Readings in Black Culture arr.
Seminar on textual, social, political analyses of works by Black authors.
129:220 Religion and Black Culture Same as 2:240.
129:221 Analytical Exposition in Afro-American Studies 3 s.h.
Synthesis of primary, secondary research materials for analytical and comprehensive studies in Black culture, in other related graduate courses and for future publications.
129:227 Three African Writers 3 s.h.
Same as 9:227, 141:227.
129:228 Studies in African-American Literature Same as 8:228.
129:235 Studies in African Francophone Literature 3 s.h.
Same as 9:240, 141:240.
Same as 16:245.
AFRICAN STUDIES PROGRAM

Chair: Peter Nazareth (English)
Committee members: Joseph Ascroft (Journalism and Mass Communication), Joel Barkan (Political Science), Sandra Barkan (Honors Program/Comparative Literature), Jacques Bourgeois (French and Italian), Phil Carls (International Education and Services), Christopher Culy (Linguistics), William Dewey (Art and History), Frank Fairfax (Anthropology), James Giblin (History/African-American World Studies), Ab Gratama (Art and Art History), John Howell (University Libraries), Michael McNulty (Geography), Peter Nazareth (English/African-American World Studies), Allen Roberts (Anthropology/African-American World Studies), Christopher Roy [Art and Art History], Abd Samat (Geography), Randall Thomas (Law), Adrian Wing (Law), Frederick Woodard (English/African-American World Studies)

Undergraduate degree: African studies option in the B.A. in African-American World Studies, certificate in African Studies

The African Studies Program helps students gain a broader understanding of traditional and contemporary life in Africa, and of the historical and contemporary forces that shape the continent. It fosters an environment of cooperation and collaboration among students and faculty that leads to increased opportunities for teaching and research.

African studies is a constituent program of the Center for International and Comparative Studies. Several established programs and resources at The University of Iowa benefit the African Studies Program: the Stanford Collection of African art at the Museum of Art, African writers who participate in the International Writing Program, and African scholars and leading Africanists who visit the Center for International and Comparative Studies. The program also maintains exchange programs with the University of Ibadan (Nigeria), the University of Nairobi (Kenya), and the University of Ouagadougou (Burkina Faso).

AFRICAN STUDIES PROGRAM

AFRICAN STUDIES OPTION IN THE B.A. IN AFRICAN-AMERICAN WORLD STUDIES

The African studies option is administered jointly by the chair of the African-American World Studies Program and the chair of the African Studies Program acting in consultation with the faculties of their respective programs. Students in this option are advised by the chair of the African-American World Studies Program acting in consultation with the chair of the African Studies Program.

Required Courses

The program consists of 33 semester hours of course work in addition to four semesters, or the equivalent, of instruction in an indigenous African language.

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

CORE COURSES

141:7 Introduction to African Studies 3 s.h.
141:120 Pre-Colonial African History 3 s.h.
141:121 African History Since 1880 3 s.h.
129:80 Critical Skills Seminar 3 s.h.
141:180 Advanced Undergraduate Seminar in African Studies 3 s.h. (usually taken during the senior year)

LANGUAGE REQUIREMENT

The African languages offered at The University of Iowa are Swahili and Yoruba.
141:15-16 Elementary Swahili I-II 8 s.h.
141:17-18 Intermediate Swahili I-II 8 s.h.
141:25-26 Elementary Yoruba I-II 8 s.h.
141:27-28 Intermediate Yoruba I-II 8 s.h.
Graduate students may enroll in 100-level Swahili and Yoruba courses.

Students also may fulfill the language requirement by demonstrating competence in another African language. Students who declared the African studies option before fall semester 1992, and who already had achieved sophomore status by that time, may fulfill the requirement by taking four semesters or the equivalent in French, Portuguese, or Spanish.

HUMANITIES ELECTIVES

Two courses (6 semester hours) focused on Africa, chosen from the following:
141:30 Introduction to African Art 3 s.h.
141:107 Art of West Africa 3 s.h.
141:108 Art of Central Africa 3 s.h.
141:111 The Art of Southern and Eastern Africa 3 s.h.
141:112 Art and Archaeology of Ancient Africa 3 s.h.
141:202 Seminar: Problems in African Art 2-3 s.h.
141:120 Pre-Colonial African History (counts as elective for certificate only) 3 s.h.
141:121 African History Since 1880 (counts as elective for certificate only) 3 s.h.

141:123 Topics: Modern African History 3 s.h.
141:124 Women in African History 3 s.h.
141:142 African and Afro-American Interactions 3 s.h.
141:143 The History of South Africa 3 s.h.
141:144 Literatures of the African Peoples 3 s.h.
141:145 African Drama 3 s.h.
141:146 19 African Literature 3 s.h.
141:147 Francophone Literature of the African Diaspora 3 s.h.
141:148 Three African Writers 3 s.h.
141:240 Studies in African Francophone Literature 3 s.h.

SOCIAL SCIENCE ELECTIVES

Two courses (6 semester hours) focused on Africa, chosen from the following.
44:162 Geography of Underdevelopment 3 s.h.
141:146 African Development 3 s.h.
141:148 The Politics of Southern Africa 3 s.h.
141:157 Peoples and Cultures of Africa 3 s.h.
141:158 Myth, Magic, and Mind 3 s.h.
141:159 Anthropology of African Art 3 s.h.

AFRICAN CONTENT ELECTIVE

One course (3 semester hours) in African studies or having a significant African content, chosen from the following.

I: 109 The Arts of the African Diaspora 3 s.h.
141:115 Topics in African Studies 3 s.h.
141:116 Art of Africa, Oceania, and Pre-Colonial America 3 s.h.
44:194 Geographic Perspectives on Development 3 s.h.
113:134 Diaspora African Cultural and Political Movement 3 s.h.
129:176 Black Action Theater 3 s.h.
141:110 African News Colloquium (may be combined with 141:105 Independent Study to fulfill elective requirement) 2 s.
141:115 Topics in African Studies 3 s.h.

DIASPORA ELECTIVE

One course (3 semester hours) focused on the Diaspora African art, chosen from courses offered by the African-American World Studies Program (see “African-American World Studies” in this section of the Catalog).

Students enrolling in the African studies option of the B.A. in African-American World Studies may earn the degree with honors by completing an appropriate honors project (see “African-American World Studies” in the Catalog).
Certificate Program

The certificate program in African studies complements a departmental major and helps prepare students for graduate study or careers related to Africa. The curriculum for an undergraduate certificate includes 21 semester hours of courses on Africa, divided into three levels of study: introductory, intermediate, and advanced. There also is a foreign language requirement.

A minimum grade-point average of 2.00 is required in all course work applied toward the certificate. Courses applied toward the certificate also may be used to satisfy the General Education Requirements or the requirements for a major or a minor. 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 interested in pursuing a Certificate in African Studies should contact the Center for International and Comparative Studies to make an appointment with an African Studies Program adviser.

Required Courses

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

FOREIGN LANGUAGE

Certificate students must take four semesters, or the equivalent, of any foreign language spoken in Africa. Languages currently taught at The University of Iowa that meet this requirement are French, Portuguese, Spanish, Swahili, and Yoruba.

INTRODUCTORY COURSE

Certificate students take 141:7 Introduction to African Studies (3 semester hours) as an introduction to the continent and its history, art, literature, politics, and peoples, and as an introduction to the Africanist faculty at Iowa.

INTERMEDIATE COURSES

Students take five courses, with at least one from each of four areas of study—art, history, literature, and social science—for a total of 15 semester hours. Courses are listed under “Humanities Electives” and “Social Science Electives” for the African studies option in African-American world studies, in this section of the Catalog.

COLLOQUIUM, SEMINAR, OR ADVANCED COURSE

Senior students complete the course of study with a colloquium, seminar, or advanced course (3 semester hours) in any of the four areas listed above. Approved courses include, but are not limited to, the following. Students should discuss their plans for the advanced course with an African Studies Program adviser.

Study Abroad

In 1992, The University of Iowa received a five-year grant from the U.S. Agency for International Development to establish a university development linkage program between four Iowa institutions of higher learning and four Nigerian institutions. The linkage program’s goals are to establish joint research, training programs, and faculty and student exchanges that will enhance the participating institutions’ abilities to address development planning, management, and analysis of issues.

Courses

141:7 Introduction to African studies 1-3 s.h.
141:14 Literatures of the African peoples 3 s.h.
141:16 Elementary Swahili II GER: foreign language. Same as 103:15, 129:15.
141:30 Introduction to African Art GER: foreign civilization and culture. Same as 1H:20.
141:71 Social Science Perspectives on Contemporary Africa 3 s.h.
141:103 African Drama Same as 129:103.
141:105 Independent Study arr.
141:107 Art of west Africa Same as 1H:107, 129:107.
141:110 African News Colloquium 2 s.h.
141:111 The Art of southern and Eastern Africa Same as 1H:111.
141:112 Art and Archaeology of Ancient Africa Same as 1H:12.
141:15 Topics in African Studies arr.
141:120 Pre-Colonial African History Same as 16W:120, 129:163.
141:121 African History Since 1880 Same as 16W:121, 129:164.
141:125 Elementary Swahili I for Graduates Same as 103:125, 129:145.
141:126 Elementary Swahili II for Graduates Same as 103:126, 129:146.
141:127 Intermediate Swahili I for Graduates Same as 103:127, 129:147.

Visiting Scholars and Professionals

The African Studies Program supports U.S. and international researchers for one month to one year of residence through the Visiting Research Fellows Program sponsored by the Center for International and Comparative Studies. The program also brings highly qualified nonacademic to the campus for extended stays through the center’s Distinguished Visiting Professionals Program. These guests present public lectures, seminars, and private consultations during their stay.

University Linkage Agreements

The University of Iowa and the University of Ouagadougou (Burkina Faso) established a formal linkage in 1983 with a grant from the United States Information Agency. That linkage has continued actively since the expiration of the grant. Two additional linkages were formal linkage in 1983 with a grant from the United States Information Agency. That linkage has continued actively since the expiration of the grant. Two additional linkages were established in 1988—one with the University of Ibadan (Nigeria) and the other with the University of Nairobi (Kenya). The linkage programs involve exchanges of African and Iowa faculty members and students for teaching, curriculum development, study, and joint research.

Certificate Program

COLLOQUIUM, SEMINAR, OR ADVANCED COURSE

Senior students complete the course of study with a colloquium, seminar, or advanced course (3 semester hours) in any of the four areas listed above. Approved courses include, but are not limited to, the following. Students should discuss their plans for the advanced course with an African Studies Program adviser.

Study Abroad

In 1992, The University of Iowa received a five-year grant from the U.S. Agency for International Development to establish a university development linkage program between four Iowa institutions of higher learning and four Nigerian institutions. The linkage program’s goals are to establish joint research, training programs, and faculty and student exchanges that will enhance the participating institutions’ abilities to address development planning, management, and analysis of issues.

Courses

141:7 Introduction to African studies 1-3 s.h.
141:14 Literatures of the African peoples 3 s.h.
141:16 Elementary Swahili II GER: foreign language. Same as 103:15, 129:15.
141:30 Introduction to African Art GER: foreign civilization and culture. Same as 1H:20.
141:71 Social Science Perspectives on Contemporary Africa 3 s.h.
141:103 African Drama Same as 129:103.
141:105 Independent Study arr.
141:107 Art of west Africa Same as 1H:107, 129:107.
141:110 African News Colloquium 2 s.h.
141:111 The Art of southern and Eastern Africa Same as 1H:111.
141:112 Art and Archaeology of Ancient Africa Same as 1H:12.
141:15 Topics in African Studies arr.
141:120 Pre-Colonial African History Same as 16W:120, 129:163.
141:121 African History Since 1880 Same as 16W:121, 129:164.
141:125 Elementary Swahili I for Graduates Same as 103:125, 129:145.
141:126 Elementary Swahili II for Graduates Same as 103:126, 129:146.
141:127 Intermediate Swahili I for Graduates Same as 103:127, 129:147.
Aging Studies Program

Programs

Certificate

The certificate in aging studies requires 21 approved semester hours of course work related to aging at the 100 level or above. This aging-specific course work is defined as University of Iowa courses that focus principally on older persons, the aging process, or interventional methods or techniques whose target is the older adult or aging. A minimum grade-point average of 2.00 is required in all course work applied toward the certificate.

Students are required to take an introductory aging course and complete either a research project or a practicum course. With the approval of their major department, students may apply course work to their major or professional program of study. Six semester hours must be taken outside the major department.

Students should take the introductory aging course prior to, or concurrently with, other courses in the program. The research project or the practicum course should not be taken until the first 9 semester hours of the program are completed.

Eligibility

The program is open to all interested graduate students, upper-level undergraduates who have completed at least 45 semester hours, and special status students whose career interests and needs are served by completing the program.

Students in good standing at the above-mentioned levels may establish study plans with the Aging Studies Program coordinator, who works with them and their advisers to shape a study plan complementary to their academic program and career interests. Students should contact the aging studies coordinator to develop an appropriate study plan. The program includes required courses and recommends the sequence in which course work should be taken. The coordinator keeps a record of each student’s approved program and progress. When a student completes an undergraduate degree and fulfills the requirements for the Aging Studies Program, the coordinator notifies the registrar, who records the completion of the program on the student's record. Students in good standing at above-mentioned levels may establish a study plan with the Aging Studies Program coordinator to take an introductory aging course and complete either a research project or a practicum course. With the approval of their major department, students may apply course work toward their major or professional program of study. Six semester hours must be taken outside the major department.

Students should take the introductory aging course prior to, or concurrently with, other courses in the program. The research project or the practicum course should not be taken until the first 9 semester hours of the program are completed.

A student may not be awarded both a minor and a certificate in aging studies.

Option for an Individualized Major

Students in the College of Liberal Arts 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 into the program requires approval of a plan of study that includes 36 semester hours of upper-level course work. Students enrolled in this program also may meet the requirements for a certificate in aging studies.

Course Requirements

For full descriptions of each of the courses listed below, see the listings in the appropriate departmental sections of the Catalog.

INTRODUCTORY COURSES

All students must take at least one and no more than two introductory courses. The introductory courses accepted in the program include:

- 42:108 Basic Aspects of Aging 3 s.h.
- 17:294 Application of Research to Practice in Aging 3 s.h.
- 96:129 Introduction to Gerontology 2-3 s.h.

PRACTICUM AND RESEARCH COURSES

At least 3 semester hours in a practicum and/or research course are required and no more than 6 are accepted to meet the requirements of the Aging Studies Program. Practicum and research courses include the following:

- 42:190 Field Work in Gerontology arr.
- 96:133 Nursing Practice in Chronic Illness 7 s.h.

Other departmental practicums or research courses are accepted if the content and focus of the course of study is aging-specific.

ELECTIVE COURSES

Students may take elective courses to meet their particular needs and interests. Additional courses that fulfill the requirements for the program may be selected from the following.

Anthropology

- 113:136 Aging: A Cross-Cultural Perspective 3 s.h.
- 113:147 Special Topics in Anthropology: Death, Bereavement, and Ethnicity in Late Life 3 s.h.

Biological Sciences

- 2:271 Seminar in Cell Physiology: Biology of Aging 2 s.h.

Biomedical Engineering

- 51:154 Biomechanics of Aging 3 s.h.
Counselor Education
7C:280 Topical Seminar in Counselor Education arr.

Dentistry
112: 145 Introduction to Geriatric Dentistry 2 s.h.

Health and Hospital Administration
80:208 Long-Term Care Administration 3 s.h.
80:210 Long-Term Care Management 3 s.h.

Internal Medicine
78:805 Geriatrics Seminars 1 s.h.

Nursing
96:30 Human Development and Behavior 3 s.h.
96: 116 Loss and Death in Clinical Nursing Practice 3 s.h.
96: 130 Normative and Psychopathological Aspects of Aging 3 s.h.
96: 131 Psychological and Biological Aspects of Aging 3 s.h.
96:230 Nursing of Older Adults: Health Promotion 4 s.h.
96:231 Nursing of Older Adults: Response to Illness 4 s.h.

Sport, Health, Leisure, and Physical Studies
28:136 Physical Activity and Aging 3 s.h.
28:146 Health Promotion for Older Adults 3 s.h.
28:166 Exercise Programs: Special Populations 3 s.h.
28:168 Aging and Leisure 3 s.h.
28:171 Issues in Recreation and Leisure 3 s.h.

Religion
32:163 Introduction to Biomedical Ethics 2-3 s.h.
32:193 Suffering, Death, and Faith 2 s.h.

Social Work
42:185 Social Policy and the Elderly 3 s.h.
42:211 Individual and Family Development: Life Span 3 s.h.
42:219 Aging and the Family 2 s.h.
42:222 Social Policy Issues in Health Care 3 s.h.

Sociology
34:220 Sociology of the Family 3 s.h.
34:233 Aging and Human Development 3 s.h.

Speech Pathology
3:165 Communication Disorders and Aging 2 s.h.
3:530 Seminar: Communication Disorders and Aging 2 s.h.

*Some, but not all, of the material in these courses deals with aging. Only a portion of the credit fulfills the requirements for the Aging Studies Program. See program office for details.

AMERICAN INDIAN AND NATIVE STUDIES PROGRAM

Chair: June Helm
Professors: Robert N. Clinton (Law), Joe Dan Coulter (Anthropology), Wayne Franklin (American Studies/English), June Helm (Anthropology)
Associate professor: Mary Whelan (Anthropology)

Undergraduate degree: certificate, minor in American Indian and Native Studies

The American Indian and Native Studies Program (AINSP) is an interdisciplinary undergraduate program that focuses on the histories, cultures, languages, arts, crafts, beliefs, political and social organizations, economies, geographies, literatures, and contemporary legal and political problems of Native Americans and other Indians of the Western Hemisphere.

AINSP helps students understand historical and contemporary human relations issues among indigenous peoples of the Americas. It helps them acquire expertise for jobs involving cross-cultural work and understanding of ethnic, social, and political diversity, and it provides a background for more specialized or advanced work in a variety of social science areas, including anthropology, psychology, geography, economics, education, history, and political science. It also provides preparation for professional training in museum work, health care, business, and law.

Undergraduate Programs

Students may earn a minor or certificate in American Indian and native studies. All students plan their programs in close cooperation with AINSP advisers.

Certificate

Students pursuing the certificate in American Indian and native studies must earn at least 20 semester hours of credit in courses selected from the list of approved AINSP courses, with a minimum grade-point average of 2.00. These courses should include 149: 100 Introduction to American Indian and Native Studies (3 semester hours); enrollment for at least two semesters (2 semester hours) in 149:101 American Indian and Native Studies Seminar; and at least 3 semester hours in each of at least two departments chosen from anthropology, art and art history, English, and history.

Courses applied toward the AINSP certificate also may be used to satisfy the General Education Requirements or the requirements for a major or a minor. 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 be awarded both a minor and a certificate in American Indian and native studies.

Minor

To earn a minor in American Indian and native studies, students complete 15 semester hours in courses selected from the list of approved AINSP courses, with a minimum grade-point average of 2.00. Twelve of the 15 semester hours must be taken in advanced courses (100-level) at The University of Iowa. To preserve the interdisciplinary character of the AINSP minor, students majoring in anthropology, English, or history may not count toward the minor more than 6 semester hours from courses in their major department.

Cultural Experience

It is highly recommended, but not required, that students have an in-depth American Indian cultural experience, usually through study or volunteer work, before they complete their undergraduate requirements. Students should consult AINSP advisers about available options.

Associated Courses

In addition to the courses listed below, courses concerned in part with American Indians or with issues relevant to American Indians sometimes may be used as electives to satisfy requirements for the certificate or minor. Students should consult the AINSP advisers for approval.

Courses taken in other departments maybe applied toward meeting the recommended cultural experience and/or the certificate and the minor, subject to prior approval by the AINSP advisers.

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

American Studies
45:110 Literature and Culture of America Before 1800 (Same as 8:141) 4 s.h.
45:155 Cultural Diversity in America (when content is appropriate) 3 s.h.

Anthropology
113: 110 Indians of North America 3 s.h.
113: 14 Lowland South American Indians 3 s.h.
113: 17 The Maya 3 s.h.
113: 163 Archaeology of Mesoamerica 3 s.h.
11: 136 The Aztecs, Their Predecessors, and Their Contemporaries 3 s.h.
113: 167 North American Archaeology 3 s.h.

Art and History
IH: 2 Art of Africa, Oceania, and Pre-Columbian America 3 s.h.
IH: 105 Art of Pre-Columbian America 3 s.h.
IH: 104 American Indian Art 3 s.h.
IH: 199 Topics in Art History (American Indian Art of the Southwest) 3 s.h.
American Studies Program ● Liberal Arts 71

English
8:105 Literature and Culture of 19th. Century America 3-4 s.h.
8:113 American Indian Literature 3 s.h.
8:141 Literature and Culture of America Before 1800 (Same as 45:110) 4 s.h.

History
16A: 131 The Frontier in American History to 1840 3 s.h.
16A: 132 The Frontier in American History 1840-Present 3 s.h.

Law
91:319 Native American Law (Same as 144:211) 3 s.h.
91:635 Indigenous Peoples in the International Legal System arr.
91:676 Self-Determination in International Law arr.

Nursing
96:172 Health and Cultural Diversity (Same as 113:108) 3 s.h.
96:174 Transcultural Mental Health (Same as 113:107) 3 s.h.

COURSES
149:100 Introduction to American Indian and Native Studies 3 s.h.

American Studies Program

Chair: John Raeburn
Professors: Wayne Franklin (American Studies/English), Richard P. Horwitz (American Studies), John Raeburn (English/ American Studies)
Professors emeriti: Alexander C. Kern (English/American Studies), Albert E. Stone (American Studies/English)
Associate professor: Jane Desmond (American Studies/Women’s Studies), Lauren Rabinovitz (American Studies/Communication Studies)
Undergraduate degree: B.A. in American Studies; minor in American Studies
Graduate degrees: M.A., Ph.D. in American Studies
American Studies draws additional cooperating faculty from the Programs in African-American World Studies, Urban and Regional Planning, and Women’s Studies; the Departments of Anthropology, Communication Studies, Economics, English, Geography, History, Linguistics, Philosophy, Political Science, Psychology, Sociology, Theatre Arts, and Sport, Health, Leisure, and Physical Studies; the Schools of Art and Art History, Journalism and Communication, Music, Religion, and Social Work; and the College of Education.

The American Studies Program provides an interdisciplinary introduction to American culture, past and present. It helps students and critics of culture 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 Program

Bachelor of Arts

The B.A. program in American studies stresses broad training in cultural analysis and communication. Although there is no explicit vocational training, the program provides preparation for a career in business, education, government, journalism, or social service; for advanced studies in the humanities, the social sciences, theology, or business; or for professional studies in law or medicine. Internships can be arranged.

Plan of Study

American studies majors develop individual plans of study that combine courses from cognate departments with integrative American Studies Program offerings. Proposed plans of study are reviewed by the American Studies Program faculty to ensure that they are manageable and flexible.

Prospective American studies majors are required to submit a preliminary one- to two-page plan of study, which must be approved before they can be considered for admission to the major. Each plan of study should indicate why the prospective student wants to undertake the American studies major and should outline an 18-semester-hour area of specialization in American studies. The area of specialization should be interdisciplinary and should focus on a theme, problem, body of materials, group of people, or time period in American life. It also should integrate varied approaches to the chosen topic as represented by relevant courses from multiple disciplines.

Plans of study may be submitted for approval to the director of undergraduate study in the American Studies Program any time during the academic year. Applications are reviewed regularly throughout each semester.

If the director of undergraduate study does not approve a plan of study, the student may revise and resubmit the plan at any time. In some cases, students may be referred to a more appropriate departmental major. Students who wish to appeal the director’s decision may submit the plan of study and an accompanying letter to the American Studies Steering Committee.

Required Courses

The major usually consists of 12 courses totaling 36 semester hours. Students are especially encouraged to complete courses in women’s studies and African-American world studies.

Courses in American studies must include 45:1 American Values and 45:90 Seminar in American Cultural Studies. Requirements are as follows.

American studies core (four courses, including 45:1 and 45:90) 12 s.h.
American history (two courses) 6 s.h.
Area of concentration (six courses in American studies or other departments) 18 s.h.

General education courses in historical perspectives, humanities, literature, and social sciences provide relevant preparation for the American studies major. 8G:9 American Lives is especially recommended.

Honors

The American studies honors program offers students the opportunity to pursue special interests in individual, in-depth research. Honors candidates in American studies must be members of the University Honors Program.

Under the guidance of the undergraduate honors adviser, the honors candidate defines a research project using primary sources. Project proposals should be made by the end of the candidate’s junior year. Each candidate completes the project under the guidance of a supervising faculty member and may register for up to 6 semester hours in 45:95 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 adviser, and a third faculty member of the student’s choice. (When the honors adviser is the supervising faculty member, the candidate may select second and third faculty members.) The candidate’s committee may choose to hear an oral defense of the final project, usually in the twelfth week of the student’s last semester.

Minor

Students interested in a minor in American studies should consult program faculty members. The minor requires a minimum of 15 semester hours of credit in American studies with a minimum grade-point average of 2.00. At least 12 of the 15 semester hours must be taken at The University of Iowa in courses numbered 45:100 and above, but 45:90 may count toward this requirement.

Graduate Programs

Master of Arts

The M.A. in American studies may be a terminal degree or a degree preliminary to the Ph.D. in American studies or a traditional discipline.

The M.A. program in American studies includes 12 courses usually totaling 36 semester hours. Requirements include:

45:200-201 Theory and Practice in American Studies 1-11 (6 semester hours) plus at least...
Admission to Ph.D. Candidacy

A student’s plan of study and evaluation by instructors must be presented to the American studies faculty for review after about 30 semester hours of course work have been completed. Students who have been admitted to Ph.D. candidacy should finish the courses approved in the plan of study and prepare for comprehensive examinations.

Comprehensive Examinations

Each field must include at least 6 courses (18 semester hours), including tutorials. In defining a field, students should consider covering not only a body of material, a time period, interpretive theory, comparative studies, or a theme and courses in women’s studies and African-American world studies, but also a foreign language, media production skills (e.g., photography, video), and internships.

Comprehensive examination of two of the fields is normally conducted in two four-hour written examinations or, with the consent of the examiners, essays written over the course of a single semester. The third field is tested through an annotated bibliography. The oral portion of the comprehensive examination focuses on the position paper, the two written examinations or essays, and the annotated bibliography.

Thesis

The final requirement for the Ph.D. in American studies is presentation of an acceptable thesis on a topic whose investigation involves more than one field or discipline. The candidate may petition to present a creative thesis, such as fiction, autobiography, or film, combined with a critical analysis of the cultural experiences the thesis reflects. Permission to undertake such a thesis is granted only by the American Studies Steering Committee.

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, Living History Farms, the Herbert Hoover National Historic Site, and the Putnam Museum. Internships in Chicago can be negotiated with Hull House, Newberry Library, Church Council of Chicago, Spertus Museum of Judaica, DuSable Museum of African-American History, and the National Training Institute. With special permission, candidates conducting research during such on-the-job training may receive academic credit through 45: 100 Independent Study or 45:350 Material Culture Internship.

For Undergraduates and Graduates

45:100 Independent Study

Consent of instructor required.

45:110 Literature and Culture of America Before 1800

Formative period in American culture through historical records, artifacts, the arts; emphasis on spatial, political, social order, psychology of colonialism. Same as 8:141.

45:115 American Culture of the 1930’s

The Great Depression through historical records, literature, photography, movies, other arts; emphasis on expression of American life and thought, social and cultural experience.

45:130 Dance as Cultural Practice

Social, popular, theatrical forms since the 1960’s; emphasis on relationships between aesthetics, cultural politics. Graduate standing or consent of instructor required. Same as 131:130.

45:140 The Cultures of American Women

Women’s experience; emphasis on relationship between individual lives, broad social and cultural content. Same as 131:140.

45:155 Cultural Diversity in America

Contact exchange among different cultures in America, especially Native Americans and Euro- and African-Americans; historical survey relying on primary documents.

Courses

Primarily for Undergraduates

45:000 cooperative Education Internship

0 s.h.

45:1 American Values

Representative texts, artifacts, cultural values in historical and contemporary perspective. GER: humanities. 3 s.h.

45:5 American Issues

3 s.h.

45:30 Introduction to Afro-American Culture

GER: humanities. Same as 129:61. 3 s.h.

45:35 Race and Ethnicity in the U.S.

3 s.h.

45:40 Gender in the U.S.

Representative topics include sex roles and gender relations, feminine and masculine dimensions of American culture. Same as 131:40. 3 s.h.

45:42 Women and Work in the U.S.

Pink collar labor and housework, gender and division of labor, sexual harassment, affirmative action. Same as 131:42. 3 s.h.

45:44 Lesbian Lives in the U.S.

Same as 131:44. 3 s.h.

45:46 Life in the U.S.

Traditional and alternative households, images, narratives, experiences of kinship. 3 s.h.

45:47 Sexuality and American Culture

Content varies; focus on different definitions of sexuality prevalent at various times. 3 s.h.

45:65 American Places

The West, the South, images of city or mad in American culture. 3 s.h.

45:70 Popular Arts and Entertainment in the U.S.

Rock ‘n’ roll, jazz, humor, sport. 3 s.h.

45:75 American Music

Cultural, historical study of rock ‘n’ roll, jazz, blues, country and western, folk music. 3 s.h.

45:80 Asian Americans

Asian-American experiences. 3 s.h.

45:90 Seminar in American Cultural Studies

Intercultural perspectives on a single theme or period. 3 s.h.

45:95 Honors Project

Independent interdisciplinary research, writing.

For Undergraduates and Graduates

45:100 Independent Study

Consent of instructor required.

45:110 Literature and Culture of America Before 1800

Formative period in American culture, through historical records, artifacts, the arts; emphasis on spatial, political, social order, psychology of colonialism. Same as 8:141.

45:115 American Culture of the 1930’s

The Great Depression through historical records, literature, photography, movies, other arts; emphasis on expression of American life and thought, social and cultural experience.

45:130 Dance as Cultural Practice

Social, popular, theatrical forms since the 1960’s; emphasis on relationships between aesthetics, cultural politics. Graduate standing or consent of instructor required. Same as 131:130.

45:140 The Cultures of American Women

Women’s experience; emphasis on relationship between individual lives, broad social and cultural content. Same as 131:140.

45:155 Cultural Diversity in America

Contact exchange among different cultures in America, especially Native Americans and Euro- and African-Americans; historical survey relying on primary documents.

2 other courses (6 semester hours) or seminars in American studies;
five to eight additional courses selected in relation to a topic or period of cultural history; these courses may be grouped to address more than one topic, and they must be chosen from more than one discipline; they usually include at least two courses in American history and some work in African-American world studies and women’s studies; and satisfactory performance in 45:400 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, in which case a student may receive up to 6 semester hours of thesis credit. Students should consult the program chair for details.

A joint program leading to the M.A. in American studies and the J.D. from the College of Law provides a broad cultural context for the study and practice of law. Similar joint programs can be arranged in other professional fields, including journalism and social work.

Doctor of Philosophy

The Ph.D. program in American studies requires a minimum of 72 semester hours of course work that provides a core of American studies courses in interdisciplinary methods and substantial course work in three major fields. Course requirements are as follows.

45:200-201 Theory and Practice in American Studies I-II 6 s.h.

First field (six courses) 18 s.h.

Second field (six courses) 18 s.h.

Third field (six courses) 18 s.h.

Electives

Although permitted considerable flexibility in planning a program, American studies Ph.D. candidates must meet certain basic requirements. One is that through course work and reading, all students address the cultural diversity of American life. Since race and gender issues are specifically explored on the oral portion of the comprehensive examination, some course work is required in African-American world studies and women’s studies.

Students also must design a plan of study that emphasizes a particular period of American cultural history. Hence, history is considered either background to or the center of all doctoral programs.

Finally, students must complete significant course work in American studies itself. Graduate students normally must take 45:200-201 Theory and Practice in American Studies I-II consecutively during the first year of graduate study. At least two additional graduate courses in American studies are required. These courses provide interdisciplinary training and background for a position paper that is required for the Ph.D. comprehensive examination.

Students must work carefully with advisers to be sure each major field is a well-designed dimension of a coherent plan of study.
45:157 Gender on Stage 3 s.h.
How gendered bodies and roles are displayed on stage; popular, elite, experimental, traditional, mass media theatre, dance, music; topics include performing gender in everyday life, theories of spectatorship, politics of drag, feminist theatre. Graduating student or consent of instructor required. Same as 131:157.

45:170 Work and Leisure in American Culture 3 s.h.
Same as 28:173.

45:175 The Politics of American Culture 3 s.h.
Roles of power, political institutions and ideologies; contexts, periods, themes.

45:180 Survey of American Autobiography 3 s.h.
Personal writing in the United States from colonial era to present; emphasis on variety of forms, cultural context, literary and social meanings.

45:185 International Views of America 3 s.h.

45:188 American Autobiography I 3 s.h.
Cultural life, life experiences of subculture members, to 1860; focus on complex nature of narrative. Same as 8:185.

45:189 American Culture and Black American Religious Experience 3 s.h.
Social and cultural forms of Black religious life from slavery to present; Black church and its music; central role of preacher in Black church; Black theology; Black and religious utopias (e.g., Jonestown); literature and black religion.

45:190 American Autobiography II 3 s.h.
Cultural life, life experiences of subculture members, after 1860; focus on complex nature of narrative. Same as 8:186.

45:192 American Popular Arts 3 s.h.
History, interpretation, criticism of popular arts such as best-selling fictions, movies, television. Same as 129:192.

45:193 American Photography 3 s.h.
Popular and art photographs as expressions of American life, thought.

45:194 American Film and Video 3 s.h.
Topics in history, interpretation, criticism of U.S. movies, television, video art.

45:196 American Vernacular Architecture 3 s.h.
Historical, cultural approach; rural and urban houses of East, Midwest, South.

45:197 Landscape 3 s.h.
Development of land use patterns in rural America; emphasis on cultural values, agricultural traditions, impact of modern technology.

45:198 American Communities 3 s.h.
Studies of selected peoples and places in America, emphasizing books in anthropology, history, journalism, sociology, documentary film.

45:199 Interviewing Americans 3 s.h.
Contemporary Americans through interviews, questioning and recording techniques, ethnographic writing. Same as 113:108.

Primarily for Graduates

45:200 Theory and Practice of American Studies I 3 s.h.
Theories, methods, cases in culture studies; emphasis on social science approaches. Open only to American studies graduate students or to others with consent of instructor.

45:201 Theory and Practice in American Studies II 3 s.h.
Open only to American studies graduate students or to others with consent of instructor.

45:210 Introduction to Research in Afro-American Culture arr.
Same as 16:244, 129:211.

45:240 Women and Television in American culture 3 s.h.
Same as 309:240, 131:240.

45:250 Seminar in Theories of Culture 3 s.h.

45:255 University cultures 3 s.h.
Academic cultures, focus on social, intellectual history of the humanities and social sciences in the United States and professors' personal experience.

45:260 Seminar: History, Literature, and American Culture arr.
Same as 8:48.

45:269 Readings on the American South: Gender and Race in American History arr.
Same as 16:269.

45:275 Politics and American Culture 3 s.h.
Roles of power, political institutions, ideologies; contexts, periods, themes. Open only to graduate students.

45:290 Seminar in Writing about Cultures 3 s.h.
Strategies for writing about particular peoples and places, especially those encountered through fieldwork experience.

45:293 Seminar in American Visual Culture 3 s.h.
Visual expression, its relation to cultural history.

45:295 Seminar: American Material Culture 4 s.h.

45:300 American Film and American Culture 3 s.h.
Relationships between film, culture as developed in a particular approach, period, subject. Same as 30:300.

Independent Study

Consent of instructor required.

45:350 Material Culture Internship 0-5 s.h.
Independent work in the field or in a field school, curating or interpreting material culture.

45:360 American Studies Pedagogy 0-5 s.h.
First teaching experience or preparation of new course.

45:370 Writing for Publication 0-5 s.h.
Writing or revision of paper to be delivered at scholarly meeting or submitted to journal.

45:400 Masters Preparation 0-3 s.h.
Writing for M.A. exam. Open only to candidates for M.A. in American Studies without thesis.

45:450 M.A. Thesis 0-5 s.h.

45:500 American Studies Position Paper 3 s.h.
Writing for the Ph.D. comprehensive exam.


ANTHROPOLOGY

Chair: Nora England
Adjunct professor: Toni Tripp Reimer
Associate professors: Florence E. Babh, Russell Cichon, Marshall McKusick, Douglas Midgett, Allen Roberts, Mary Whelan
Adjunct associate professor: Jeffrey Ehrenreich
Assistant professors: James Enloe, Frank Fairfax, Laura Graham, Obagle Lake, Scott Schnell, Glenn Storey
Adjunct assistant professors: Fred Finney, William Green, Stephen C. Linskens, Kendall Thou
Undergraduate degree: B.A. in Anthropology; minor in Anthropology
Graduate degrees: M.A., Ph.D. in Anthropology

Anthropology is the study of human beings in all walks of life, in all kinds of societies, in all parts of the world, and at all points in time. The discipline’s four major subfields have important connections to the other social sciences, the physical and biological sciences, the arts, and the humanities.

Anthropology offers a framework for understanding the place of human beings in relation to the natural environment and to the myriad social and cultural worlds that humans have created. It provides insight into our biological and cultural evolutionary background; our economic, social, and political organization; our cultural and symbolic systems; the prehistoric and historic development of our social systems; and the interrelations among our individual selves, our societies, and the canons of thought and feelings we share with others.

Undergraduate Program

Students who earn a B.A. in anthropology receive a broad liberal arts education that provides excellent preparation for a variety of careers. They gain special understanding of human relations and expertise for jobs involving international or cross-cultural work, and social and ethnic diversity in the United States. Upon graduation, anthropology majors embark on careers in government work, international affairs, gerontology, urban and regional planning, social work, and education. Many become Peace Corps or Vista volunteers or work for international nongovernmental organizations. Others pursue graduate study in anthropology, other social science disciplines, or professional school (health care, law, business).

The major requires at least 30 semester hours of course work in anthropology, including the following.

113:3 Introduction to the Study of Culture and Society 3-4 s.h.
113:12 Introduction to Prehistory 3 s.h.
113:13 Human Origins 3 s.h.
113:14 Language and Human Behavior 3 s.h.

In addition, students must take one course in archaeology (a real or topical), one course in ethnology, and one course in sociocultural anthropology. The remaining semester hours should be selected in consultation with the adviser.

Anthropology electives offer a wide range of choices, including courses dealing with language and culture, medical anthropology, religious activity in folk and tribal settings, gender, biological anthropology, identity, discipline, culture (art, literature, music, and dance), human prehistory, human evolution, environment and culture, and urban anthropology. Department faculty members offer ethnology courses on Africa, China, Oceania, Southeast Asia, the Middle East, Latin America, the Caribbean, Japan, and Native North America.

Specialization is discouraged in the undergraduate program, which is designed to give students the broadest possible cross-cultural background. Course work is encouraged in related disciplines such as sociology, linguistics, geology, geography, history, art history, psychology, biological sciences, and foreign languages. Students also are encouraged to participate in archaeological field and laboratory research and in biological and linguistic anthropology research.

Honors

The honors program in anthropology is open to students with a minimum cumulative grade-point average of 3.20 both overall and in anthropology. In addition to the regular requirements for a major in anthropology, honors students complete an honors seminar or graduate-level course and honors research project. Consult the department honors adviser for more information.
Minor

To minor in anthropology, students must complete 15 semester hours in anthropology with a minimum grade-point average of 2.00. At least 12 semester hours must be taken at The University of Iowa in courses numbered 113:100 and above.

Graduate Programs

Master of Arts

The M.A. program consists of four program tracks: general anthropology (thesis or nonthesis), designed to prepare students to deal with any aspect of anthropology at an introductory level; economic anthropology (thesis only); feminist anthropology (thesis only); and anthropology with a concentration in museology.

The M.A. program without thesis precludes consideration for admission to the Ph.D. program at Iowa.

The number of semester hours of credit required for the M.A. with thesis varies from 30 to 36, depending on the student’s previous anthropological training. The nonthesis program requires at least 36 semester hours of graduate work. The department also offers a 38-semester-hour M.A. without thesis in anthropology with a concentration in museology.

No more than 9 semester hours of courses outside of anthropology and no more than 3 semester hours of independent study may be applied toward the M.A. requirements in anthropology.

Students with previous training in anthropology, whatever their undergraduate major, may petition for permission to waive any part of the distribution requirements listed below.

The following are the requirements for each M.A. program track.

General Anthropology

(Thesis or nonthesis)

113:102 Anthropological Data Analysis 3 s.h.
113:171 Anthropological Linguistics 3 s.h.
113:240 Seminar: Sociocultural Anthropology 3 s.h.
113:268 Seminar: Archaeological Theory and Method 3 s.h.
113:285 Seminar: Biological Anthropology 3 s.h.

Economic Anthropology

(Thesis only)

113:102 Anthropological Data Analysis 3 s.h.
113:240 Seminar: Sociocultural Anthropology 3 s.h.
113:268 Seminar: Archaeological Theory and Method 3 s.h.

Students also must take one course from each of the three groups below, for an additional 9 semester hours.

113:135 Work and Society 3 s.h.
113:141 Economic Anthropology 3 s.h.

113:151 Sociology of the Third World 3 s.h.
113:175 Gender and Development Studies 3 s.h.
113:275 Development Policy and Planning in the Third World 3 s.h.
113:143 Environment and Culture 3 s.h.
113:160 Environmental Archaeology 3 s.h.
113:164 Comparative Prehistory 3 s.h.

Feminist Anthropology

(Thesis only)

113:190 Feminist Perspectives on Biology and Culture 3 s.h.
113:220 Seminar: Feminist Anthropology 3 s.h.
113:240 Seminar: Sociocultural Anthropology 3 s.h.

Students also take three courses from the two groups below, with at least one course from each group, for an additional 9 semester hours.

113:154 Anthropologies and Sexualities 3 s.h.
113:156 Women’s Roles in Cross-Cultural Perspective 3 s.h.
113:175 Gender and Development Studies 3 s.h.
113:221 Seminar: Feminist Ethnography 3 s.h.
113:271 Seminar in Anthropological Linguistics: Language and Gender in Cross-Cultural Perspective 3 s.h.
113:171 Anthropological Linguistics 3 s.h.
113:172 Language and Culture 3 s.h.
113:201 Seminar: Anthropological Theory 3 s.h.
113:268 Seminar: Archaeological Theory and Method 3 s.h.
113:285 Seminar: Biological Anthropology 3 s.h.

M.A. in Anthropology with a Concentration in Museology

In cooperation with the Museum of Natural History, the Department of Anthropology offers a 38-semester-hour nonthesis program of study leading to an M.A. in anthropology with a concentration in museology. Instruction in the organization and management of museums with emphasis on exhibit design, curation, and educational outreach development forms part of the graduate program.

REQUIRED COURSES

Anthropology

113:240 Seminar: Sociocultural Anthropology 3 s.h.
113:285 Seminar: Biological Anthropology 3 s.h.
113:268 Seminar: Archaeological Theory and Method 3 s.h.
Electives in anthropology 6 s.h.

Museum Studies

(Total of 15 semester hours)

24:102 Introduction to Museology 3 s.h.
24:104 Principles of Exhibit Design 2 s.h.
24:106 Museum Laboratory Methods 2 s.h.

SUGGESTED ELECTIVES

24:107 Museum Laboratory Methods arr.

Courses in museum studies, science education, instructional design and technology, geology, biological sciences, art and art history, and English (nonfiction writing)

Doctor of Philosophy

Graduate training in anthropology at the Ph.D. level is designed to lead to professional competence in scholarly research and teaching. Students at The University of Iowa currently may select specializations in all four subfields of anthropology: archaeology, biological anthropology, linguistic anthropology, and sociocultural anthropology.

Training in a specialization is guided by a Ph.D. committee composed of appropriate faculty members. Students work closely with their committee to plan a program consistent with their subfield interests.

The requirements are:

- at least 72 semester hours of graduate course work; students specializing in sociocultural anthropology must take 113:201 Seminar: Anthropological Theory;
- demonstration of a reading knowledge of one foreign language;
- ethnographic or archaeological specialization in a major geographic area (for example, North America, Mesoamerica, South America, Oceania, Southeast Asia, the Caribbean, Europe, Africa) approved by the student’s Ph.D. advisory committee;
- specialization in a major and minor topical area;
- a written comprehensive examination in the student’s areas of specialization; and
- preparation and oral defense of a dissertation.

The major topical area is the area of theoretical concentration and orientation for the dissertation. Topics that may serve either as major or minor areas in sociocultural or linguistic anthropology include kinship and social organization, ethnography, economic anthropology, feminist anthropology, symbolic anthropology, expressive culture, development anthropology, language and culture, religion, cultural ecology, and medical anthropology.

Major topical areas for students in archaeology include settlement archaeology, environmental archaeology, and faunal and floral analysis.

Those for students in biological anthropology include human evolution, primate evolution, primate anatomy, and primate behavior.

The comprehensive examination ordinarily is taken when the student’s course work is completed or nearly completed, after the language requirement has been satisfied, and
before the student begins fieldwork. All doctoral candidates are required to carry out original anthropological research. Ordinarily, students conduct fieldwork as the basis for their dissertations; occasionally, however, a research proposal may be carried out using only documents, collections, or other source materials.

All doctoral candidates are required to be adequately trained in methods of gathering primary data in archaeological, biological, linguistic, or ethnographic field research.

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

Admission
Applicants for admission to the graduate program in anthropology are considered regardless of their prior field of training. Admission to the department’s graduate program may be at either the M.A. or Ph.D. level; however, full admission to the Ph.D. program depends on successful fulfillment of all department requirements.

Any student with an M.A. with thesis may apply for admission to the Ph.D. program. A student admitted with an M.A. in anthropology from another institution may proceed directly to a specialized Ph.D. program.

An applicant with an M.A. in another discipline must seek admission as a first-year graduate student and complete necessary background courses in anthropology before proceeding to the Ph.D. The number of such courses is determined on a case-by-case basis, depending on the student’s prior training.

Applicants for admission to the graduate program must meet the general admission requirements of the Graduate College (see the Graduate College section of the Catalog) and are required to submit a completed University application form, transcripts of all previous undergraduate and graduate work, three letters of recommendation from individuals competent to judge their potential for graduate training, scores from the aptitude portion of the Graduate Record Examination (GRE), and at least one written example of previous work (for example, a term paper or an original experiment).

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.

Applicants should have at least a 3.00 grade-point average. However, applicants with lower grade-point averages may be admitted with conditional status if other criteria indicate potential for graduate work.

Assistantships
Financial aid awards for incoming students are limited and highly competitive, most graduate students receive some financial aid in the form of teaching and research assistantships during a portion of their studies at Iowa. Application for awards should be made directly to the department chair.

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

individual faculty members maintain field laboratories and conduct research outside the United States, maintaining ties with research institutions in foreign countries, including the Teotihuacan Archaeological Research Facility in Mexico, and the Laboratoire d’Ethnologie Prehistorique at Pincevent and the Centre de Recherches Archéologiques at Verberie, in France.

The department also has well-equipped laboratories for the study of archaeology, biological anthropology, and linguistic anthropology.

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. The HRAF and other library resources make source materials on more than 400 different cultures available to anthropologists.

Through the Project for the Advanced Study of Art and Life in Africa (PASALA), anthropology students also have access to the Stanley Collection of African Art at The University of Iowa Museum of Art. 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 the Pacific Islands, Asia, the Middle East, Europe, Africa, the Caribbean, Mesoamerica, South America, and the Subarctic. Recent field research has been conducted in Brazil, Mexico, Guatemala, Nicaragua, Peru, Micronesia, Hawaii, Iceland, Great Britain, France, Mali, Burkina Faso, Benin, Chad, Gabon, Ghana, Nigeria, Zaire, the eastern Caribbean, China, Japan, Papua New Guinea, India, Myanmar (formerly Burma), Vietnam, Israel, the Canadian Subarctic, and the United States.

Current faculty research topics include paleoanthropological investigations of Pleistocene Karst caves in northern Vietnam; precontact state systems and the historical archaeology of the Valley of Mexico; faunal analyses from Paleolithic sites in France; comparative syntax and Mayan languages; Peruvian underdevelopment and consequences for women workers; patterns of political and economic development of emerging nations; agricultural and economic decision making among rural peoples in the Peruvian Amazon; women in socialist societies; alcohol and drug studies; ethnology, ecology, and social organization of Indian peoples of the American Subarctic; West Indian migrants in London; political economy of the eastern Caribbean; social impact of rural development projects in Africa; art, magic, and the generation of metaphors as adaptation to social change in Africa; politics, society, history, and literature of medieval Iceland; maritime anthropology and fisheries policy in the United States and Iceland; economic anthropology in Southeast Asia and Iceland; cultural politics, ethnicity, semiotics, critical discourses in the Middle East and Hawaii; diaspora Africans and African-American society and culture; sociolinguistics and expressive culture in the Brazilian Amazon; and ritual and social change in Japan.

Courses

For Undergraduates

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<thead>
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<tr>
<td>113:00</td>
<td>Cooperative Education Internship</td>
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<td>113:3</td>
<td>Introduction to the Study of Culture and Society</td>
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<tr>
<td>113:10</td>
<td>Anthropology and Contemporary Problems</td>
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<tr>
<td>113:12</td>
<td>Introduction to Prehistory</td>
<td>3.0</td>
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<tr>
<td>113:13</td>
<td>Language and Human Behavior</td>
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<tr>
<td>113:14</td>
<td>Introduction to Midwestern Prehistory</td>
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<td>113:15</td>
<td>Individual Study</td>
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Advanced Courses

General Anthropology

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<td>113:101</td>
<td>General Anthropology</td>
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<tr>
<td>113:102</td>
<td>Anthropological Data Analysis</td>
<td>3.0</td>
</tr>
<tr>
<td>113:103</td>
<td>Introduction to Museology</td>
<td>3.0</td>
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</table>
113:107 Transcultural Mental Health 3 s.h.
Cross-cultural perspectives on mental health, mental illness; expected behavioral patterns for developmental ages in various cultures, deviation from these patterns. Prerequisite: 113:3 or 113:101 or consent of instructor. Same as 96:174.

113:108 Health and Cultural Diversity 3 s.h.
Cross-cultural perspectives on dynamics of health, illness. Prerequisite: 113:3 or 113:101 or consent of instructor. Same as 96:172.

113:146 History of Anthropology 3 s.h.
Development as a discipline: comprehending persons, concepts, principles, theories; cultural anthropology. Consent of instructor required.

13:147 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 3 s.h.
See 113: 547.

113:149 Special Topics in Anthropology 2-3 s.h.
See 113: 547.

113:151 sociology of the Third World 3 s.h.
Economic development as a sociological problem: social institutions, social organization of underdeveloped areas; social, economic development problems; social change, consequences of industrialization and urbanization in underdeveloped areas. Prerequisite: 34:1 or 113:3 or 113:101. Same as 34:151.

113:157 Alcohol and Culture 3 s.h.
Cross-cultural view of use, abuse; focus on common patterns of drinking, cultural variability in drunken comportment; implications of studies of drinking in other cultures; drinking behaviors in American society. Prerequisite: 113:3 or 113:101 or consent of instructor.

113:203 Constructing Ethnographic Data 3 s.h.
Constructing and assessing relevance of primary ethnographic data; internal and external points of view, state-of-the-art computer applications. Graduate standing in anthropology or consent of instructor required.

113:204 Inside/Outside The Middle East 3 s.h.
Social, political relations in Middle Eastern societies; anthropological perspectives; understanding of Islam; nationalist movements, social revolutions; male female relations; competing claims to cultural, historical authenticity. Junior, senior, or graduate standing or consent of instructor required.

113:105 Introduction to South Asia 3 s.h.
Culture, emphasis on India; South Asian geography, demography, environment, prehistory, history, colonial period, contemporary political situation; regional ethnographic case studies, emphasis on religious systems. Prerequisite: 113:3 or 113:101 or consent of instructor.

113:106 Interviewing Americans 3 s.h.
Contemporary Americans through interviews, questioning, recording techniques, ethnographic writing. Same as 45:199.

113:110 Indians of North America 3 s.h.
History, culture of American Indian peoples; emphasis on North America.

113:113 Africans in the New World 3 s.h.
Social, cultural history of African descendants in the New World; emphasis on continuity, change in U.S. populations; contemporary African-American societies; emphasis on cultural unity, variation, liberation themes. Same as 129:113.

113:114 Lowland South American Indians 3 s.h.
Native languages, cultures of indigenous lowland South America; theoretical problems that have guided research in area; areal patterns, social and linguistic groupings, theoretical perspectives that have shaped understanding of area.

113:117 The Maya 3 s.h.
Maya of Guatemala, Mexico from the Classic Period (eighth century A.D.); present-day history, art, science, achievements, religion, cultural and social systems, language, politics, identity, contemporary problems.

113:118 social Anthropology of the Caribbean 3 s.h.
Historical background, other factors underlying contemporary social, cultural situations in insular and circum-Caribbean region; emphasis on Afro-American populations, cultural components. GER: foreign civilization and culture. Same as 129:115.

113:120 Peoples and Cultures of Africa 3 s.h.
Anthropological theory, ethnography; African ethnic groups, including the Cape, Kenya, the Yoruba of Nigeria, Nuer; traditional and contemporary; varying environment, history, political economy. Same as 129:157, 141:157.

113:122 African-American Music and Culture 3 s.h.
Musical idioms and their social settings; cultural heritage and development, economics, hegemony and liberation, parallels and variations in musical traditions in the African diaspora. Same as 129: 122.

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

113:126 Japanese Values through Literature and Film 3 s.h.
Japanese social relationships, attitudes, Perceptions as expressed through literature, film; focus on dramatic changes resulting from rapid urban industrialization of recent decades. Prerequisite: 39J:125 or 113:125 or consent of instructor. Same as 39J:126.

113:127 Ethnology of Oceania 3 s.h.
Comparative ethnography of island Oceania (Polynesia, Micronesia, Melanesia); postcontact and current history of Pacific area, significance of islands; living in island habitats; contributions of Oceania ethnography to anthropological theory; contemporary problems; research trends. GER: foreign civilization and culture.

113:128 Community and Social Organization in Japan 3 s.h.
Japanese social organization within variety of community contexts, from farm village to business corporation; emphasis on maintaining sense of communal identity, legitimizing contemporary social patterns through allusion to the past. Junior or higher standing or consent of instructor required.

113:129 African-American Communities 3 s.h.
Classic, contemporary ethnographic studies of African-American communities: culture, identity, class, power; research methods, circumstances surrounding their creation. Same as 129: 129.

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. GER: foreign civilization and culture.

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

113:133 Race and Cultural Identity in the United States 3 s.h.
Institutional character of cultural racism in the United States; creation of categories of cultural images; how these images are used to justify political/economic marginalization of minority groups. Same as 129:133.

113:134 Diaspora African Cultural and Political Movements 3 s.h.
Political/economic foundations of Diaspora African sociocultural movements from eighteenth to twentieth century; Rasta/Tarians, Nation of Islam, African-American nationalist, pan-Africanist movements. Prerequisites: introductory course in anthropology or sociology or a course in African Diaspora African history or graduate standing or consent of instructor. Same as 129: 134.

113:135 Anthology of African Art 3 s.h.
Art and sexual oppression in Africa and the Caribbean; and use of African American women’s experiences for cross-cultural analysis; emphasis on interface between political-economic and cultural hegemony. Prerequisite: course work in anthropology, African-American women’s studies, Witten’s studies, or sociology; or consent of instructor. Same as 129: 136. 129: 139.

113:139 Anthropology of Architecture 3 s.h.
Anthropology of architecture, emphasis on cultural influence of architecture on society, and societal influence on architecture. GER: foreign civilization and culture.

113:140 Valuing Tradition(s) and Politics of Value 3 s.h.
Ideas and innovations of tradition, traditionalism in relation to, and the public discussion of value(s) in terms of tradition. Junior or higher standing required.

113:141 Economic Anthropology 3 s.h.
Economic decision making; social institutions associated with production, consumption, distribution of goods; effects of economic development programs on Third World peoples. Graduate standing or anthropology honors undergraduate standing or consent of instructor required.

113:142 Anthropology of Religion 2-3 s.h.
Approaches; religious roles; shamanism, witchcraft, curing; mythology; place of religion in social, cultural change. Same as 32:160.

113:143 Environment and Culture 3 s.h.
Individual, group response to and influence of natural resources such as land, water, food. Prerequisite: 113:3 or 113:10 or 1 131:101 or consent of instructor.

113:145 Symbolism and Structuralism 3 s.h.
Symbolism in literary works; its major proponents (C. Lévi-Strauss), its critics; other theories; approaches to and influence of symbolism and structuralism. GER: social sciences.

113:150 Anthropological Paradigms in Historical Perspective 3 s.h.
History and sociology of knowledge as seen through development of professional anthropology; emphasis on social, cultural, linguistic anthropology; biological and historical analyses. Junior or higher standing required.

113:152 Cognitive Anthropology 3 s.h.
Processes, products, capacities for knowledge; application and development of ideas about cognition in anthropologic contexts; understanding cognitive development, differences across cultures. Prerequisite: 113:3 or 113:101 or consent of instructor.

113:153 Culture Politics 3 s.h.
Implicit, explicit manifestations of power in the arts, popular culture, institutions of learning, sites of historical preservation; illustrations, analyses drawn from variety of contexts in addition to contemporary U.S. and other topics.

113:154 Anthropological and Sociocultural Anthropology 3 s.h.
Comparative, theoretical discussions of social identities; principles of social differentiation, categorization; sociopolitical history, consequences; contextualization of U.S. notions of ethnicity, race, nation, class, gender, culture. Junior or higher standing required.
113:155 Race and Ethnic Relations 3 s.h.
Multicultural study of race and ethnic relations; emphasis on historical, sociological, political issues in study of American minority groups. Prerequisite: 113:3 or 34:1. Same as 34:155, 126:114.

113:156 Women’s Roles in Cross-Cultural Perspective 3 s.h.
social, economic, political roles of women around the world; sex roles, emphasis on culture change and its implications for women living. Same as 131:55.

113:158 Myth, Magic, and Mind 3 s.h.
How metaphors organize thought and communication; reflexive anthropology; culture as text; contingency of truth; representation; ethnography as allegory; parody, parody, edification by jujjumal; effectiveness of symbols. Graduate standing or consent of instructor required. Same as 129:158, 141:158.

113:175 Gender and Development Studies 3 s.h.
Particular consequences of economic and political development on women of Latin America, Africa, and Asia; current theoretical perspectives, including Marxist, feminist, and postmodern approaches. Consent of instructor required.

113:180 Political Anthropology: Power and Authority 3 s.h.
Creation, exercise of power and authority in human society; emphasis on cross-cultural variations in values, political roles and structures, individual action, domination and liberation change. Prerequisite: introductory course in anthropology or consent of instructor.

113:181 Race, Ethnicity, and International Relations 3 s.h.
Racial and ethnic conflict, particularly as threat to regional, world balances; efforts to alleviate conflict. Same as 129:151.

113:184 Political Economy of Food and Nutrition 3 s.h.
Social, political issues that affect people’s access to proper nutrition; diseases of plenty and diseases of scarcity in Third World populations in America, abroad. Prerequisite: introductory course in anthropology or sociology or political science or consent of instructor.

113:185 Medical Anthropology 3 s.h.
Major theoretical, methodological approaches: international health and development; biomedicine as a cultural system; ethnopharmacology; anatomy and AIDs, human reproduction, epidemiology, ethnopharmacy. Prerequisite: 113:003 or 113:010 or 113:191 or consent of instructor.

113:201 Seminar: Anthropological Theory 3 s.h.
Contemporary theoretical issues in sociocultural anthropology.

113:202 Ethnographic Field Methods 3 s.h.
Basic data-gathering techniques for field research in sociocultural anthropology. Anthropology graduate standing or consent of instructor required.

113:204 Seminar: Reading and Writing 3 s.h.
Ethnographic classics, contemporary ethnographies written in traditional style, experimental ethnographies, current criticisms of ethnographic method and monograph. Consent of instructor required.

113:205 Reading French Theorists 3 s.h.
Influential modern/postmodern French scholars and their anthropological, cultural studies adaptations; Durkheim, Levi-Strauss, Foucault, Bourdieu, DeCerteau. Anthropology graduate standing or consent of instructor required.

113:206 Evidence and Other Realities 3 s.h.
Use of legal, historiographic, cross-cultural, and feminist materials to explore what we mean by “evidence.” How we use and abuse it, how the very idea of it shapes “knowledge” and social practice.

113:207 Reading social Structure 3 s.h.
A century of anthropological scholarship on kinship and social structure examined as intellectual history, methodological experimentation, hands-on experience designing, conducting research on social formations. Graduate standing in anthropology or cultural studies required.

113:220 Seminar: Feminist Anthropology 3 s.h.
Theory, methods, research, ethnology from a feminist perspective. Open only to graduate students. Consent of instructor required. Same as 131:220.

113:221 seminar: Feminist Ethnography 3 s.h.
Feminist critiques of ethnographies, informed by contemporary feminisms. Consent of instructor required. Same as 131:245.

113:240 seminar: Sociocultural Anthropology 3 s.h.
social institutions in worldly societies; problems in theory, method, interpretation. Open only to anthropology graduate students.

113:261 Rhetorics of Ethnographies 3 s.h.
Rhetorical theory, analysis applied to a selection of ethnographic "classics," more recent ethnographies; tropes, conventions of ethnographic writing in essays, oral presentations; fieldwork. Same as 10:361.

113:275 Development Policy and Planning in the Third World 3 s.h.
Same as 44:275, 42:275, 102:275, 34:275, 7F:275.

113:281 Hunter-Gatherer Ethnoarchaeology 3 s.h.
Variability in adaptations of hunter-gatherers on a global scale; emphasis on subsistence, mobility, sociality; archaeology, prehistory, present day hunter-gatherers interpreted through study of modern societies. Prerequisite: 113:12 or 113:168, or consent of instructor.

113:297 prehistoric Voyages to the New World 3 s.h.
Euro-American contacts with Native American cultures; major oceanic sailing routes; contacts with maritime civilizations such as Medieval Norse, Irish, Mediterranean classical, Chinese, Japanese, Polynesian; diffusionist hypotheses, social impact of such prehistoric contacts on Native Americans.

113:190 Paleobotany 3 s.h.
Relationships between plants and ancient peoples, emphasizing archaeological evidence for prehistoric agriculture in eastern North America. Extensive readings, class work on ancient plant remains from Iowa. Prerequisite: 113:012 or graduate standing or consent of instructor.

113:194 Roman Archaeology 3 s.h.
Survey of the archaeology and etymology of Roman civilization from Iron Age eighth century occupation of the Paleatine Hill to the end of the Roman empire in the West, A.D. 476. Same as 20:194.

113:196 Advanced Field Research in Anthropology 3 s.h.
Late Upper Paleolithic site in France; advanced excavation techniques appropriate to well preserved faunal remains and intact site structure; emphasis on computer-assisted surveying, faunal identification, 3D technology.

113:197 Special Topics in Archaeology 3 s.h.

113:198 Special Topics in Archaeology 3 s.h.

113:199 Field Research in Archaeology 3 s.h.
Beginning level skills in site surveying, site excavation, laboratory work, record keeping at nearby prehistoric sites.

113:268 Seminar: Archaeological Theory and Method 3 s.h.
Development, current status of theory, method, in Americanist archaeology. Open only to anthropology graduate students or to others with consent of instructor.

Physical Anthropology

113:186 Seminar Human Osteology 3 s.h.
Normal, pathologic human osteology as applied to demographic, epidemiological analyses in archaeological investigations.

113:187 Human Evolution 3 s.h.
Earliest fossil record of apes to origin and diversification of the hominid family and appearance of modern Homo sapiens evidence from paleontology, comparative anatomy, biometric studies, archaeology considered from evolutionary perspective. Prerequisite: 113:13 or 2:131 or 12:121 or consent of instructor.

113:188 Primate Behavior, Ecology, and Evolution 3 s.h.
Origins, diversification of the primate order through fossil evidence; morphology, systematic behavior, ecology of living species. Prerequisite: introductory course in physical anthropology or introductory biology.

113:190 Feminist Perspectives on Biology and Culture 3 s.h.
Physical anthropology, prehistoric archaeology from feminist perspective; emphasis on investigation of gender, rising importance of women investigators; human evolution, rise of the state, division of labor, social stratification in prehistory.

113:195 Laboratory Methods in Biological Anthropology 3 s.h.
Specimen preparation, cataloging, moulding and casting, photography, computer analyses, library research. Consent of instructor required.

113:285 Seminar: Biological Anthropology 3 s.h.
Physical anthropology, including heredity and genetics, evolutionary theory, human biological characteristics, primate and human fossil record, primate behavior and ecology, human adaptations. Graduate standing in anthropology, biological sciences, or related department or consent of instructor required.

Linguistics

113:144 seminars: Interpreting Signs in Language and Culture 3 s.h.
Persian semantic and Saussurean semiotic conceptual frameworks; focus on anthropological, linguistic issues. Graduate standing or consent of instructor required.

113:171 Anthropological Linguistics 3 s.h.
Structures of spoken languages; emphasis on techniques for analyzing linguistic data; history, phonetics, morphology, syntax. Same as 105:371.
113:172 Language and Culture 3 s.h.
Language in relation to organization, variation, change in culture and society: origins and role in human evolution. Prerequisite: 113:171; or introductory course in linguistics and general social/cultural anthropology, or consent of instructor required. Same as 103:170.

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, other language communities; relevant principles of linguistic theory. Analyses. Same as 103:150, 131:147.

113:174 Ethnography of Communication 3 s.h.
Anthropological study of cultural patterns of communication; survey of historical and theoretical development of field; current theoretical issues; ethnographic case studies; emphasis on ethnography of speaking and verbal art. Open only to graduate students or to others with consent of instructor.

113:191 Structure of Mayan Languages 3 s.h.
Grammar; may include historical, social, cultural perspectives. Consent of instructor required. Same as 103:191.

113:271 Seminar: Anthropological Linguistics 3 s.h.
Art.

Individual Recording and Research 113:384 Research: Anthropology arr.
113:385 Thesis arr.

113:383 Independent Study: Anthropology arr.

Courses 22A:399 Reading and Research arr.
Consent of adviser required.

ART AND ART HISTORY

Director: Craig E. Adcock
Professors Emeriti: Margaret A. Alexander, Robert L. Alexander, Byron Burford, Charles D. Cutler, S. Carl Fracassi, Sue E. Hettmanperger, Mauricio Lasansky, James Lechay, Eugene Ludins, Howard Rogovin, Julius Schmidt, John H. Schulze, Norval Tucker
Associate Professors: Ronald Cohen, David O. Dunlap, Robert Glasgow, Ab Gratama, Dorothy Johnson, Ann Roberts, Robert Rorex, John Scott, James Stritzer, Margaret Stratton
Adjunct Associate Professors: Tim Barrett, Estera Milman
Undergraduate degrees: B.A., B.F.A. in Art, B.A. in Art History; minors in Art, Art History
Graduate degrees: M.A., M.F.A. in Art, M.A. in Art Education, M.A., Ph.D. in Art History

Established in 1936, the School of Art and Art History continues to provide a creative, multidisciplinary environment for students of the studio arts, the history of art, and art education. Firmly grounded within the College of Liberal Arts, the school 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, art historians, teachers, museum directors, and administrators.

studio Art

The studio art program is based on the idea that the philosophical issues of society questioned and interpreted by artists are the basis for an artist’s work. The diversity of concept and style among 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 the history of art.

Working within and studying the broad context out of which art is made, understood, and used by society prepares graduates in studio art to continue work in an academic setting as well as in museums, galleries, and a multiplicity of 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.
M.A. and M.F.A. students in art may major in ceramics, design, drawing, intermedia and video art, metalsmithing and jewelry, painting, photography, printmaking, or sculpture.

Art History

The history of art, a discipline of intellectual richness and breadth, is central to the humanities. An exciting diversity of methodological approaches characterizes the program, which has developed strong interdisciplinary ties within and beyond the University. The primary mission of the program is to provide students with the tools to explore 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 thinking and research skills, it prepares students for graduate work in the history of art as well as other professional fields. Graduate students prepare for careers in college and university teaching and research or museum work. Ph.D. students acquire expertise in one of the following fields: African, American, ancient, Asian, baroque, medieval, nineteenth century, Renaissance, and twentieth century.

Art Education

The art education major prepares undergraduate and graduate students for licensure/certification to teach art in grades K-12. Because teaching, like art making, is informed by experience, the art education area has established one of the nation’s most extensive pre-service teaching programs. Students conduct case studies of individuals making and responding to art, observe in 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 arts to prepare for positions as teachers in museums, colleges or universities, or as art administrators.

Undergraduate Programs

Bachelor of Arts in Art

The undergraduate program in art 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. degree and pursue a broad-based knowledge in at least six areas of studio art. Especially talented students may transfer into the B.F.A. program. Application for such transfer normally should be made early in the junior year. B.F.A. students may select an emphasis in ceramics, design, drawing, intermedia and video art, metalsmithing and jewelry, painting, photography, printmaking, or sculpture.

B.A. students in art must earn at least 74 semester hours of credit in non-art courses. Cross-listed courses originating in the School of Art and Art History may not be counted as non-art electives.

The B.A. in art with an emphasis in art history is being discontinued and will not be awarded after August 1995. The requirements for this program are listed in the 1992-94 General Catalog. Students interested in art history should consider the B.A. in art history described below.

The B.A. in art requires the following courses and credits in art.

Two art history courses chosen from:

- 1H:2 Art of Africa, Oceania, and Pre-Columbian America
- Students who declared a major in Art and completed 1H: 1 before August 1994 may use that course in place of 1H:2.

- 1H:5 Western Art and Culture before 1400
- 1H:6 Western Art and Culture after 1400

- 1H:16 Asian Art and Culture

Two additional art history courses

Three studio courses:

- 1A: 1-2 Colloquium
- 1A:3 Basic Drawing
- 1A:4 Basic Design

Any two of the following courses:

- 1C:60 Ceramics 1
- 1G:84 Introduction to Metalsmithing and Jewelry
- 1I:90 Intermedia 1
- 1N:15 Undergraduate Sculpture 1

Two beginning courses are required, one each from two different studio areas:

- 1D:21 Problems in Design I–Form and Structure
- 1D:28 Graphic Design I
- 1F:7 Life Drawing I
- 1K:9 Painting I
- 1L:34 Beginning Photography
- 1M:21 Undergraduate Intaglio and Relief I
- 1M:31 Undergraduate Lithography

Electives, selected only from courses that originate in the School of Art and Art History, must bring the total number of credits in art history, studio art, and art education to a minimum of 38 semester hours. No more than 50 semester hours of credit in the combined art history, studio art, and art education courses may be counted toward the 124 semester hours required for the degree.

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

Undergraduate transfer students majoring in art must, during their first week in residence, show a portfolio of their art to a faculty review committee, which will determine students’ placement in, or exemption from, the sequence of basic studio courses.

Art Education

Students seeking licensure/certification in art education must complete the requirements for the B.A. degree in art. In addition to the general requirements for teacher licensure/certification (see the College of Education section of the Catalog), students must satisfy the following requirements.

1E:196 Concepts in Art Education 3 s.h.
1E:198 Art Education Studio 3 s.h.
7E:143 Methods: Art 3 s.h.
7S:105 Advanced Methods: Art 3 s.h.
7S:187 Seminar: Curriculum and Student Teaching 3 s.h.
7E:192 Special Area Student Teaching 6 s.h.
7S:191 Observation and Laboratory Practice in the Secondary School 6 s.h.

Students may elect to take 1E:230 Art Education and the Museum, for 3 semester hours.

Minor in Art

A minor in art requires 15 semester hours in art courses with a minimum grade-point average of 2.00. At least 12 of these hours must be in advanced-level art studio courses taken at The University of Iowa (those numbered 100 and above, plus 1K:49, 1M:22, and 1N:17).

Bachelor of Arts in Art History

Engaged as it is in problems of historical analysis and the interpretation of culture, the history of art offers undergraduate students a broad background in the humanities consistent with a liberal arts degree. The program is also designed to prepare students for competitive placement in ranking graduate schools across the country. The course of study is geared toward identifying the range of questions the discipline of art history asks about works of art and how art historians seek answers. As they progress through the program, students become familiar with the historical relationship between art making and social criticism, formal and technical aspects of objects, patronage and cultural context, iconography and meaning, and other topics of current discourse in art history, while exploring the relationship of art history to cultural studies and other related fields. In the process, undergraduate students are trained to sharpen their critical faculties, research methods, and theoretical skills.

The B.A. in art history requires the following courses and credits, for a total of 43-44 semester hours.

1H:5 Western Art and Culture before 1400 3 s.h.
1H:6 Western Art and Culture after 1400 3 s.h.

One course chosen from:

- 1H:1 Concepts and Context: Art and Culture
- 1H:2 Art of Africa, Oceania, and Pre-Columbian America
- 1H:4 Masterpieces: Art and Cultural Paradigms
- 1H:13 Islamic Art and Civilization
- 1H:16 Asian Art and Culture
- 1H:17 European Art and Architecture
- 1H:20 American Art and Architecture

Art and Art History ● Liberal Arts 79
Four courses chosen from:

1H:20 Introduction to African Art 3 s.h.
1H:26 Introduction to Ancient Art 3 s.h.
1H:30 Introduction to East Asian Art 3 s.h.
1H:40 Introduction to Medieval Art 3 s.h.
1H:53 Introduction to Baroque Art 3 s.h.
1H:62 Introduction to Nineteenth-Century Art 3 s.h.
1H:63 Introduction to Twentieth-Century Art 3 s.h.
1H:66 Introduction to American Art 3 s.h.

Four courses chosen from 1H:103 through 1H:196 12 s.h.
1H:199 Topics in Art History 3 s.h.
1H:10 Freshman and Sophomore Tutorial: Introduction to the History of Art 4 s.h.
or
1H:99 Undergraduate Seminar in the History of Art (normally in junior or senior year) 3 s.h.

Studio courses 4 s.h.

No more than 50 semester hours of credit in the combined areas may be counted toward the 124 semester hours required for the degree.

NON-ART HISTORY CREDIT

Students must take courses in at least three of the following disciplines: anthropology, classics, history, literature, philosophy, political science, religion, sociology, or others approved by faculty advisers, for a total of 12 semester hours.

Transfer Students

Transfer students planning to major in art history should meet with the faculty undergraduate adviser in art history to discuss the requirements that have been fulfilled by transfer courses.

Minor in Art History

A minor in art history requires 15 semester hours of courses in art history, with a minimum grade-point average of 2.00. Twelve of the 15 semester hours must be taken in advanced-level courses at The University of Iowa. These include courses numbered 1H:20 and above. It is strongly recommended that students planning a minor in art history take at least one of the five survey-level courses (1H:2.5-6, 13-16).

Bachelor of Fine Arts in Studio

Prospective B.F.A. students must apply to enter the program after completing at least one semester of work in the studio area of concentration, but before completing 50 semester hours in art. B.F.A. candidate reviews are held once each semester.

Students who wish to enter the B.F.A. program should consult the faculty in the studio area of concentration for information about the required portfolio review.

The B.F.A. requires that the 124 semester hours needed to graduate include 62 semester hours from courses taken outside the School of Art and Art History and 62 semester hours in School of Art and Art History courses.

In addition to the General Education Requirements (see the College of Liberal Arts section of the Catalog) and major requirements listed above for the B.A. degree in art, the B.F.A. candidate must complete three courses in a studio area of concentration beyond the fundamental course, and must complete at least the second semester of course work in each of two additional studio areas.

Art education majors in the B.F.A. program must meet the same teacher licensure/certification requirements as do students in the B.A. program.

Honors

Art and art history majors who are members of the University Honors Program may enroll in the honors program of the School of Art and Art History.

To earn a degree with honors in art history, the student must complete the requirements for the B.A. in art history with a grade-point average of 3.50 in art history courses. The student must prepare a thesis of 20 to 40 pages on a topic that has been determined in consultation with a faculty adviser; 3 semester hours credit may be awarded for the thesis, taken as 1H:190 Honors Research in Art History. The thesis should conform to the Graduate College format for theses and be read by and defended before a faculty committee.

Honors students in studio must maintain a minimum grade-point average of 3.50 in studio courses, hold an exhibition of their studio work, and prepare a statement of the sources of the exhibited studio work. The statement may be based on the history of art, history of ideas, philosophy, and so forth written under the supervision of faculty in the student’s studio concentration area. Registration for the course of individual instruction that leads to the exhibition and related statement may be for 3 semester hours of credit.

Graduate Programs

Master of Arts in Art

The school offers the M.A. in art with majors in ceramics, design, drawing, intermedia and video art, metalsmithing and jewelry, painting, photography, printmaking, and sculpture. The degree requires:

- a B.A. or B.F.A. in art equivalent to that offered at The University of Iowa;
- a minimum of 38 semester hours of graduate credit, including 18 semester hours of studio and art history in a ratio of two to one (either 12 semester hours of graduate credit in studio and 6 in art history, or 6 in studio and 12 in art history), 8 semester hours in graduate seminars in art education, and 12 semester hours to be specified after the student begins the program; and
- a written thesis based on research in art education or art history, or a studio thesis accompanied by a brief statement of the student’s technical, aesthetic, and/or psychological approach, and clearance for M.A. candidacy by faculty review.

One hour of credit for the written thesis can be earned by registering for 1A:302, with approval of the adviser.

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

Graduate students who have not had drawing at The University of Iowa must take at least one drawing course during the first year.

A student preparing to teach in both the studio and art history areas may complete an art history minor of 15 semester hours, including 1H:200 Historiography and Methodology of Art History and one other seminar. These hours are in addition to the University’s undergraduate requirement for an art history major and, in combination with the undergraduate hours, must satisfy the distribution requirement for art history.

Master of Fine Arts in Art

The school offers the M.F.A. with a major in ceramics, design, drawing, intermedia and video art, metalsmithing and jewelry, painting, photography, printmaking, or sculpture. M.F.A. candidates must have an M.A. degree in art equivalent to that offered at The University of Iowa;
- a minimum of 60 semester hours of graduate work, including at least 12 semester hours in a major studio subject, at least 6 semester hours in a minor studio field selected from the fields listed above, 9 semester hours in art history and theory of art, and 8 semester hours in courses originating outside the school;
- clearance for M.F.A. candidacy by faculty reviews; and
- studio and written theses.

One hour of credit for the written thesis can be earned by registering for 1A:304, with approval of the adviser.

Thesis credits earned in an M.A. program are not applicable toward the M.F.A. credit requirement.

Master of Arts in Art Education

Requirements for the M.A. in art education are:

- a B.A. or B.F.A. in art equivalent to that offered at The University of Iowa;
- teaching licensure/certification in art;
- completion of 38 semester hours of graduate credit, including 18 semester hours of studio and art history in a ratio of two to one (either 12 semester hours of graduate credit in studio and 6 in art history, or 6 in studio and 12 in art history), 8 semester hours in graduate seminars in art education, and 12 semester hours to be specified after the student begins the program; and
- a written thesis based on research in art education or art history, or a studio thesis accompanied by a brief statement of the student’s technical, aesthetic, and/or psychological approach, and clearance for M.A. candidacy by faculty review.

One hour of credit for the written thesis can be earned by registering for 1A:302, with approval of the adviser.

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

Graduate students who have not had drawing at The University of Iowa must take at least one drawing course during the first year.

A student preparing to teach in both the studio and art history areas may complete an art history minor of 15 semester hours, including 1H:200 Historiography and Methodology of Art History and one other seminar. These hours are in addition to the University’s undergraduate requirement for an art history major and, in combination with the undergraduate hours, must satisfy the distribution requirement for art history.
Art education majors who elect to do a studio thesis and who have not had drawing at The University of Iowa are required to take at least one drawing course, selected from the school’s regularly scheduled drawing courses, during the first year in residence.

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

**Master of Arts in Art History**

The M.A. program in the history of art provides students with training in diverse methodologies appropriate to subsequent specialization in the field. Students explore a number of different issues and vocabularies specific to the field’s major areas, thus acquiring a broad knowledge of art history. Because the M.A. culminates in a scholarly thesis or in-depth research paper, in the candidate’s chosen area of focus, evidence of proficiency in research design and scholarly writing is prerequisite to graduation. Qualified candidates whose academic credentials include extensive training in art history may apply for entrance into the specialized area studies master’s program. M.A. students wishing to apply for direct entry into the Ph.D. program should refer to “Admission through Direct Entry” under “Graduate Admission” in this section of the Catalog.

To earn an M.A. in the history of art, students must complete a minimum of 30 semester hours of graduate-level course work with a grade-point average of 3.50 or higher. Only one semester of academic probation is allowed. Transfer students should note that the minimum residence requirement for the M.A. degree is 24 semester hours.

Requirements include the following:

- 3 s.h. H1200 Historiography and Methodology of Art History (3 s.h.)
- 6 s.h. Two art history seminars (with different instructors)
- 14-21 s.h. Additional art history courses
- 6 s.h. Studio courses
- 0-9 s.h. Courses outside the School of Art and Art History

Included within the art history courses and seminars offered for the degree must be at least five of the following areas: African, American, ancient (to 300 A.D.), Asian, baroque, medieval (300-1500 A.D.), nineteenth century, renaissance, and twentieth century. Students must earn an A or B in each of these courses.

The historiography and methodology proseminar is taken during the first fall semester the student spends in residence. Credit for graduate seminars can be applied toward the five-area distribution requirement if the student has earned a grade of B or higher in an undergraduate- or intermediate-level course in the same area during his or her undergraduate career. Students are expected to have 6 semester hours of studio training at either the undergraduate or graduate level, but they may petition to substitute courses in other fields, such as history or literature. M.A. candidates who majored in art history as undergraduates are strongly encouraged to take courses outside the School of Art and Art History.

Within the first 20 semester hours of graduate study, students must demonstrate an ability to read art history writings in an appropriate foreign language. This requirement may be fulfilled either by satisfactory completion of the second semester of a graduate-level reading-for-research language course or by a grade of B or higher for the fourth semester of an undergraduate language. Language requirements are normally fulfilled with German and French. With the advice of faculty advisers, however, students may petition to substitute other languages when their areas of concentration so warrant. Prior to graduation, M.A. candidates must complete either a written thesis, for which 3 semester hours of course credit may be allowed, or a substantial research paper.

**Specialized Area Studies Master’s Program**

The school also offers a specialized area studies program on the M.A. level. Formal approval to enter this program is based on the student’s background, intentions, and seriousness of purpose and requires that the candidate demonstrate potential for outstanding work in the area of his or her specialization.

To encourage in-depth work, students are expected to concentrate on major and related minor areas of focus, areas that must be identified prior to the students’ acceptance into the specialized area studies program. Emphases may be amended only with the consent of the major and minor advisers. Students consult with their faculty advisers to choose appropriate courses in related areas offered by other departments.

This program of study is concluded by the presentation of a written thesis, a three-hour major written exam, a one-and-a-half-hour minor written exam, and oral exams covering both the major and minor areas. Acceptance into the specialized area studies program does not change students’ normal obligations to the historiography and methodology proseminar, language, and seminar requirements.

**Doctor of Philosophy in Art History**

The Ph.D. degree is indicative of acquired expertise in a chosen area of specialization. Candidates are expected to contribute to the field of art history through the realization of original research that responds to issues deemed critical to current discourse within their field of concentration.

**Degree Requirements**

To earn a Ph.D. in art history, students must complete a minimum of 72 semester hours of graduate-level course work with a grade-point average of 3.50 or higher; a maximum of 38 semester hours of work taken for the M.A. may be applied to satisfy this requirement. Students are allowed only one semester of academic probation. The following course distribution is required.

- Two art history seminars (different instructors) 6 s.h.
- Additional art history courses 18-30 s.h.
- (up to six semester hours of credit for dissertation research may be applied toward the satisfaction of this requirement.)
- Courses outside the School of Art and Art History 0-12 s.h.

Upon the successful completion of appropriate course requirements, a six-hour comprehensive examination in the major field and a three-hour examination in a related minor area are scheduled, followed by an oral examination. In consultation with the student’s Ph.D. adviser, minor fields may be selected from disciplines outside art history; for example, religion, history, literature, philosophy, or anthropology. The completion of a written dissertation on a topic that constitutes an original scholarly contribution to the field and the successful oral defense of this research are the final requirements for the Ph.D.

**Doctor of Philosophy in Art Education**

The Ph.D. in art education 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.

**Degree Requirements**

Students must complete at least 60 semester hours of graduate work beyond the M.A. The curriculum must be planned with the adviser and must include at least 15 semester hours in the School of Art and Art History, 15 semester hours in art education graduate seminars, 15 semester hours in a related area (e.g., aesthetics, anthropology, higher education, psychology, sociology), and 15 semester hours in thesis and tool courses (7S:306 or 7E:306 Introduction to Research in Art Education).

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 semester hours 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.
Graduate Admission

Acceptance into the graduate program in art and art history requires admission into the Graduate College of The University of Iowa as well as admission to the School of Art and Art History. Decisions regarding admission and assistantships cannot be confirmed until applicant files are complete.

The Office of Graduate Admissions notifies all applicants by mail of the admission decision. Notification of acceptance cannot be given over the phone by either the admissions office or the School of Art and Art History.

Applicants whose native language is not English must take and pass the Test of English as a Foreign Language (TOEFL), 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. A minimum TOEFL score of 530 is required for admission to the studio program; a minimum score of 600 is required for art history. The examination is given at various times of the year and in many centers throughout the world. Inquiries should be addressed to ETS, Educational Testing Service, Princeton, New Jersey 08541.

All applicants must submit the following to the Office of Graduate Admissions:
- a completed application for admission (one area of interest must be specified on the application form);
- the required application fee; and
- an official copy of all undergraduate transcripts and/or graduate work completed by the date of application.

Art history applicants must include Graduate Record Examination Aptitude Test scores with their application for admission, in accordance with the appropriate application deadlines. Studio or art education applicants who do not submit GRE Aptitude Test scores at the time of application must do so during their first semester in residence. In addition, applicants must meet the Graduate School’s requirements for the particular programs for which they seek admission, as follows.

STUDIO ART

Admission procedures for graduate studio programs include a committee review of applications and all of the applicant’s supporting material. Complete application materials for graduate degrees in studio art must be on file in the School of Art and Art History by March 1 for the summer and fall terms, October 1 for the spring term. An on-campus interview is recommended.

Applicants must submit to the School of Art and Art History a one-page statement of purpose and three letters of recommendation assessing potential as a graduate student. They also must submit a term paper or undergraduate thesis indicative of their ability to write in the field. Applicants for admission to the Ph.D. program must have GRE Aptitude Test scores of at least 1800 combined verbal, quantitative, and analytic and an undergraduate grade-point average of at least 3.25 on a 4.00 scale.

Applicants must submit to the School of Art and Art History a one-page, single-spaced statement of their conception of the field, which outlines their purpose in pursuing graduate studies, and three letters of recommendation assessing potential as a graduate student. They also must submit a term paper or undergraduate thesis indicative of their ability to write in the field. Applicants for admission to the Ph.D. program must meet the Graduate School’s requirements for the particular programs for which they seek admission, as follows.

Printmaking: a selection of 6-20 original prints and at least 6 original drawings in a returnable carton or mailing tube.

Sculpture: a selection of slides that include examples of work in at least one other area of competence.

Painting, Intermedia, Metalsmithing and Jewelry, Design, and Ceramics: all require submission of 8 slides and/or photos of work in the major area and 2 slides or photos of work in a second studio area.

Each slide must be labeled with the name, medium, size, and approximate date of work, and the top should be indicated. An inventory list with the same information should be included. Extreme care will be taken in handling all portfolios, but the school will not be responsible for reimbursement in the event of loss or damage.

ART HISTORY

At least 18 semester hours of undergraduate work in art history are recommended for applicants to the M.A. program in art history. Evidence of proficiency in at least one foreign language, satisfied by completion of the equivalent of two years of undergraduate level courses, is prerequisite to admission.

Although exceptions are sometimes made on the basis of the quality of one’s undergraduate education or other relevant factors, applicants should have GRE Aptitude Test scores of at least 1800 combined verbal, quantitative, and analytic and an undergraduate grade-point average of at least 3.25 on a 4.00 scale.

Applicants must submit to the School of Art and Art History a one-page, single-spaced statement of their conception of the field, which outlines their purpose in pursuing graduate studies, and three letters of recommendation assessing potential as a graduate student. They also must submit a term paper or undergraduate thesis indicative of their ability to write in the field.

Fellowship, Assistantships, and Scholarships

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.
which gives faculty members an opportunity to observe their performance and potential.

Special Resources

Reference Collections
The art library contains 80,000 volumes, an outstanding periodical collection, and an extensive microfilm and microfiche archive. The school’s Office of Visual Materials contains 255,000 slides, 80,000 photographs, a videotape library, and a videodisc facility that includes an extensive videodisc of African Art.

Museum of Art
The University’s Museum of Art has a significant permanent collection that includes major holdings of contemporary art, African art including the Stanley Collection, European and American prints, drawings, and photographs, and Etruscan and Iranian pottery. 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.

Interdisciplinary Resources
In the studio area, colloquia, visiting artists programs, and graduate workshops bring in visitors and provide open forums for the discussion of alternative concerns.

The school’s Program for Modern Studies embraces the Fine Arts Dada Archive and Research Center and Alternative Traditions in the Contemporary Arts. It has become one of the best known centers of modern art historical research in the United States. Responsible for symposia, exhibitions, scholarly catalogs and anthologies, and national and international collaborative research and collections, the program gives students outstanding opportunities to work on projects with distinguished scholars from a variety of fields and institutions. As part of the modern studies teaching program, faculty address a diversity of perspectives to annually designated topics central to the problematic of modernism. These coordinated course offerings are designed to allow undergraduate and graduate students in residence to make long-term plans for in-depth work in an area and to permit students enrolled in other programs to come to Iowa for an intense period of study.

Among the school’s major assets is the Project for Advanced Study of Art and Life in Africa (PASALA), an interdisciplinary program that brings together faculty with international reputations in art history and anthropology to offer courses and independent study of art and expressive culture in West, Central, East, and Southern Africa. The result is a program of unusual and outstanding breadth and depth of expertise. PASALA is among the most active of such programs in the country, organizing annual international symposia that discuss significant topical issues and publishing the proceedings in regular issues of Iowa Studies in African Art. Each year the project hosts distinguished international fellows from a range of disciplines who work with students and faculty on original research projects. In addition, PASALA offers scholarships and support for research in Africa and dissertation preparation to outstanding students. The major asset of PASALA is the Stanley Collection of African Art in The University of Iowa Museum of Art, a large collection of exceptional quality that is the focus of study by students in Iowa’s African Studies Program.

The school also maintains an affiliation with the University’s American Studies Program 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.

Facilities
The school houses a printshop containing intaglio, lithographic, and monotype equipment and facilities for hot-stamping foil; facilities for welding and fabrication of steel sculpture; excellent drawing studios in the main building as well as 30 individual studios for painting and drawing graduate students in a separate building; a well-equipped darkroom; extensive kiln facilities including provision for construction of various types of temporary and specialized kilns; a large shop for metalworking and industrial design; electroforming equipment; a papermaking mill; a typography studio; and video equipment.

Courses

Art History

Primarily for Undergraduates

I H: 1 Concepts and Context: Art and Culture 3 s.h.
Concepts that informed the making of particular works of art; historically specific contexts to which groups of artists responded. GER: humanities.

I H: 2 Art Of Africa, Oceania, and Pre- Colum b ia n America 3 s.h.
Traditional arts of Black Africa, the Pacific, the Americas before European conquest. GER: humanities.

I H: 4 Masterpieces: Art and Cultural Paradigms 3 s.h.
Architecture, painting, sculpture in cultural context. GER: humanities.

I H: 5 Western Art and Culture before 1400 3 s.h.
Art, its creators, and culture of prehistoric, ancient, medieval periods. GER: foreign civilization and culture, historical perspectives.

I H: 6 Western Art and Culture after 1400 3 s.h.
M, artists, culture from Renaissance to present. GER: foreign civilization and culture, historical perspectives.

I H: 10 Freshman and Sophomore Tutorial: Introduction to the History of Art 4 s.h.
Discussion of thematic and conceptual lines of questions and methods art historians use to explore art. GER: Humanities.

I H: 13 Islamic Art and Civilization 3 s.h.
Historical approach. GER: foreign civilization and culture, historical perspectives.

I H: 16 Asian Art and Culture 3 s.h.
India, China, Southeast Asia. Japan. GER: foreign civilization and culture, historical perspectives. Same as 39: 16.

I H: 20 Introduction to African Art 3 s.h.
Traditional arts of sub-saharan Africa; sculpture, painting, pottery, textiles, architecture, human adornment. GER: foreign civilization and culture. Same as 141: 30.

I H: 26 Introduction to Ancient Art 3 s.h.
M, architecture of Mediterranean civilizations from Minoen times to age of Constantine. Same as 14: 26.

I H: 30 Introduction to East Asian Art 3 s.h.
History of visual arts of China, Korea, Japan; chronological and geographical approaches; emphasis on understanding the arts within cultures producing them. Prerequisite: 1H:16 or 38:16 or equivalent or consent of instructor. Same as 39:30.

I H: 40 Introduction to Medieval Art 3 s.h.
M, architecture in Europe from 300 to 1400 A.D.

I H: 47 Introduction to Renaissance Art 3 s.h.
M, architecture in Europe from early Renaissance to 1600.

I H: 53 Introduction to Baroque Art 3 s.h.
M, architecture in Europe from 1600 to 1750.

I H: 62 Introduction to Nineteenth Century Art 3 s.h.
Major European artists, works, movements; aesthetic theories from late 18th century to 1950; works in their aesthetic, cultural, intellectual, political contexts; boundaries, definitions of movements such as Neoclassicism, Romanticism, Realism, Impressionism, Post-Impressionism, Symbolism.

I H: 63 Introduction to Twentieth Century Art 3 s.h.
Historical, aesthetic, and cultural contexts; emphasis on modernism. European, North American, Latin American developments in traditional genre, temporal arts, artistic action, art’s relationship to culture.

I H: 66 Introduction to American Art 3 s.h.
Architecture, painting, photography, sculpture from colonial times to present. GER: humanities.

I H: 99 Undergraduate Seminar in the History of Art 3 s.h.
Characteristic problems, methodological issues, critical thinking and writing.

For Undergraduates and Graduates

Art

Introduction course in the appropriate art history area or permission of instructor is prerequisite for courses numbered above 100.

Courses designated “Themes in Art History” consider topics of current interest in the field, organized thematically rather than chronologically.

I H: 102 Themes in African Art 3 s.h.
Current topics organized thematically rather than chronologically. May be repeated.

I H: 103 Art of the South Pacific 3 s.h.
Traditional arts of Polynesia, Micronesia, Melanesia.

I H: 104 American Indian Art 3 s.h.
Sculpture, painting, architecture, crafts, arts of oral tradition of native peoples of North America.

I H: 105 Art of Pre-Columbian America 3 s.h.
Art, architecture of Mexico, Peru before Conq.

I H: 107 Art of West Africa 3 s.h.
M of western Sudan, Guinea coast. Same as 129: 107, 141: 107.

I H: 108 Art of Central Africa 3 s.h.
M of equatorial forest, southern Savannah. Same as 129: 110, 141: 108.

I H: 109 The Arts of the African Diaspora 3 s.h.
Aesthetic, religious, philosophical aspects of African descendants of Brazil, Surinam, Caribbean, the United States.

I H: 110 Egyptian Art 3 s.h.
Sculpture, painting, architecture, minor arts from close of Stone Age to Classical times. Same as 32: 104. Prerequisite: 1H:5 or consent of instructor.

I H: 111 The Art of Southern and Eastern Africa 3 s.h.
Sculpture, painting, pottery, textiles, architecture, personal adornment arts. May be repeated. Prerequisite: 1H:2 or 1H:20 or consent of instructor. Same as 141: 111.

I H: 112 Art and Archaeology of Ancient Africa 3 s.h.
Prehistoric rock art. Ance, Nok, Igbo Ukwu, Sango, Ife, Benin, Great Zimbabwe. May be repeated. Prerequisite: 1H:2 or 1H:20 or consent of instructor. Same as 141: 112.

I H: 113 Art of Islam 3 s.h.
Architecture, painting, minor arts in Spain, North Africa, Egypt, Turkey, Syria, Palestine, Iraq, Iran, Afghanistan, India, from 600 to 1800 A.D. Same as 32: 168.

I H: 114 Buddhist and Hindu Iconography 2-3 s.h.
Historical development of religious imagery in India, Central and Southeast Asia, China, Japan. Same as 32: 181.
Art, architecture to 1000 A.D.; relation to historical

Art, architecture of imperial Rome and the provinces, from the
Vihnovan, Etruscan art, religion, culture from Bronze Age to
May be repeated. Prerequisite: 1H:16 or 39:16 or equivalent or
Chinese influence, indigenous styles from seventh through early
Prerequisite: 1H:16 or 1H:30 or consent of instructor. Same as 39:159.

Art, architecture; relation to philosophies, religions
(Confucianism, Taoism, Buddhism). Prerequisite: 1H:16 or 1H:30
or consent of instructor. Same as 39:159.

Early Chinese painting from fourth century B.C. through
thirteenth century A.D.; figural style, emergence of landscape.
Prerequisite: 1H:16 or 1H:30 or consent of instructor. Same as 39:120.

Focus on landscape of fourteenth through eighteenth centuries;
sources in earlier periods. Same as 39:121.

Art, architecture of Japan
3 s.h.

Art, architecture; relation to philosophies, religions [Shintoism,
Buddhism, Zen]. Same as 39:156.

Development of Buddhism, Hinduism, Jainism, Islam. Same as
39:168.

Art, architecture of Italy and provinces from late Republic
through reign of Hadrian. Same as 20:110.

Pottery techniques, styles, subjects from Protogeometric period
through Archaic period. Same as 14:110.

Art of Cyclades, Crete, Mycenae from 3000 B.C.; Greek art
from Protogeometric times through Archaic period. Same as
The myth of Rome as embodied in its arts and architecture,
Renaissance to Baroque. Prerequisite: 1H:154 or 1H:30.

Architecture, sculpture, painting in eighteenth-century western
Europe.

Arts of China
3 s.h.

Arts of India
3 s.h.

Art and architecture of classical antiquity.

Arts of America
3 s.h.

Art and the Arts of the Far East
3 s.h.

Art History 3 s.h.
I.H:240 Proseminar in Medieval Art 3 s.h.
I.H:245 Proseminar in Renaissance Art 3 s.h.
I.H:243 Proseminar/Twentieth-Century Art 3 s.h.
I.H:265 Proseminar in American Art 3 s.h.
I.H:300 Directed Studies 2-3 s.h.
I.H:302 M.A. Written Thesis 2 s.h.
I.H:310 Seminar Problems in Asian Art 2-3 s.h.
I.H:316 Seminar Problems in Asian Art 2-3 s.h.
I.H:326 Seminar Problems in Ancient Art 3 s.h.
I.H:340 Seminar: Problems in Medieval Art 3 s.h.
I.H:345 Seminar: Problems in Renaissance Art 3 s.h.
I.H:353 Seminar: Problems in Baroque Art May be repeated.
I.H:359 Seminar: Problems in Nineteenth Century Art May be repeated.
I.H:362 Seminar: Twentieth-Century Art 3 s.h.
I.H:366 Seminar: Problems in American Art 3 s.h.
I.H:400 Ph.D. Readings arr.
I.H:405 Ph.D. Seminar arr.

**Studio**
Courses numbered through 99 are primarily for undergraduates and may not be repeated for credit except where indicated. Courses numbered 100-199 may be repeated.

**Fundamentals**
IA:1 Colloquium 1 s.h.
IA:2 Colloquium 1 s.h.
IA:3 Basic Drawing 2 s.h.
IA:4 Basic Design 2 s.h.
IA:302 M.A. Written Thesis 1 s.h.
IA:304 M.F.A. Written Thesis 1 s.h.

**Elements**
IB:1 Elements of Art 2 s.h.
IB:2 Elements of Art 2 s.h.

**Ceramics**
IC:60 Ceramics I 2 s.h.
IC:61 Ceramics II 2-3 s.h.
IC:170 Ceramics III 3 s.h.
IC:171 Ceramics IV 3 s.h.
IC:172 Ceramic Materials and Effects 1-2 s.h.
IC:174 Kils Construction 1-2 s.h.
IC:270 Individual Instruction in Ceramics arr.
IC:275 Ceramics Workshop arr.

**Design**
ID:21 Problems in Design I-Form and structure 2 s.h.
ID:22 Problems in Design II- Form and Function 2 s.h.
ID:124 Color Theory 3 s.h.
ID:125 Typography 3 s.h.
ID:130 Design Seminar 1 s.h.
ID:133 Graphic Design II 3 s.h.
ID:135 Graphic Design Workshop arr.
ID:137 Environmental Design I 3 s.h.
ID:141 Interior Design I 3 s.h.
ID:145 Industrial Design I 3 s.h.
ID:238 Environmental Design II 3 s.h.
ID:240 Individual Instruction in Design arr.
ID:242 Interior Design II 3 s.h.
ID:246 Industrial Design II 3 s.h.
ID:249 Advanced Problems in Design 3 s.h.
ID:405 Ph.D. Seminar arr.

**Metalsmithing and Jewelry**
IG:84 Introduction to Metalsmithing and Jewelry 2 s.h.
IG:185 Advanced Metalsmithing and Jewelry 3 s.h.
IG:186 Metalsmithing and Jewelry Workshop arr.

**Intermedia, Video Art**
IJ:90 Intermedia I 2-3 s.h.
IJ:100 Intermedia II 2-3 s.h.
IJ:110 Intermedia Workshop 2-3 s.h.
IJ:120 Individual Instruction in Intermedia and Video Art arr.
Painting
1K:9 Painting I 2 s.h.
Emphasis on observational painting, theory and development of pictorial. Pre- or corequisite: 1F:7 or equivalent.
1K:10 Painting II 3 s.h.
Materials, techniques, relationship to a personal painting language. Prerequisite: 1K:9.
1K:46 Intermediate Painting 3 s.h.
Continued discussion of personal painting language as augmented by contemporary issues. May be repeated. Prerequisites: 1K:45 or 1K:46, or equivalents.
1K:49 Advanced Painting 2-3 s.h.
Individual projects as they aid the realization of a personal vision. May be repeated. Prerequisite: 1K:46 or equivalent.
1K:111 Watercolor Painting 3 s.h.
Prerequisites: 1K:9 and 1K:10, or equivalents.
1K:205 Graduate Painting 3 s.h.
Oil, gouache, watercolor, tempera, acrylic, other media. Consent of instructor required. Prerequisite: 1K:49 or equivalent.
1K:206 Graduate Painting: Topics 3 s.h.
Individual painting projects in desired medium; topics vary. Corequisite: 1K:205.
1K:207 Graduate Drawing and Painting Workshops 3 s.h.
Group and individual criticism, team taught. Corequisite: 1K:206.
1K:208 Graduate Drawing and Painting Forum 1 s.h.
Problems and issues of contemporary artists. Graduate standing and consent of instructor required.
1K:215 Individual Instruction in Painting 1-3 s.h.
Graduate standing and consent of instructor required.

Photography
1L:34 Beginning Photography 2 s.h.
Camera, light meter, darkroom, history, theory of photography.
1L:101 Intermediate Photography 3 s.h.
Photographic materials, development of personal vision. Prerequisite: 1L:34 or equivalent.
1L:105 Advanced Photography 3 s.h.
Projects; alternative photographic techniques, digital imaging, color photography; development of personal vision. Prerequisite: 1L:101.
1L:125 Color Photography 3 s.h.
Basic color printing procedures. Prerequisite: 1L:101.
1L:129 Materials and Techniques 3 s.h.
Zone system, studio photography, view camera, or photographic processes; readings. Consent of instructor required. Prerequisite: 1L:101.
1L:134 Silkscreen 3 s.h.
Photographic, nonphotographic stencil techniques for silkscreen printing. Consent of instructor required. Prerequisite: 1A:3 or 1A:4 or equivalent. Same as 10: 134.
1L:135 Offset Productions Workshop 3 s.h.
Graphic arts techniques for production of postcards, broadsides, visual books on a commercial offset press. Consent of instructor required. Same as 10: 135.
1L:231 Individual Instruction in Photography arr.
Consent of instructor required.
1L:236 Graduate Photography Workshop arr.
Projects; group critiques; readings. Consent of instructor required.

Printmaking
1M:21 Undergraduate Intaglio and Relief I 2 s.h.
Concepts, techniques; Renaissance and contemporary ideas, methods; emphasis on metal plate printing, including etching, drypoint, engraving, softground, aquatint.
1M:22 Undergraduate Intaglio and Relief II 3 s.h.
Individual instruction, with emphasis on development of personal visual language; woodcut, metal plate, color prints. May be repeated. Consent of instructor required. Prerequisite: 1M:21 or equivalent.
1M:31 Undergraduate Lithography 2 s.h.
Fundamental techniques, characteristics of lithography; basic direct drawing, processing, printing of stone and plate images in black and white. Consent of instructor required. Prerequisite: 1F:7 or equivalent.
1M:131 Lithography 3 s.h.
Technical, aesthetic characteristics; basic direct drawing, processing, printing of stone and plate images in black and white. Consent of instructor required. Prerequisite: 1F:7 or equivalent.
1M:132 Advanced Lithography 3 s.h.
Technical, aesthetic aspects; emphasis on color printing indirect image-forming processes. Consent of instructor required. Prerequisite: 1M:131 or equivalent.
1M:141 Monotype 3 s.h.
Historical, technical, aesthetic aspects of unique printed images. Offered fall semesters. Consent of instructor required. Prerequisite: 1F:7 or equivalent.
1M:151 Foil-Stamping I 3 s.h.
Reflective surfaces, color in creation of original prints using Iowa Foil Printer. Consent of instructor required.
1M:152 Foil-Stamping II 3 s.h.
Creation of editable prints using roll off, other printmaking techniques. Consent of instructor required. Prerequisite: 1M:151 or equivalent.
1M:160 Special Workshop in Printmaking 3 s.h.
Issues, themes, or studio practice. Consent of instructor required.
1M:221 Graduate Print Workshops 3 s.h.
Orientation to campus facilities including lithography, intaglio, papermaking; art of the book; mechanics, practice, concepts of printmaking. Consent of instructor required.
1M:222 Graduate Intaglio and Relief 3 s.h.
Concepts, techniques; etching, engraving, drypoint, softground, aquatint, color printing, editorial, relief, emphasis on developing personal vision. Consent of instructor required.
1M:250 Individual Instruction in Printmaking arr.

Sculpture
1N:15 Undergraduate sculpture 1 2 s.h.
Basic sculptural concepts, processes; emphasis on developing personal ideas, acquiring basic skills and knowledge of materials; spatial, conceptual, technical issues.
1N:16 Undergraduate Sculpture II 3 s.h.
Continuation of IN: 15; form, materials and processes, expanding concept development; contemporary sculptural formats, collaborative process. Prerequisite: 1N:15.
1N:17 Undergraduate Sculpture Workshop 3 s.h.
Development of body of work that reflects students’ interests; nontraditional materials, processes, individualized instruction, development of critical thinking. Prerequisite: 1N:16.
1N:18 Undergraduate Sculpture in Cast Metal 3 s.h.
Beginning foundry course in processes, problems of cast metal sculpture; modelmaking, gating, casting, pagination in Lost wax, ceramic shell and sand (piece molds and open face); approach based on transformation, not duplication of objects. Maybe repeated. Consent of instructor required. Prerequisites: IN:15 and IN: 16.
1N:120 Welding 3 s.h.
Techniques, processes of metal fabrication, including arc welding, oxygen/carbonic acid welding and cutting, forging, MIG: Isles relevant to ‘working in space’ and ‘transformation of found object’ are stressed beyond technique. Offered fall semesters only. Prerequisite: IN: 15.
1N:130 Wood Fabricated Sculpture 3 s.h.
Workworking techniques, their sculptural applications; bend and stack lamination, joinery, construction, finishes. Offered spring semesters. Consent of instructor required. Prerequisites: IN: 15 and IN: 16.
1N:140 Topics in Sculpture 3 s.h.
Projects, reading; specialized conceptual forms and issues in contemporary sculpture, such as public art, installation, performance. Consent of instructor required.
1N:150 Figure Modeling 3 s.h.
Working directly from model in clay, wax, plaster to include armature building, anatomy, drawing from the figure; conceptual approach based on perception, not replication or three-dimensional rendering. Consent of instructor required.
1N:260 Individual Instruction in Sculpture arr.

Papermaking
1X:110 Papermaking 3 s.h.
History, fundamental techniques of Western, Eastern hand papermaking; projects in traditional sheet forming, paper chemistry, creative techniques Offered fall semesters. Consent of instructor required. Same as 108: 110.
1X:120 Advanced Papermaking 3 s.h.
Traditional Eastern, Western sheet forming techniques; emphasis on fiber selection and preparation, paper testing, watermarking, sizing. Offered spring semesters. Consent of instructor required. Prerequisite: IX: 110. Same as 108: 120.
1X:130 Paperwork 3 s.h.
Techniques, approaches using pulp/paper as a medium; emphasis on fiber selection, preparation, coloring, 2-D forming methods to create unique and edition works. Offered spring semesters. Consent of instructor required. Prerequisite: IX: 110. Same as 108: 130.
1X:210 Individual Instruction in Papermaking/Paperworks arr.
Consent of instructor required. Prerequisite: IX:120 or IX: 130.

Interdepartmental
1P:000 Cooperative Education Internship 0 s.h.
1P:134 Scene Design I 3 s.h.
Introduction to design process; research, rendering, model building. Same as 46: 134.

Studio
1Y:140 Calligraphy I 3 s.h.
Western style letterform produced with a broad edge pen; emphasis on learning how to practice correctly and critically. Same as 108: 140.
1Y:141 Calligraphy II 3 s.h.
Adaptation of historical Western style letterforms to contemporary format; brush, broad edge pen. Consent of instructor required. Prerequisite. 1Y:140 or equivalent. Same as 108: 141.
1Y:150 Bookbinding: Non-Adhesive Binding 3 s.h.
Types of nonadhesive book structures; history, terminology of bookbinding, skill development. Same as 108: 150.
1Y:151 Bookbinding: Case Binding 3 s.h.
Emphasis on case binding; book endpapers. Same as 108: 151.
1Y:152 Bookbinding: Advanced Structures 3 s.h.
Sewing methods and laced supports, book boxes, historical models. Special projects can be substituted with prior consent of instructor. Prerequisites: 1Y:150 108: 150 or 1Y: 15:1108: 151. Same as 108: 152.
1Y:153 Studies in Bookbinding 3 s.h.
Decorated papers, their relevance to history of binding; bookbindings using the papers made. Same as 108:153.
1Y:154 Bookbinding: Non-Traditional Structures 3 s.h.
Innovative binding structures, emphasis on nontraditional techniques. Same as 108: 154.
Art Education

1E:195 Methods and Material: Art for the Classroom Teacher 2 s.h.
Techniques, processes m art for teachers; studio projects. Same as 7E:122.

1E:196 Concepts in Art Education 3 s.h.
Overview; crit, adolescent art; relationships with art, education; survey of literature: community art teaching experiences.

1E:198 Art Education Studio 3 s.h.
Art training related to processes of elementary, secondary school art teaching; studio methods applied to teaching children, adolescents. Prereq: 1 E: 196. Corequisite for those m the Teacher Education Program: 7E:90.

1E:230 Art Education and the Museum 3 s.h.
Methods for structuring appreciation experiences m museums, conducting tours; art museums m culture. Consent of instructor required.

1E:406 Research in Art Education m.

Asian Languages and Literature

Chair: Robert W. Leutner
Professor: W. South Coblin
Professors emeriti: Hsi Ch’eng, Y.P. Mei
Associate professors: Bing C. Chan, Robert W. Leutner, Tonglin Lu, Philip Lugendorf, Maureen Robertson, Thomas H. Rohlfs
Assistant professors: Yukiko Abe Hatasa, Chuanren Ke, Frederick Smith, Mitsuhiro Yoshimoto
Adjunct assistant professors: Hideyuki Morimoto, Peter Xinping Zhou
Supporting faculty: David Arkush (History), Robert Baird (Religion), Wayne Begley (Art and Art History), Jeffrey Cox (History), Alice Davison (Linguistics), Paul Durrenberger (Anthropology), Michael Everson (Education), Paul Greenough (History), Lingxin Hao [Sociology], Tamar Kaplan (Linguistics), Chong Lim Kim (Political Science), Joa-on Kim (Sociology), Scott McNabb (Education), Judy Polumbaum (Journalism and Mass Communication), Robert Rorex (Art and Art History), Gerhard Rushton (Geography), Janine Anderson Sowada (Religion), Scott Schnell (Anthropology), Tianjian Shi (Political Science), Gi-Wook Shin (Sociology), Stephen Vlastos (History), Margaret Wolf (Anthropology)

Undergraduate degrees: B.A. in Asian Languages and Literature, Asian Studies; minors in Asian Languages, Asian Studies
Graduate degree: M.A. in Asian Civilizations

Undergraduate Programs

The Department of Asian Languages and Literature offers two programs leading to the Bachelor of Arts degree. The major in Asian languages and literature is intended for students who want to concentrate on one of the language and literature programs offered by the department. The major in Asian studies is primarily for those interested in studying the culture and civilization of traditional and modern East Asia or South Asia through the many courses offered in the department and related departments.

Both programs offer 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 combine an East Asian or South Asian studies major conveniently with a major in history, political science, art history, religion, sociology, journalism, business, anthropology, or other disciplines.

Graduates of both programs have found careers in education, government, communications, business, and other fields in the United States and abroad. The programs also provide 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 department encourages its undergraduate majors to participate in study abroad programs in Asia and has entered into exchange agreements with several universities and institutes there. Every effort is made to facilitate transfer of credit for students studying abroad.

B.A. in Asian Languages and Literature (Chinese, Hindi, Japanese, Sanskrit)

 Majors are required to complete 30 semester hours of advanced courses, as follows.

STUDENTS OF CHINESE
39: 10-11 Second Year Chinese:
First-Second Semesters 12 s.h.
39: 105-106 Third Year Chinese:
First-Second Semesters 12 s.h.
39:141 Chinese Literature: Poetry 3 s.h.
39: 142 Chinese Literature: Prose or
39:180 Modern Chinese Writers 3 s.h.

STUDENTS OF HINDI
39:33-34 Second Year Hindi:
First-Second Semesters 8 s.h.
39:184-185 Third Year Hindi:
First-Second Semesters 6 s.h.
39: 135-136 Indian Literature 6 s.h.
39:137 Indian Mystical Literature 3 s.h.

*With the approval of the major adviser, students may substitute 6 semester hours of 100-level courses in South Asian studies.

STUDENTS OF JAPANESE
39: 10-11 Second Year Japanese:
First-Second Semesters 12 s.h.
39: 105-106 Third Year Japanese:
First-Second Semesters 12 s.h.
39:141 Traditional Japanese Literature in Translation 3 s.h.
39:142 Modern Japanese Fiction in Translation 3 s.h.

STUDENTS OF SANSKRIT
39:22-24 Second Year Sanskrit:
First-Second Semesters 6 s.h.
*39: 186-187 Third Year Sanskrit:
First-Second Semesters 6 s.h.
39:135-136 Indian Literature 6 s.h.
39:163 Indian Religious Texts 3 s.h.

*With the approval of the major adviser, students may substitute 6 semester hours of 100-level courses in South Asian studies.

Students are urged to fulfill the General Education Requirement in historical perspectives (6 s.h.) by completing 16:5 and/or 16:6 and/or 16:7 Civilizations of Asia.

B.A. in Asian Studies (East Asia or South Asia)

Students majoring in Asian studies must complete 30 semester hours of courses on Asia, as follows.

East Asia
39:10-11 Second Year Chinese: 
First-Second Semesters 12 s.h.
39:10-11 Second Year Japanese: 
First-Second Semesters 12 s.h.
At least one course on the history of the area whose language they are studying, chosen from the following.
39: 153 Traditional China 3 s.h.
39:154 Modern China: 1800 to Present 3 s.h.
39:172 Japan 1800 to 1900 3 s.h.
39:173 Japan 1900 to 1945 3 s.h.

Other courses on East Asia, 100 level or above 15 s.h.

South Asia
REQUIRED
39:23-24 Second Year Sanskrit: 
First-Second Semesters 6 s.h.
39:33-34 Second Year Hindi: 
First-Second Semesters 8 s.h.
39: 176 South Asia Social Science History (Same as 16W:189) 3 s.h.

One course in a related area, discipline or method emphasizing social science, e.g. anthropology, development studies, economics, geography, linguistics, political science, sociology or women’s studies, or other area studies social science course.

In addition, students earn 18 semester hours by taking courses chosen from the following listings.

Anthropology
113: 105 Introduction to South Asian Anthropology 3 s.h.
113: 147 Special Topics in Anthropology 2-3 s.h.

Art
IH: 113 Art of Islam 3 s.h.
IH: 114 Buddhist and Hindu Iconography 2-3 s.h.
IH: 115 Art of India (Same as 39:181) 3 s.h.
IH: 118 Painting of India (Same as 39:168) 3 s.h.

Asian Languages and Literature
39:125 or 136 Indian Literature 3 s.h.
39: 137 Indian Mystical Literature 3 s.h.
39: 184-185 Third Year Hindi:
First-Second Semesters 6 s.h.
39: 186-187 Third Year Sanskrit:
First-Second Semesters 6 s.h.
39:188-189 Fourth Year Hindi:
First-Second Semesters 6 s.h.
39:216 Individual SANSKRIT for
Advanced Students
arr.
39:217 Individual HINDI for Advanced
Students
arr.

History
16W:181 Contemp. Asian News
Colloquium (Same as 39:150)
2 s.h.
16W:194 IMPERIALISM & MODERN
India (Same as 39:134)
3 s.h.

Religion
32:80 Karma, Rebirth, and Human
Destiny (Same as 39:80)
3 s.h.
32:171 Indian Religious Texts (Same
as 39:163)
3 s.h.
32:173 Readings in SANSKRIT Texts
3 s.h.
32:180 Buddhist Sacred Texts (Same
as 39:162)
3 s.h.
32:191 Religion in India (Same as
39:167)
3 s.h.

Independent Study
39:199 Asian Studies
arr.

Others
To be arranged with permission of student’s
adviser; particularly appropriate for students
engaged in study abroad. RECOMMENDED
Students are strongly recommended to meet
their GER requirements in historical
perspectives, humanities, and foreign
civilizations and culture by taking
16:7 Civilization of Asia: South Asia
(for historical perspectives
requirements)
and
39:18 Asian Humanities: India
(for humanities or foreign
civilizations and culture
requirements)
It is strongly recommended that advanced
undergraduates and graduate students register
for 39:250 South Asian Research Seminar (arr.)
each semester they are in residence.

Honors
Students with a grade-point average of 3.20 or
above are encouraged to enroll in the University
Honors Program. With the permission of the
departmental chair and a faculty sponsor
selected from Asian specialists in any
department, students register for 39:191 Honors
Tutorial and 39:195 Senior Honors Thesis. To
receive a B.A. with honors, students must
complete an acceptable thesis based on original
research in an appropriate area of Asian studies.

Minor in Asian Languages
A minor in Asian languages requires a minimum
of 15 semester hours with a grade-point average
of 2.00. Of the 15 semester hours, at least 12
must be taken at The University of Iowa in
advanced courses. Students may earn minors in
Chinese, Hindi, Japanese, or Sanskrit. The
following courses are considered advanced for
the minor.

CHINESE
39:10 Second Year Chinese: First
Semester
6 s.h.
39:11 Second Year Chinese: Second
Semester
6 s.h.

HINDI
Students of Hindi are permitted to complete the
advanced course requirement with 11 semester
hours.
39:33 Second Year Hindi: First
Semester
4 s.h.
39:34 Second Year Hindi: Second
Semester
4 s.h.
39:184 Third Year Hindi: First
Semester
3 s.h.

JAPANESE
39:10 Second Year Japanese: First
Semester
6 s.h.
39:11 Second Year Japanese: Second
Semester
6 s.h.

SANSKRIT
39:22 First Year Sanskrit: Second
Semester
4 s.h.
39:23 Second Year Sanskrit: First
Semester
3 s.h.
39:24 Second Year Sanskrit: Second
Semester
3 s.h.
39:186 Third Year Sanskrit: First
Semester
3 s.h.

Students who began work on minors in fall
semester 1989 or earlier may choose to meet the
old requirements. Students who use the old
requirements must complete the minor by
August 1996. Consult with an adviser in the
Department of Asian Languages and Literature.

Minor in Asian Studies
A minor in Asian studies requires a minimum
of 15 semester hours with a grade-point average
of 2.00. Of the 15 semester hours, at least 12
must be taken at The University of Iowa in
advanced courses. Courses numbered 39:100 or
39:101 and above are considered advanced for
the minor. Students are encouraged to take
39:55 or 39:56 or 39:57 Civilizations of Asia
(pre-modern China and Japan, Modern China
and Japan, or South Asia), or 39:18 or 39:19 or
39:20 Asian Humanities (India, China, or Japan)
as their lower-level course.

Students who began work on minors in fall
semester 1989 or earlier may choose to meet the
old requirements. Students who use the old
requirements must complete the minor by
August 1996. Consult with an adviser in the
Department of Asian Languages and Literature.

Certificate in International Business
Students of Chinese, Japanese, and Hindi may
participate in a program leading to a Certificate
in International Business, offered jointly by the
College of Business Administration and the
College of Liberal Arts. The wide range of
electives in the program permits undergraduate
students to tailor it to their individual interests
and to complement majors in the Colleges of
Business Administration and Liberal Arts (see
the College of Business Administration section
of the Catalog).

Elementary and Secondary
Teaching 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 its equivalent,
plus designated courses on pedagogy in the
Department of Asian Languages and Literature.
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
Division of Curriculum and Instruction 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 concerning requirements.

Graduate Programs

Master of Arts in Asian Civilizations
The graduate Program in Asian civilizations
provides preparation for doctoral study in a
variety of disciplines. It 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 toward a concurrent degree in
Asian civilizations.

The Master of Arts in Asian Civilizations
requires a minimum of 30 semester hours of
approved course work, 24 of which must be
taken in residence at The University of Iowa. By
the end of the first semester in residence,
students propose a plan of study developed in
consultation with the adviser and in accordance
with guidelines for specializations within the
program.

All students must maintain a 3.00 minimum
degree average. Detailed information on
degree requirements is sent to all applicants.

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 for graduate admission must meet
the general admission requirements of the
Graduate College, except that a minimum
degree point average of 2.75 is required for
conditional admission, 3.00 for regular
admission. In addition, applicants must submit a
writing sample in English—such as a term paper, seminar paper, or graduation thesis—to the Department of Asian Languages and Literature.

Both foreign and nonforeign graduate applications requesting financial support for the following academic year are due by February 1. Nonforeign applications for admission without support are accepted until July 15 for the fall semester or December 1 for the spring semester. Foreign applications for admission without support are accepted until February 1 for the summer or fall semester and October 1 for the spring semester. Candidates should take the Graduate Record Examination (GRE) General Test early, since an admission decision usually cannot be made until scores are received.

Financial Aid

The Department of Asian Languages and Literature offers two kinds of support for graduate students in Asian civilizations: teaching assistantships and research assistantships. At the time of application, students should request information about special requirements for teaching assistantships.

Currently enrolled undergraduate and graduate students are eligible to compete for summer scholarship aid for intensive language study provided by the Stanley-University of Iowa Foundation Support Organization. Scholarships consist of a cash grant for use in an approved summer program. Detailed information on approved programs is available in the department.

Undergraduate students of Asian languages have available support from two special sources.

- Presidential Scholarships for Study Abroad in the amount of $1,000 may be used to help underwrite the costs of study abroad. A limited number of scholarships are available each year, and proposals for study in non-Western European countries are especially encouraged.

- Stanley Scholarships for international Research and Study, available from the Center for International and Comparative Studies (CICS) support summer study projects and activities away from The University of Iowa campus. Consult the CICS office for more information.

Graduate students who combine work in modern Asian languages at an advanced level with interdisciplinary or professional study are encouraged to apply for Graduate Fellowships in Foreign Language Study awarded by the Center for International and Comparative Studies. The fellowships offer academic year and summer study stipends as well as full or partial tuition support. They may be held only by American citizens.

Special Programs and Activities

Summer and Study Abroad Programs

The department strongly urges its students to seek opportunities for summer language study and study abroad in order to accelerate the process of language acquisition, and many of the financial aid programs described above are designed to help make such learning experiences possible. Both the department and the Office of International Education and Services maintain extensive files of information about study abroad opportunities.

The University’s memberships in the American Institute of Indian Studies and the China Cooperative Language and Study Programs consortium facilitate study abroad for Iowa students. The China programs provide opportunities to study language and culture in universities in Beijing, Shanghai, and Nanjing. Of special note is the Chinese Business and Society Program at the University of International Business and Economics in Beijing, in which students may study Chinese business practice and language and arrange short-term internships in Chinese and foreign enterprises.

The UI-Nankan Exchange allows Iowa students to pay Nankan tuition, room, and board while attending the Center for Japanese Studies at Nankan University in Nagoya, Japan. The center offers both intensive Japanese language instruction at all levels and courses in a wide variety of disciplines in Japanese studies taught in English. Home stays may be arranged for students who wish to experience life in a Japanese family.

Internships

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.

Japanese Language House, Student Association

The Foreign Language House in Hillcrest Residence Hall includes a Japanese House that is a focal point for activities among both resident and nonresident students and the Japanese Student Association, including weekly dinners.

Library Facilities

Since 1960 the Main Library has routinely acquired most American titles in Asian studies and selected overseas scholarly publications in English and other Western languages. The 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.

Courses

Undergraduate language

39:00 Cooperative Education Internship 0 s.h.

CHINESE

39:1 Chinese 1: Non-Intensive 4 s.h.

Spoken Mandarin; writing characters; proficiency oriented approaches. Offered through Guided Correspondence Study. GER: foreign language.

39:2 Chinese 11: Non-Intensive 4 s.h.

Continuation of 39:1, which is prerequisite; increased emphasis on writing characters. Offered through Guided Correspondence Study. GER: foreign language.

39:8 First Year Chinese: First semester 6 s.h.

Sound system of Mandarin Chinese; basic sentence patterns; aural understanding, speaking, reading, writing. GER: foreign language. Offered fall semesters.

39:9 First Year Chinese: Second Semester 6 s.h.


39:10 Second Year Chinese: First Semester 6 s.h.

Continuation of 39:9, which is prerequisite; focus on all skills. Offered fall semesters.

39:11 Second Year Chinese: Second Semester 6 s.h.

Continuation of 39:10, which is prerequisite. Offered spring semesters.

39:105 Third Year Chinese: First Semester 6 s.h.

Reading of advanced modern Chinese texts; speaking, writing. Offered fall semesters. Prerequisite: 39:11.

39:106 Third Year Chinese: Second Semester 6 s.h.

Continuation of 39:105, which is prerequisite. Offered spring semesters.

39:108 Classical Chinese: First Semester 3 s.h.

Late Zhou period; readings from Zhangguo, Mengzi, Zhuangzi; focus on grammatical analysis, exact translation. Offered fall semesters. Prerequisite: 39:11.

39:109 Classical Chinese: Second Semester 3 s.h.

Continuation of 39:108, which is prerequisite. Offered spring semesters.

39:128 Fourth Year Chinese: First Semester 3 s.h.

Proficiency through reading of modern texts. Offered fall semesters. Prerequisite: 39:106 or equivalent.

39:129 Fourth Year Chinese: Second Semester 3 s.h.

Offered spring semesters. Prerequisite: 39:128.

39:130 Business Chinese 3 s.h.

Designed to increase student ability to communicate with Chinese counterparts; focus on oral bargaining and authentic materials (invoices, price lists, business letters, etc.). Prerequisite: 39:106.

HINDI

39:31 First Year Hindi: First Semester 5 s.h.

Writing and speaking emphases. GER: foreign language. Offered fall semesters.

39:32 First Year Hindi: Second Semester 5 s.h.

Continuation of 39:31, which is prerequisite GER: foreign language. Offered spring semesters.

39:33 Second Year Hindi: First Semester 4 s.h.


39:34 Second Year Hindi: Second Semester 4 s.h.

Continuation of 39:33, which is prerequisite. GER: foreign language. Offered spring semesters. Prerequisite: 39:33.

JAPANESE

39:1 Japanese 1: Non-intensive 3 s.h.

Modern Japanese; speaking, listening, reading, writing. GER: foreign language. Offered spring semesters and summer sessions.
**Asian Languages and Literature**

- **JAPANESE**
  - 39J:11 Second Year Japanese: First Semester 6 s.h.
  - 39J:12 First Year Japanese: Second Semester 6 s.h.
  - 39J:10 Second Year Japanese: Second Semester 6 s.h.
  - 39J:118 Beginning Japanese for Graduate Students 6 s.h.
  - 39:23 Second Year Sanskrit: First Semester 3 s.h.
  - 39J:117 Beginning Japanese for Graduate Students 6 s.h.
  - 39J:116 Beginning Japanese for Graduate Students 3 s.h.
  - 39J:115 Beginning Chinese for Graduate Students 3 s.h.
  - 39J:105 Third Year Japanese: First Semester 6 s.h.
  - 39J:104 First Year Japanese: First Semester 6 s.h.
  - 39J:103 Second Year Japanese: First Semester 6 s.h.

- **SANSKRIT**
  - 39:21 First Year Sanskrit: First Semester 4 s.h.
  - 39:22 First Year Sanskrit: Second Semester 4 s.h.
  - 39:23 Second Year Sanskrit: First Semester 3 s.h.
  - 39:24 Second Year Sanskrit: Second Semester 3 s.h.

- **OTHER LANGUAGES**
  - 39:182 Asian-American Literature 3 s.h.
  - 39:155 The Literary Tale 3 s.h.
  - 39:20 Asian Humanities: Japan 3 s.h.
  - 39:137 Indian Mystical Literature 3 s.h.
  - 39:126 Intermediate Hindi for Graduate Students 4 s.h.
  - 39:125 Hindi for Graduate Students 4 s.h.
  - 39:124 Beginning Hindi for Graduate Students 4 s.h.
  - 39:123 Hindi for Graduate Students 4 s.h.
  - 39:118 Beginning Chinese for Graduate Students 6 s.h.
  - 39:116 Beginning Chinese for Graduate Students 3 s.h.
  - 39:115 Beginning Chinese for Graduate Students 3 s.h.
  - 39:114 Beginning Chinese for Graduate Students 3 s.h.
  - 39:113 Chinese for Graduate Students 3 s.h.
  - 39:112 Beginning Chinese for Graduate Students 3 s.h.
  - 39:111 Beginning Chinese for Graduate Students 3 s.h.
  - 39:110 Beginning Chinese for Graduate Students 3 s.h.
  - 39:109 Beginning Chinese for Graduate Students 3 s.h.
  - 39:108 Beginning Chinese for Graduate Students 3 s.h.
  - 39:107 Beginning Chinese for Graduate Students 3 s.h.
  - 39:106 Beginning Chinese for Graduate Students 3 s.h.
  - 39:105 Beginning Chinese for Graduate Students 3 s.h.
  - 39:104 Beginning Chinese for Graduate Students 3 s.h.
  - 39:103 Beginning Chinese for Graduate Students 3 s.h.
  - 39:102 Beginning Chinese for Graduate Students 3 s.h.
  - 39:101 Beginning Chinese for Graduate Students 3 s.h.
  - 39:100 Beginning Chinese for Graduate Students 3 s.h.
  - 39:099 Beginning Chinese for Graduate Students 3 s.h.
  - 39:098 Beginning Chinese for Graduate Students 3 s.h.
  - 39:097 Beginning Chinese for Graduate Students 3 s.h.
  - 39:096 Beginning Chinese for Graduate Students 3 s.h.
  - 39:095 Beginning Chinese for Graduate Students 3 s.h.
  - 39:094 Beginning Chinese for Graduate Students 3 s.h.
  - 39:093 Beginning Chinese for Graduate Students 3 s.h.
  - 39:092 Beginning Chinese for Graduate Students 3 s.h.
  - 39:091 Beginning Chinese for Graduate Students 3 s.h.
  - 39:090 Beginning Chinese for Graduate Students 3 s.h.

**Graduate language**

- **CHINESE**
  - 39J:115 Beginning Chinese for Graduate Students 11 6 s.h.
  - 39J:116 beginning Chinese for Graduate Students 11 6 s.h.

**Literature**

- 39.18 Asian Humanities: India 3 s.h.
- 39.19 Asian Humanities: China 3 s.h.
- 39.20 Asian Humanities: Japan 3 s.h.
- 39.50 Non-Western Literary Traditions 3 s.h.
- 39.135 Indian literature 3 s.h.
- 39.136 Indian Literature 3 s.h.
- 39.137 Indian Mythical Literature 3 s.h.
- 39.140 The Literature of Daoism 3 s.h.
- 39.142 Chinese Literature: Prose 3 s.h.
- 39.141 Traditioanl Japanese Literature in Translation 3 s.h.
- 39.143 Topics in Japanese Literature in Translation 3 s.h.
- 39.155 The Literary Tale 3 s.h.
- 39.173 Alternate Universes: Readings in Hindu Mythology 3 s.h.
- 39.180 Modern Chinese Writers 3 s.h.
- 39.182 Asian-American Literature 3 s.h.
- 39.189 Religious Life in Modern Japan 3 s.h.
- 39.20 Religious Themes in Japanese Literature 3 s.h.
- 39.240 Seminar in Chinese Fiction 3 s.h.
Asian Languages and Literature • Liberal Arts 91


39:245 Seminar in Japanese Literature 3 s.h. May be repeated. Consent of instructor required. Prerequisite: three years of Japanese.

39:252 Readings in Japanese Literary Texts 3 s.h. Reading, translation of classical or modern works. Consent of instructor required. Prerequisite: 35U 11 or 35U 251.

Civilization

Instruction is in English.

39:16 Asian Art and Culture 3 s.h. GER: foreign civilization and culture, historical perspectives. Same as 1H:16.

39:30 Introduction to East Asian Art 3 s.h. History of visual arts of China, Korea, Japan; chronological and geographical approaches; emphasis on understanding the arts within cultures producing them. Prerequisite: 39:16 or I H: 16 or equivalent or consent of instructor. Same as 1H:30.

39:55 Civilizations of Asia: Premodern China and Japan 3 s.h. GER: foreign civilization and culture, historical perspectives. Same as 16:55.

39:56 Civilizations of Asia: Modern China and Japan 3 s.h. GER: foreign civilization and culture, historical perspectives. Same as 16:56.

39:57 Civilizations of Asia: South Asia 3 s.h. Pre modern and modern topics in art, religion, philosophy, Politics, and culture of India, nearby states. Same as 16:57.

39:64 Living Religions of the East 3 s.h. GER: foreign civilization and culture, historical perspectives. Same as 32:64.

39:85 Zen and Japanese Culture 3 s.h. Relationship between Zen and Japanese culture, especially medieval, early modern periods of Japanese history, manifestations such as painting, architecture, poetry, drama, gardens, tea culture, related arts. Same as 32:85.

39:120 Chinese Painting I 3 s.h. Same as 1H:120.

39:121 Chinese Painting II 3 s.h. Same as 1H:121.

39:123 Japanese Painting 3 s.h. Same as 1H:123.

39:125 Japanese society and Culture 3 s.h. GER: foreign civilization and culture. Same as 113:125.

39:126 Japanese Values Through literature and Film 3 s.h. Investigation of Japanese social relationships, attitudes, perceptions as expressed through literature and film; focus on dramatic changes resulting from rapid urban-industrialization in recent decades. Same as 113: 126.

39:131 Themes in Asian Art History 3 s.h. Prerequisite: 39: 16 or 1H:16 or equivalent or consent of instructor. Same as 1H:131.

39:132 Vietnam War in Historical Perspective 3 s.h. Same as 16W:132.

39: 133 History of Ancient and Traditional India 3 s.h. Same as 16:133.

39:134 Imperialism and Modern India 3 s.h. GER: foreign civilization and culture. Same as 16W:134.

39:139 Chinese Historical Phonology 3 s.h. Phonology of Mandarin, other major Chinese dialects; reconstruction of Middle, Old Chinese; possible relationships between Chinese, other language families. Conducted in English. Same as 103: 139.

39:144 Introduction to Chinese Linguistics 3 s.h. Phonology, syntax, pragmatics, discourse analysis, sociolinguistics, dialectology; contemporary linguistic theories, their implications for study of Chinese language, pedagogy. Same as 103:144.

39:145 Topics in Asian Cinema 3 s.h. Contemporary films from mainland China and Taiwan. Same as 36F:106.

39:150 Contemporary Asia News Colloquium Same as 16W:150.


39:156 Art of Japan Same as 1H:156.

39:157 Chinese Calligraphy Brushwork, ink technique. 2 s.h.

39:159 Art of China Same as 1H:159.


39:167 Religion in India Development of Buddhism, non-Buddhist religious practices; religion in family life, impact of Christianity, creation of nationalistic state ideology. Sophomore standing or higher, or consent of instructor required. GER: foreign civilization and culture. Recommended: Asian culture, history. Same as 32: 167.

39:168 Painting of India Same as 32: 168.

39:170 Zen Buddhism Same as 32:170.

39:171 Buddhism and Chinese Culture Same as 32: 171.

39:172 Comparative Ritual Same as 32: 172.


39:174 Japanese Cultural History 3 s.h.

39:175 Japanese Art 3 s.h.

39:176 South Asia Social Science History Historical origins of key social science topics in South Asia: caste, population, gender dilemmas, the environment, etc. Same as 16W: 176.


39:178 Scripture, Cult and Practice in Chinese Religions Same as 32:178.

39:181 Art of India I Same as 16W:181.

39:182 Art of India II Same as 16W:182.

39:185 Indian Religion and social Science Study of classical Indian religion according to social scientific principles, issues of ethnographic and sociohistorical method. Same as 32:185.


39:190 Indian Religion and social Science Study of classical Indian religion according to social scientific principles, issues of ethnographic and sociohistorical method. Same as 32:190.


39:194 Indian Theater Two millennia of South Asian performance traditions, from classical Sanskrit dramas to contemporary folk pageants; emphasis on ritual, aesthetic, social contexts. Same as 48:194.

39:196 (lender in Chinese Literature and Culture Gender issues as represented in literary, other cultural texts. Same as 1H:196.

39:199 Asian Studies m.

39:202 Japanese linguistics for Pedagogy Focus on syntax, discourse analysis, sociolinguistics. Prerequisite: 39U 106 or consent of instructor.

39:204 Seminar in Japanese Pedagogy 3 s.h.


39:236 Religion in Ancient India 3 s.h. Prerequisites: including Bhagavad Gita and Chidambaram: early literature on yoga, with focus on ideas of self, god, structure of cosmos, nature of transcendence. Same as 32:236.

39:259 Seminar in Chinese Linguistics: Historical Phonology 3 s.h. Same as 48:259.

39:261 Seminar: Japanese Society and Culture 3 s.h. Same as 1H:261.

39:265 Seminar: Religion in Modern India 3 s.h. Same as 16:265.


39:279 Readings in Contemporary Asia Same as 16:279.


39:295 Readings in the History of India Same as 16:295.

Individual Study for the Advantaged Students

39:191 Honors Tutorial arr.


39:200 Methods of Teaching Chinese Basic principles of elementary language instruction. Prerequisite: 39:106 or equivalent.

39:200 Methods of Teaching Japanese Basic principles, methodologies of Japanese language instruction. Prerequisite: 39U 106 or equivalent.

39:202 Teaching Chinese as a Foreign Language 1: Issues and Research 3 s.h. Issues in language pedagogy in general, Chinese pedagogy in particular.

39:203 Teaching Chinese as a Foreign Language N: Curriculum, Materials, Practicum 3 s.h. Multilevel of major Chinese textbooks, curricular organizational schemes, existing language programs, teacher-centered/student centered classroom instruction; development of supplementary materials for a University course.


39:210 Japanese Bibliography 3 s.h. Sources, research aids in traditional, modern Japanese scholarship.


Introduction to Computing with Fortran). Science elective courses need not be numbered above 100 to be counted toward the degree.

**Bachelor of Science**

The B.S. degree program in biochemistry prepares students to work in positions that require a basic mastery of biochemistry. It is also an excellent preparation for graduate study in biochemistry and related sciences or for study toward a professional degree in the health sciences.

In addition to the College of Liberal Arts General Education Requirements, the B.S. degree in biochemistry requires 76-78 semester hours in courses, as follows.

- **22M:25-26 Calculus I-II** 8 s.h.
- **22M:35-36 Engineering Calculus I-II** 8 s.h.
- **2:10-11 Principles of Biology I-II** 8 s.h.
- **4:13 Principles of Chemistry I** 3 s.h.
- **4:14 Principles of Chemistry II** 3 s.h.
- **4:16 Principles of Chemistry Lab I** 2 s.h.
- **4:121-122 Organic Chemistry I-II** 6 s.h.
- **4:131 Physical Chemistry I** 3 s.h.
- **4:132 Physical Chemistry II** 3 s.h.
- **4:141 Organic Chemistry Laboratory** 3 s.h.
- **29:17-18 Introductory Physics I-II** 8 s.h.
- **99:1 Orientation and Introduction to the Field of Biochemistry** 0 s.h.
- **99:101 Technical Writing in Biochemistry** 1 s.h.
- **99:102 Undergraduate Seminar** 1 s.h.
- **99:120 Biochemistry and Molecular Biology I** 4 s.h.
- **99:130 Biochemistry and Molecular Biology II** 4 s.h.
- **99:140 Experimental Biochemistry** 4 s.h.
- **99:155 Research, Independent Study** (may be taken for honors) at least 6 s.h.
- **Advanced science electives (chosen in consultation with adviser)** 9 s.h.

*Registration in 99:155 is permitted only if grades of A or B have been earned in 99:120, 99:130, and 99:140, or by consent of adviser and instructor.*

**Bachelor of Arts**

In addition to the College of Liberal Arts General Education Requirements, the B.A. degree in biochemistry requires 60-62 semester hours earned in courses as follows.

- **2:10-11 Principles of Biology I-II** 8 s.h.
- **4:13 Principles of Chemistry I** 3 s.h.
- **4:14 Principles of Chemistry II** 3 s.h.
- **4:16 Principles of Chemistry Lab I** 2 s.h.
- **4:121-122 Organic Chemistry I-II** 6 s.h.
- **4:131 Physical Chemistry I** 3 s.h.
- **22M:15 Mathematics for the Biological Sciences** 4 s.h.
- **22M:16 Calculus for the Biological Sciences** 4 s.h.
- **29:11-12 College Physics** 8 s.h.
- **99:1 Orientation and Introduction to the Field of Biochemistry** 0 s.h.
- **99:101 Technical Writing in Biochemistry** 1 s.h.
- **99:102 Undergraduate Seminar** 1 s.h.
- **99:120 Biochemistry and Molecular Biology I** 4 s.h.

- **99:130 Biochemistry and Molecular Biology II** 4 s.h.
- **99:140 Experimental Biochemistry** 4 s.h.
- **Advanced science electives (chosen in consultation with adviser)** 6 s.h.

*Students who have completed 2:3 Principles of Animal Biology may use that class instead of 2:10-11 if they declare a biochemistry major by the first day of class fall 1996.*

In addition, B.A. students intending to go on to advanced degrees in the biological or health sciences are advised to include 4 semester hours or more of 99:155 Research, Independent Study (senior research) in their programs.

**Teacher Licensure**

Biochemistry majors, especially those in the B.A. program, may qualify for teacher licensure by taking additional courses in teacher education. Students should consult with an adviser in the College of Education.

**Honors**

Qualified students may earn an honors degree in biochemistry. They must be enrolled in the College of Liberal Arts Honors Program and must do special work in 99:155 Research, Independent Study. Honors students 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.

**Combined Programs**

Students, especially those in the B.A. program, may include courses from other disciplines, such as business, prelaw, psychology, or journalism. This prepares them for one of the many vocations for which biochemistry has an impact.

**Graduate Programs**

The College of Medicine administers graduate programs in biochemistry; graduate degrees are granted through the Graduate College. See the College of Medicine introductory section and the Graduate College section of the Catalog for general information about study in medicine and graduate study at the University.

The Department of Biochemistry offers programs of study leading to the M.S. and Ph.D. degrees. The department also offers opportunities for qualified and interested students to pursue combined programs leading to the M.S.-M.D. or Ph.D.-M.D. (medical scientist training) degrees.

The focus of the graduate program is on the individual student. In the first year, students’ educational needs are met with formal course work and tutorial research experiences that serve as the basis for selecting a thesis topic.

First-year students spend half of their time taking biochemistry courses-usually 99:241, 99:242, 99:282, and the interdisciplinary molecular biology courses 142:210 and 142:215 (for course descriptions, see “Molecular Biology” in this section of the Catalog). Students spend the other half of their time working in three different faculty laboratories (99:261 Research Techniques),
learning research techniques in the context of ongoing projects.

After the first year, students choose research laboratories for Ph.D. thesis research, begin their thesis projects, and take courses that supplement and complement their interests and preparation. During this time, they must complete a minimum of 9 semester hours consisting of a seminar and two short courses (1 semester hour each) in biochemistry and 6 semester hours of elective science courses (100 or 200 level) in other departments.

The comprehensive examination is taken in May of the second year. After this examination, students are admitted formally to degree preparation. During this time, they must begin laboratories for Ph.D. thesis research, begin their thesis projects, and take courses that promote campuswide interactions between research groups. These include the Electron Microscopy Facility, Fermenter Facility, Image Analysis Facility, High Field NMR Facility, High Resolution Mass Spectrometry Facility, and Weeg Computing Center. Other facilities operated by the College of Medicine and available to biochemistry researchers include the Protein Structure Facility, Flow Cytometry Facility, DNA Synthesis Core Facility, Molecular Biology Core Facility, Hybridoma Facility, ESR Facility, Radiation Facility, and Cytogenetics Facility.

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 staff in instrument shops, animal quarters, photography and illustration service, and by office staff, stockroom supervisors, and a purchasing agent.

Together, the department and the central support facilities can provide virtually all of the equipment required for modern biochemical research. Examples of such equipment include analytical and preparative ultracentrifuges, computerized fluoroscopes, optical rotatory dispersion, high-field NMR, ultraviolet-visible spectrometer, amino acid analyzers, protein sequenator, peptide synthesizer, gas chromatography, preparative high performance liquid chromatography, liquid scintillation counters, electron microscope equipment, instrumentation for protein X-ray crystallography, computer terminals, a number of Cary spectrophotometers, an automatic DNA synthesizer, and an automatic DNA sequencer.

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 near the Bowen Science Building. Excellent resources also are provided by other departmental branches of the University Libraries system and by computer access to Bibliographic Retrieval Services.

### Facilities

The Department of Biochemistry occupies modern research quarters in the Bowen Science Building, where the Departments of Anatomy, Microbiology, Pharmacology, and Physiology and Biophysics also are located. Most of its research and teaching facilities are located on a single floor. However, a few of the department’s research groups are located in adjacent buildings.

The University of Iowa maintains a number of central research support facilities and equipment that promote campuswide interactions between research groups. These include the Electron Microscopy Facility, Fermenter Facility, Image Analysis Facility, High Field NMR Facility, High Resolution Mass Spectrometry Facility, and Weeg Computing Center. Other facilities operated by the College of Medicine and available to biochemistry researchers include the Protein Structure Facility, Flow Cytometry Facility, DNA Synthesis Core Facility, Molecular Biology Core Facility, Hybridoma Facility, ESR Facility, Radiation Facility, and Cytogenetics Facility.

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### Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>99:102</td>
<td>Undergraduate Seminar</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>99:10</td>
<td>Biochemistry</td>
<td>3 s.h.</td>
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<tr>
<td>99:120</td>
<td>Biochemistry and Molecular Biology I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>99:130</td>
<td>Biochemistry and Molecular Biology II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>99:140</td>
<td>Experimental Biochemistry</td>
<td>4 s.h.</td>
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<tr>
<td>99:150</td>
<td>Research, Independent Study</td>
<td>2-6 s.h.</td>
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<tr>
<td>99:160</td>
<td>Biochemistry Tutorial</td>
<td>0 s.h.</td>
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<tr>
<td>99:237</td>
<td>Topics in Biochemistry I</td>
<td>2 s.h.</td>
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<tr>
<td>99:241</td>
<td>Biophysical Chemistry I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>99:242</td>
<td>Biophysical Chemistry II</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>99:250</td>
<td>Undergraduate Seminar</td>
<td>1 s.h.</td>
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<tr>
<td>99:251</td>
<td>Genetics Seminar</td>
<td>2 s.h.</td>
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<tr>
<td>99:252</td>
<td>Regulation Intermediary Metabolism</td>
<td>1-2 s.h.</td>
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<tr>
<td>99:253</td>
<td>Topics in Biochemistry</td>
<td>2-4 s.h.</td>
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<tr>
<td>99:254</td>
<td>Biophysical Chemistry</td>
<td>1-4 s.h.</td>
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<tr>
<td>99:255</td>
<td>Biophysical Chemistry</td>
<td>1-4 s.h.</td>
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</tbody>
</table>

### Financial Aid

Usually, all students admitted to the Ph.D. graduate program in biochemistry receive financial assistance.

### Research

The department’s current research interests include the study of protein structure and function, complex carbohydrate structure and function, regulation of gene expression, mechanisms involved in transcription and replication, enzyme reaction mechanisms, intracellular signaling, differentiation, structure, membrane determinants of cell shape and motility, and mechanisms of hormone action.
BIOLOGICAL SCIENCES

Chair: George D. Cain


Associate professors: Richard V. Bovbjerg, Jerry J. Kollos, Robert M. Muir

Adjunct assistant professors: Norman E. Williams, Chun-Fang Wu


Graduate degrees: B.A., B.S. in Biology, Botany; minor in Biology, Botany

Undergraduate programs: M.S., Ph.D. in Biology, Botany

Undergraduate programs:

The undergraduate degree programs in biology and botany teach science, especially the science of living organisms. They prepare students for careers as biologists and botanists. Lecture and laboratory courses offered by the department also serve students in all other fields of science as well as students in conscience areas who have a cultural interest in biological science.

Graduates with bachelor’s degrees in biological sciences may enter research or service careers at the technical level in educational, governmental, and industrial institutions or foundations. The department’s programs also prepare students to teach at all levels, for certification or advanced degree programs leading to independent research in biological fields, and for work in the health professions, such as medicine, dentistry, pharmacy, nursing, premedical practice, medical technology, dental hygiene, and physical therapy.

Courses required for the B.A. and B.S. degrees emphasize structures and processes common to living animal and plant systems at molecular, cellular, organic, and population levels. Students also may follow their own interests by concentrating elective courses in areas such as genetics, development, physiology, ecology, molecular biology, or plant and animal systems.

Students interested primarily in field biology may use the Macbride Nature Recreation Area and may take varied courses emphasizing field biology offered during the summer at the Iowa Lakeside Laboratory at Lake Okoboji.

Requirements for the B.A. and B.S. in biology were changed effective Fall 1994. The new requirements follow. Students who completed the course 2:3 Principles of Animal Biology and declared a biology major by the first day of class in fall semester 1994 may use the old requirements for the degree. (See the 1992-94 General Catalog.) Students who completed 2:3 during or before summer session 1994 may declare a biology major and use the old requirements if they declare the major by the first day of classes of the fall semester 1996. All other students must complete the new major.

Bachelor of Science in Biology

The B.S. program is designed to be somewhat more rigorous than the B.A. program (see “Bachelor of Arts in Biology” in this section of the Catalog.) Accordingly, the B.S. maybe the degree program of choice for students who plan to do graduate work. However, selection of a degree program should be dictated more by the student’s personal taste, since there is little indication that employers or admission committees prefer one degree over the other.

Students seeking the B.S. in biology are required to take the following courses.

BIOLOGICAL SCIENCES

Total of 31–40 semester hours as follows.

2:10-11 Principles of Biology 1-11 8 s.h.
2:128 Fundamental Genetics 4 s.h.
2:131 Evolution 4 s.h.

Breadth Menus

At least one course (minimum of 3 semester hours) from each of the following three breadth menus.

Molecular and cellular biology:

2:114 Cell Biology 3 s.h.
2:155 Cell Physiology 4 s.h.
2:161 Plant Molecular Biology 3 s.h.
2:171 Molecular Genetics I 4 s.h.

Developmental biology and physiology:

2:104 Introduction to Developmental Biology 3 s.h.
2:110 Plant Physiology 3-4 s.h.
2:117 Plant Developmental Biology 3 s.h.
2:124 Animal Physiology 3 s.h.
2:150 Endocrinology 3 s.h.
2:180 Fundamental Neuroscience 3 s.h.

Ecology and evolutionary biology:

2:103 Biogeography 3 s.h.
2:111 Plant Ecology 4 s.h.
2:134 Ecology 4 s.h.
2:140 Systematic 3 s.h.

Investigative Laboratory

At least one course chosen from:

2:116 Field Ecology 4 s.h.
2:129 Fundamental Genetics Laboratory 3 s.h.
2:130 Fundamental Genetics Laboratory: Molecular Biology of Yeast 3 s.h.
2:152 Endocrinology Laboratory 2 s.h.
2:155 Cell Physiology 4 s.h.
2:196 Honors Investigations (minimum total of 3 semester hours) 3 s.h.

2:199 Introduction to Research (minimum total of 3 semester hours) arr.

Electives

In addition, at least two elective courses (minimum of 2 semester hours each) must be chosen from advanced courses in the Department of Biological Sciences, advanced courses offered at the Iowa Lakeside Laboratory, and/or from a specific list of acceptable courses in biochemistry, geology, exercise science, microbiology, or anthropology (students should consult the list of approved courses available from their biology adviser or the departmental office). Courses listed as investigative laboratory courses may be used as electives unless they already have been used to satisfy the investigative laboratory requirement. No more than 3 semester hours of 2:196 and 2:199 may be counted toward the electives requirement.

Other Disciplines

4:13-14 Principles of Chemistry 1-II 6 s.h.
4:16 Principles of Chemistry Laboratory 2 s.h.
4:121-122 Organic Chemistry 1-II 6 s.h.

99:110 Biochemistry 3 s.h.
or
99:120, 130 Biochemistry and Molecular Biology I, II 8 s.h.

(Half of the total of 8 semester hours for these two courses may be counted toward the electives requirement.)

29:11-12 College Physics 1-11 8 s.h.
or
29:17-18 Introductory Physics 1-11 8 s.h.

22M:16 Calculus for the Biological Sciences 4 s.h.
or
22M:25 Calculus I 4 s.h.
or
22M:35 Engineering Calculus I 4 s.h.
or
22M:45 Accelerated Calculus I 4 s.h.

63:161 Introduction to Biostatistics 3 s.h.

22S:102 Introduction to Statistical Methods 3 s.h.
and
22S:148 Intermediate Statistical Methods 3 s.h.

Suggested Freshman Year Schedule

The following first-year schedule of science courses is recommended for students seeking either the B.S. or B.A. degree in biology.

First Semester

4:13 Chemistry 4 s.h.
Calculus or mathematics leading to calculus 3-4 s.h.

Second Semester

4:14, 4:16 Chemistry 5 s.h.
2:10 Principles of Biology I 4 s.h.
calculus 4 s.h.

Students who are sufficiently prepared in biology and chemistry from high school are encouraged to start 2:10 Principles of Biology I the first semester of the freshman year.
Bachelor of Arts in Biology

Students seeking the B.A. in biology are required to take the following courses.

BIOLOGICAL SCIENCES

Total of 31-39 semester hours, as follows.

2:10-1 1 Principles of Biology I-II 8 s.h.
2:128 Fundamental Genetics 4 s.h.
2:131 Evolution 4 s.h.

Breadth Menus

At least two courses from at least two of the three breadth menus listed under “Bachelor of Science in Biology.”

Science in History, Society

At least one course selected from:

16E:139 Ancient and Medieval Science 3 s.h.
16E:140 The Scientific Revolution 3 s.h.
16E:141 Science in the Modern Age 3 s.h.
16E:142 Science and Society 3 s.h.
26: 104 Introduction to Philosophy of Science 3 s.h.

Electives

In addition, at least three elective courses (total of 6-12 semester hours must be chosen) from advanced courses in the Department of Biological Sciences, including at least one laboratory course or a course with a laboratory. Other rules governing choice of electives are the same as for the B.S. degree.

OTHER DISCIPLINES

Total of 29-33 semester hours, as follows.

4: 13-14 Principles of Chemistry I-II 6 s.h.
4:16 Principles of Chemistry Laboratory 2 s.h.
4:121 Organic Chemistry I 3 s.h.
4:122 Organic Chemistry II or 99:110 Biochemistry 3 s.h.
or 99:112 Biochemistry 3 s.h.
29: 11-12 College Physics I-II 8 s.h.
or 29: 17-18 Introductory Physics I-II 8 s.h.
22M:16 Calculus for the Biological Sciences 4 s.h.
or 22M:25 Calculus I 4 s.h.
or 22M:35 Engineering Calculus I 4 s.h.
or 22M:45 Accelerated Calculus I 4 s.h.
63:161 Introduction to Biostatistics 3 s.h.
or 22S:102 Introduction to Statistical Methods 3 s.h.
and 22S:148 Intermediate Statistical Methods 3 s.h.

SUGGESTED FRESHMAN YEAR SCHEDULE

See “Bachelor of Science in Biology.”

Bachelor of Science in Botany

In addition to the General Education Requirements of the College of Liberal Arts, students seeking the B.S. in botany are required to take the following courses.

BIOLOGICAL SCIENCES

2:1 Introduction to Botany 4 s.h.
2:10 Principles of Biology I 4 s.h.
2:11 Principles of Biology I 4 s.h.
2:131 Evolution 4 s.h.
2:196 Honors Investigations (or equivalent) 1-3 s.h.
or An investigative laboratory or field course

OTHER DISCIPLINES

4:13-14 Principles of Chemistry I-II 6 s.h.
4:16 Principles of Chemistry Laboratory 2 s.h.
4:121 Organic Chemistry I 3 s.h.
or 99:110 Biochemistry 3 s.h.
or 99:112 Biochemistry and Molecular Biology 1 4 s.h.
22M:9 Elementary Functions 3 s.h.
or 22M:15 Mathematics for the Biological Sciences 4 s.h.
or 22M:16 Calculus for the Biological Sciences 4 s.h.
or 22M:25 Calculus I 4 s.h.

Honors in Biology or Botany

The honors program in biology or botany gives superior 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 or by participating in independent research projects guided by faculty members.

Students in the University Honors Program may graduate with honors in biology or botany by completing the following requirements, in addition to the regular requirements for the B.S. or B.A. All honors students must maintain a grade-point average of at least 3.20 both overall and in all biology course work, Those majoring in biology must complete at least 7-8 semester hours of honors course work in biology, consisting of at least 6 semester hours in 2:196 Honors investigations (readings and laboratory research over at least two semesters) and 1-2 semester hours in 2:198 Honors Seminar in Biology, or a graduate-level seminar in biology. Botany honors majors must complete 4-6
semester hours of honors course work, of which at least 4 must be in 2:199 Honors Investigations.

All honors candidates must write a research proposal and a final research paper (honors thesis). Both must be approved by the student’s research supervisor and must be submitted to the honors advisor or program director. Botany majors defend the honors thesis before a committee of the honors research advisor, the student’s research supervisor, and a third faculty member chosen by the student and the honors advisor.

**Minor in Botany**

The botany minor requires 15 semester hours of credit in botany with a minimum grade-point average of 2.00, at least 12 of which must be taken at The University of Iowa in courses numbered 2:100 and above.

**Minor in Biology**

Students majoring in other subjects may earn a minor in biology. The biology minor requires 15 semester hours of credit in biology, at least 12 of which must be in 100-level courses. All of the 100-level courses must be offered by the Department of Biological Sciences at The University of Iowa, or they must be 100-level courses other than L101 offered at Iowa Lakeside Laboratory. Students must earn a grade-point average of at least 2.00 in 100-level courses. Biological sciences courses taken on a pass/nonpass basis do not apply toward the biology minor. Biological science course taken at other institutions, except Iowa Lakeside Laboratory, do not apply to the 100-level course requirement in the biology minor.

**Introduction to Research**

The department offers 2:199 Introduction to Research to acquaint students majoring in the biological sciences with the nature of practicing scientists’ work—through association with one of the department’s research groups in experiments, discussion of current research, study of specialized topics, and attendance at research lectures.

**Graduate Programs**

The graduate programs of the department are designed to train scientists who can participate in research in private, educational, or government environments, and who are experienced in the skills required for teaching biology. In the last two decades, some 70 Ph.D. graduates of this department have subsequently been appointed to college or university faculties, while most of the others are in research positions. A substantial number of students completing their training with an M.S. degree have obtained technical or professional positions. Other graduates are teaching at the secondary or community colleges.

Prior to registration in August, all new graduate students take a course-equivalency examination covering topics in four areas of biology: developmental biology, genetics, cell physiology or animal physiology, and evolution or ecology. On the basis of examination results, students may be excused from further work in one or all of these fields, or may be advised to take specific courses to enhance their backgrounds in these areas. Students must make up any undergraduate deficiencies in mathematics, chemistry, or physics during the first year. A student with a bachelor’s degree outside of the biological sciences may request modification of certain area requirements; the student’s degree committee will decide whether portions of the requirements may be waived.

All members of the biological sciences faculty engage in research asking fundamental questions about major biological problems. Areas of departmental research include cell biology, developmental biology, genetics, molecular biology, neurobiology, ecology, physiology, anatomy, bryology, mycology, paleobotany, palynology, plant biochemistry, taxonomy, and parasitology. If appropriate, projects can involve work in other departments; graduate students sometimes are advised jointly by faculty in those departments.

On admission, each new graduate student is assigned a temporary adviser, chosen to complement the research interests of the student. The temporary adviser guides the student through initial requirements and acts as the student’s advocate. For purposes of graduate student evaluation, research training is categorized by four designations: developmental biology, ecology and evolution, genetics, and physiology. The department expects new students to do research in three laboratories on a rotating basis during their first year.

A graduate affairs committee evaluates and advises students initially. After the first two semesters, students choose a permanent sponsor (adviser) and a Ph.D. advisory (dissertation) committee. Afterwards, responsibility for evaluation is shared by the dissertation committee and the sponsor’s area committee.

**Master of Science in Botany**

The department offers the M.S. both with and without thesis. For both options, students must submit a program of study approved by a guidance committee composed of three members of the graduate faculty, one of whom may be from another department. Students should prepare the program of study during their first semester in residence as regular graduate students. Students also must maintain a grade-point average of 3.00 in all courses (except research) that they complete before taking the final exam. Additional requirements for the two options are as follows.

**With Thesis**

The M.S. in biology with thesis requires 34 semester hours of graduate credit and a library research report for which no more than 4 semester hours of credit may be granted. Credit may be earned in graduate courses in biology or cognate sciences; these courses are determined in consultation with the student’s thesis committee and are tailored to fit the student’s background and career goals.

Credit earned in courses at the 100 level or above—with the exception of courses in biology required to make up deficiencies (see above)—may be included in the 34-semester-hour minimum if approved by the advisory committee. On completion of the hours requirement and acceptance of the research report by their faculty sponsor, students must pass a written examination covering their graduate program in biology, including the area of their report.

**Without Thesis**

The M.S. in biology without thesis requires 34 semester hours of graduate credit and a library research report for which no more than 4 semester hours of credit may be granted. Credit may be earned in graduate courses in biology or cognate sciences; these courses are determined in consultation with the student’s thesis committee and are tailored to fit the student’s background and career goals.

Credit earned in courses at the 100 level or above—with the exception of courses in biology required to make up deficiencies (see above)—may be included in the 34-semester-hour minimum if approved by the advisory committee. On completion of the hours requirement and acceptance of the research report by their faculty sponsor, students must pass a written examination covering their graduate program in biology, including the area of their report.

**Master of Science in Biology**

Although the department emphasizes the Ph.D. degree, M.S. programs are available with and without thesis.

**With Thesis**

The M.S. in biology with thesis requires 30 semester hours of graduate credit and a thesis based on original research. Ordinarily, 6-8 semester hours are assigned to thesis research and writing. The remaining hours are selected in consultation with the student’s advisory committee; the choice of courses is tailored to students’ backgrounds and career goals.

Students receive academic credit for courses they are required to take, but credit awarded for courses required by the admissions committee to make up undergraduate deficiencies does not count toward the 30-semester-hour requirement. After the thesis is accepted, candidates must pass an oral examination based on the thesis and related subjects.

**Without Thesis**

The M.S. in biology without thesis requires 34 semester hours of graduate credit and a library research report for which no more than 4 semester hours of credit may be granted. Credit may be earned in graduate courses in biology or cognate sciences; these courses are determined in consultation with the student’s thesis committee and are tailored to fit the student’s background and career goals.

Credit earned in courses at the 100 level or above—with the exception of courses in biology required to make up deficiencies (see above)—may be included in the 34-semester-hour minimum if approved by the advisory committee. On completion of the hours requirement and acceptance of the research report by their faculty sponsor, students must pass a written examination covering their graduate program in biology, including the area of their report.
Doctor of Philosophy in Biology

The formal course or 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 work or proficiency requirements must be completed before the comprehensive examination, which admits students to full candidacy for the Ph.D. In this examination, students must demonstrate knowledge of biology fundamentals and the analytic and synthetic skills necessary to become creative, independent scientists.

The program culminates in students’ preparation of a dissertation based on original, independent research. Students must take a final examination, which covers the thesis and the specialized field the thesis represents, before the department can accept the thesis.

Doctor of Philosophy in Botany

The Ph.D. is primarily a research degree. The student must conduct original research of sufficient magnitude and value to be able to write a thesis and defend it successfully before the final examination committee. In addition, the student must complete 72 semester hours of graduate course work and research as prescribed by the guidance committee (hours earned for the master’s degree may be counted toward the 72-semester-hour minimum).

The guidance committee also may require that course work beyond the 72 semester hours be taken to meet specific proficiency requirements (e.g., language or statistics) or to make up for background deficiencies (e.g., chemistry or general botany course work).

During the first semester in residence as Ph.D. candidates, students must submit a program of study for approval by a guidance committee. Students must fulfill all course work requirements of the program of study, with changes made only with the formal (written) approval of the guidance committee.

Students complete an initial research proposal within two or three semesters after admission to the Ph.D. program (post-M.S.). The proposal, which should outline the specific objectives, significance, and methodology of the chosen research project, must gain written acceptance from members of the guidance committee and copies of it must be distributed. An oral presentation of the proposed research must follow acceptance of the initial research proposal within six months.

Once their formal course work has been completed or nearly completed, candidates pass a written and oral comprehensive examination. They submit a doctoral thesis based on original research to the final examination committee for review. The results of the thesis research in a departmental seminar, preferably before the thesis defense; and pass the final doctoral examination, which is primarily a defense of the ideas, methods, and significance of the doctoral thesis.

Financial Aid

All graduate students making satisfactory progress in the department receive support from teaching assistantships, fellowships, or research assistantships provided by the University or by individual research grants administered by faculty members. First-year students ordinarily are supported by department fellowships during the research rotation period. Subsequently, students may be considered for any of the following.

- Teaching assistantships: Appointment to an assistantship requires that the student provide approximately 20 hours of work per week. Appointees pay resident tuition rates.
- Summer research fellowships: These are available for outstanding graduate students. Recipients are expected to do full-time research for any two-month period between mid-May and mid-August and to enroll for at least 2 semester hours of credit in 2:301 Research: Biology. Awards are made on a competitive basis.
- Summer appointments: These depend on available summer session budgets. Summer session stipends are awarded for half-time service or 20 hours of time per week for the eight-week summer session. Selection of teaching assistants for the summer is made by the instructor in charge of the course to be served.
- Faculty members with individual grants-in-aid: Faculty members may employ half-time or quarter-time research assistants. These awards are made by the principal investigator in charge of the grant and carry stipends similar to those available from departmental resources. Graduate College and departmental regulations and standards apply to these appointments.
- Grants-in-aid for graduate students: Agencies such as NIH, NSF, and Sigma Xi make grants-in-aid to graduate students. Announcements of availability are made from time to time. Students should consult the department chair for details. The Graduate College also provides information regarding grants available to graduate students.
- Students who apply for one departmental award also may be considered for others.

Admission

An application form for admission to the Graduate College must be completed and sent to the director of admissions. Official transcripts from each undergraduate and graduate institution attended and scores on the Graduate Record Examination (GRE) General Test (verbal and quantitative parts) should be submitted with the application. A valid B.S. or B.A. degree from an accredited institution is required. Applicants for graduate admission should have a grade-point average of at least 3.00 and a Graduate Record Examination (GRE) General Test (verbal plus quantitative) score higher than 1100. These criteria are not absolute; instead, they serve as general guidelines to the admissions committee, which also considers applicants’ letters of recommendation, research experience, and other appropriate criteria.

Applicants also should take the Graduate Record Examination advanced biology test and submit their scores. Although most applicants have completed undergraduate programs in biology, the department considers applicants with backgrounds in biophysics, botany, biochemistry, molecular biology, microbiology, and other related areas. Applications should be submitted by February 1.

Master of Science

Students applying for admission to the one of the master’s programs in biology or botany 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 special students (A9) and make up the equivalent of the department’s bachelor’s degree program prior to consideration for admission. Special students must complete chemistry, physics, and mathematics requirements in addition to the biology courses listed in the undergraduate program. Special students should consult the department chair before attempting to set up a program.

Foreign Students

Admission of foreign students is based on the GRE General Test, a score of 350 or higher on the Test of English as a Foreign Language (TOEFL), an evaluation of the applicant’s transcript(s), and letters of recommendation.

Facilities

The department is housed in four separate buildings, with facilities for the care of many kinds of animals and for research with viruses, DNA sequencing and synthesis, electron microscopy, fruit flies, plants, and marine organisms. It has numerous walk-in and reach-in environmental chambers for special cell culture or plant and animal care needs.

The department is equipped to carry out state-of-the-art research in all areas in which graduate teaching is conducted. All modern equipment including ultracentrifuges, fluorescent microscopes, controlled environment rooms, and sophisticated apparatus for research in growth regulation, photosynthesis, plant biochemistry, plant molecular biology, biochemical systematic, paleobotany, cytogenetics, ecophysiology, pollination biology, morphogenesis, and cell biology.

Students conducting research projects that require plant cultivation have access to greenhouses and special culture rooms with controlled environments. A plant physiology laboratory with associated greenhouses is available.

An herbarium for research and general study contains more than 200,000 specimens. Standard specimens include extensive collections of seed plants and ferns from Iowa and the Midwest, and there are special research specimens from Mexico and Central America and the Conard herbarium of bryophytes. There
is also a growing repository of fossil paleozoic plants. A forest preserve is available within a few miles of the campus for field trips and experimental projects.

In addition to department facilities, a number of campuswide facilities exist. A DNA oligonucleotide synthesis and enzyme lab is available, as is oligopeptide synthesis and sequencing equipment, mass- and NMR spectroscopy facilities, and a computerized image analysis facility. A hybridoma facility does fusions and screening and provides researchers with monoclonal antibodies. A campus fermentation lab grows large amounts of microorganisms (e.g., 100 liters) for use in protein isolation. The department has its own electron microscope facility, and there is a University electron microscopy/lab with scanning and transmission electron microscopes.

Computing facilities are available in the department and at the University’s Weeg Computing Center. Graduate students have their own computer room with IBM PCs and terminals linked to the campus mainframe. One of the only computerized motion analysis facilities in the world is available in the basement of the Biology Building. Finally, there are animal rooms and growth media preparation labs.

In short, the department and the University provide the resources necessary to do biological science from the molecular to the population level.

Iowa Lakeside Laboratory

Courses in biology at Iowa Lakeside Laboratory are accepted for elective credit in the biology minor. The laboratory, located on West Lake Okoboji in northwestern Iowa, affords excellent conditions for summer study in field biology, limnology, phycology, aquatic ecology, pollution biology, and plant taxonomy. See “Iowa Lakeside Laboratory” in this section of the catalog.

Courses

Many courses include field and/or laboratory components.

### Primarily for Undergraduates

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>2:000</td>
<td>Cooperative Education Internship</td>
<td>0 s.h.</td>
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<tr>
<td>2:1</td>
<td>Introduction to Botany</td>
<td>4 s.h.</td>
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<tr>
<td>2:2</td>
<td>Introductory Animal Biology</td>
<td>4 s.h.</td>
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<tr>
<td>2:2</td>
<td>Secondary Student Training Program</td>
<td>3-4 s.h.</td>
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<tr>
<td>2:5</td>
<td>Iowa Flora</td>
<td>2 s.h.</td>
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</table>

These courses are not open to graduate students and do not provide credit toward a biology major.

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<tbody>
<tr>
<td>2:10</td>
<td>Principles of Biology I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>2:1</td>
<td>Principles of Biology II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>2:2</td>
<td>Ecology and Evolution</td>
<td>3 s.h.</td>
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<tr>
<td>2:40</td>
<td>Biology of the Brain</td>
<td>3 s.h.</td>
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<tr>
<td>2:50</td>
<td>Plant-Animal Interactions</td>
<td>5 s.h.</td>
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### Elementary Topics of General Interest

<table>
<thead>
<tr>
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<tr>
<td>2:10</td>
<td>Invertebrate Biology</td>
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<tr>
<td>2:11</td>
<td>Plant Biology</td>
<td>3 s.h.</td>
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<td>2:12</td>
<td>Cell Biology of Protozoa</td>
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<td>Plant Biochemistry</td>
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<tbody>
<tr>
<td>2:11</td>
<td>Palaeobotany</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>2:12</td>
<td>Cell, Tissue, and Organ Biology</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>2:13</td>
<td>Plant Anatomy</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>2:14</td>
<td>Cell Biology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>2:16</td>
<td>Field Ecology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>2:17</td>
<td>Plant Developmental Biology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>2:18</td>
<td>Parasitology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>2:19</td>
<td>Plant-Animal Interactions</td>
<td>4 s.h.</td>
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<tr>
<td>2:20</td>
<td>Palaeontology and Palaeoecology</td>
<td>4 s.h.</td>
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<tr>
<td>2:22</td>
<td>Cell Biology of Protozoa</td>
<td>3 s.h.</td>
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CHEMISTRY

Chair: Darrell P. Eyman
Professor emeritus: Robert E. Buckles
Associate professors: William E. Bennett, Darrell P. Eyman, Louis Messerle
Assistant professors: Vicki H. Grassian, Stephen E. Johnson, John Leddy, Nancy J. Total, Mark A. Young

Undergraduate degrees: B.A., B.S. in Chemistry; minor in Chemistry
Graduate degrees: M.S., Ph.D. in Chemistry

Bachelor of Science

Present and projected demand for chemists with a B.S. degree is excellent in research and in control and process-development work. The B.S. program also provides all the prerequisites for graduate work in chemistry or biochemistry. The major course requirements for the B.S. degree are as follows. Sixty-six semester hours are required for the B.S., 45 of which must be in chemistry courses.

4: 13-14 Principles of Chemistry I-II 6 s.h.
4:16 Principles of Chemistry Lab I 2 s.h.
4:17 Basic Measurements 2 s.h.
4:11-112 Analytical Chemistry I-II 6 s.h.
4:121-122 Organic Chemistry I-II 6 s.h.
4:125 Inorganic Chemistry 2 s.h.
4:131-132 Physical Chemistry I-II 6 s.h.
4:141 Organic Chemistry Laboratory 3 s.h.
4:143 Analytical Measurements 3 s.h.
4:153 Inorganic Chemistry Laboratory 3 s.h.
4:170 Advanced Inorganic Chemistry 3 s.h.

Integral calculus (22M:35-36 Engineering Calculus Calculus I-II or
22M:25-26 Calculus I-II or
22M:45-46 Accelerated Calculus
I-II) 8 s.h.

Introductory physics (29:17-18
Introductory Physics I-II
recommended, 29: 11-12 College Physics accepted) 8 s.h.

Credit earned in advanced science elective courses and in 4,162 Undergraduate Research must total at least 5 semester hours. Advanced science electives may be chosen in the areas of chemistry, mathematics, computer science, astronomy, physics, engineering, radiation biology, biochemistry, microbiology, pharmacology, pharmacy, botany, biological sciences, geology, or physiology.

Bachelor of Arts

The B.A. curriculum in chemistry provides a general education with some concentration in fundamental chemistry, but with a wider choice of electives than the B.S. curriculum includes. Students who elect this program may qualify to be high school teachers, provided they meet teacher licensure requirements. By selecting appropriate electives, students can meet entrance requirements for medicine, dentistry, or other professional programs while satisfying the B.A. requirements in chemistry. The major course requirements for the B.A. are as follows.

4: 13-14 Principles of Chemistry I-II 6 s.h.
4:16 Principles of Chemistry Lab I 2 s.h.
4:17 Basic Measurements 2 s.h.
4:111-112 Analytical Chemistry I-II 6 s.h.
4:121-122 Organic Chemistry I-II 6 s.h.
4:125 Inorganic Chemistry 2 s.h.
4:131-132 Physical Chemistry I-II 6 s.h.
4:141 Organic Chemistry Laboratory 3 s.h.
4:143 Analytical Measurements 3 s.h.
or
4:144 Physical Measurements 3 s.h.
or
4:153 Inorganic Chemistry Laboratory 3 s.h.

Integral calculus (22M:35-36 Engineering Calculus Calculus I-II or
22M:25-26 Calculus I-II or
22M:45-46 Accelerated Calculus
I-II) 8 s.h.

Introductory physics (29: 17-18
Introductory Physics I-II
recommended, 29: 11-12 College Physics accepted) 8 s.h.

Advanced courses in chemistry, biological sciences, mathematics, physics, or other scientific areas are recommended. The department requires 52 semester hours for the Bachelor of Arts, 36 of which must be in chemistry courses.

Honors

To graduate with honors in chemistry, a student must be a member of the University Honors Program, take 4,162 Undergraduate Research, complete a research project acceptable to his or her research adviser, 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.

Minor

The minimum requirements for a minor in chemistry are 15 semester hours, including 3 semester hours in introductory-level courses and 12 semester hours taken at The University of Iowa in advanced chemistry courses numbered 100 and above (4,13-14 Principles of Chemistry I-II and 4,16 Principles of Chemistry Lab are prerequisites for upper-level courses in chemistry).

Teacher 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 College of Liberal Arts section of the Catalog).

Graduate Programs

Master of Science

The department offers the M.S., with or without thesis, in analytical, inorganic, organic, and physical chemistry and in chemical physics. Candidates for the M.S. 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. At least 30 semester hours of graduate work are required for the M.S. A minimum grade-point average of 3.50 is required for admission to the master’s examination.

Doctor of Philosophy

A program of study for the Ph.D. in the areas listed for the M.S. includes the minimal proficiency examinations, core courses as may be necessary, a minimum of 11 semester hours of advanced course work, and research.

Students who have met the course requirements with a cumulative grade-point average of 3.00 are admitted to the oral comprehensive examination upon presentation and preliminary approval of their written research proposal; they must take the oral comprehensive examination no later than the end of their second year of enrollment.

Upon completing the Ph.D. research, students prepare the dissertation. The final examination consists of an oral defense of the thesis, at which time at least one manuscript of the publishable portion of the thesis is presented.

Interdisciplinary Programs

The Department of Chemistry cooperates on interdisciplinary programs in applied mathematical sciences and in chemical physics (see the Graduate College section of the Catalog). Students with undergraduate degrees in chemistry, physics, mathematics, or engineering are eligible.

Admission

Applicants for graduate admission should have a bachelor’s degree in chemistry with a recommended grade-point average above 3.00. Most admitted graduate students receive financial support; application forms are available from the Department of Chemistry.

Facilities

The department is housed in a five-story building containing two auditoriums, five lecture rooms, fifteen undergraduate laboratories, forty-three graduate research laboratories, a computer laboratory, and a number of special-purpose instruction rooms. Modern scientific equipment is available for research.

The department’s excellent library facilities are available to all students. The library contains standard reference works and complete volumes of chemistry and chemical engineering journals and subscribes to a large number of current scientific journals.
Courses

Primarily for Undergraduates

Students planning to take more than one year of chemistry should take 4: 13, 4:14, and 4:16. Students who require only one year of chemistry may take 4:7, 4:8, and 4:16.

4000 Cooperative Education Internship 0 s.h.
4:4 Secondary Student Training Program 3-4 s.h. Special projects. Open only to secondary school students. May be repeated.
4:5 Technology and Society 3-4 s.h. Nonmechanical exploration of selected areas of technology: basic science background, current technological applications, implications for society; for nonscience majors. No credit for students with previous college-level course work in chemistry. GER natural sciences.
4:7 General Chemistry I 3 s.h. Atomic structure, chemical bonds, molecular structure, states of matter, acids and bases, electrochemistry, nuclear chemistry. GER natural sciences.
4:8 General Chemistry II 3 s.h. Corequisite: elementary algebra.
4:11 Organic Chemistry I 3 s.h. Organic chemistry and biochemistry. GER natural sciences. Prerequisite: 4:7 or high school chemistry.
4:13 Principles of Chemistry I 3 s.h. Chemical bonding and chemical reactions; atomic and molecular structure, chemical equations, stoichiometry, gases, liquids, thermodynamics, phase changes, solutions, equilibria, acids, bases, pH, elementary organic chemistry, the solid state, and partial and integral structure of silicon, its compounds and related ceramic materials. GER natural sciences. Prerequisites: 22M:2 or ACT math subscore of 24 or a score of 12 on the University of Iowa Mathematics Placement Test Level I.
4:14 Principles of Chemistry II 3 s.h. Continuation of 4:13: colligative properties of solutions, chemical thermodynamics, electrochemistry, chemical kinetics, chemical bonding, the top ten chemicals produced by the chemical industry, nuclear chemistry. GER natural sciences. Prerequisite: 4:13 or 4:7.
4:16 Principles of Chemistry Lab 1 2 s.h. Laboratory techniques for students taking 4:14. GER natural sciences. Prerequisite: 4:13.
4:17 Basic Measurements 2 s.h. Continuation of 4:16: techniques of data collection and processing, including statistical and instrumental techniques for data collection and computer data processing. Open only to chemistry majors. Prerequisite: 4:16.
4:101 Elementary Quantitative Analysis 4 s.h. Principles of quantitative analytical chemistry; spectrometric and spectrophotometric methods of analysis. Prerequisites: 4:14 and 4:16.
4:11 Analytical Chemistry I 3 s.h. Modern theory and practice; emphasis on chemical equilibrium, acid-base chemistry, solubility, complexation, and electroanalytical chemistry. Corequisites: 4:13 or 4:14. Prerequisite: 4:11.
4:12 Analytical Chemistry II 3 s.h. Continuation of 4:11; which is prerequisite; emphasis on instrumental methods, including molecular spectroscopy, mass spectrometry, chemical separations. Prerequisite: 4:11.
4:121 Organic Chemistry I 3 s.h. Carbon containing compounds: structure, stereochemistry, physical properties, reactivity, reaction mechanisms, synthesis emphasis on alkanes, alkenes, alkynes, aromatics, alcohols, amines, halides, aromatics. Prerequisites: 4:14 or 4:8.
4:122 Organic Chemistry II 3 s.h. Continuation of 4:12; which is prerequisite; topics include use of spectroscopic techniques to determine chemical structures; chemistry of carbon compounds, amines ethers amine acids, carbohydrates. Prerequisite: 4:121.

4:131 Physical Chemistry I 3 s.h. Chemical thermodynamics and its application to chemical equilibrium, phase equilibria, electrochemistry; ideal and real gases; kinetic theory, chemical kinetics. Prerequisites: 4:14, 29:12 or 29:18, and 22M:26 or 22M:36 or 22 M:46.
4:132 Physical Chemistry II 3 s.h. Quantum mechanics and its application to atomic and molecular structure; determination of structure by various spectroscopic methods: solids and liquids; diffraction methods for determination of crystal structures; statistical chemodynamics; chemical kinetics. Prerequisites: 29:12 or 29:18, and 22M:26 or 22M:36 or 22 M:46.
4:135 Physical Chemistry Laboratory 2 s.h. Experiments to illustrate modern principles. Open only to chemical engineering majors. Prerequisites: 4:131 and some knowledge of computer programming.
4:143 Analytical Measurements 3 s.h. Modern theory and practice of laboratory methods; emphasis on experimental techniques and data analysis in spectroscopy, chromatography, electrochemistry. Prerequisites: 4:17 and 4:111. Corequisite: 4:112.
4:144 Physical Measurements 3 s.h. Laboratory experiments to illustrate modern principles. Open only to chemistry majors. Prerequisites: 4:17, 4:131, and computer programming. Corequisite: 4:122.
4:153 Inorganic Chemistry Laboratory 3 s.h. Preparation and characterization of a variety of inorganic, organometallic, and coordination compounds of the main group and transition elements; emphasis on synthesis techniques and methods for characterization of inorganic species. Prerequisites: 4:14 and 4:125.
4:162 Undergraduate Research 1-4 s.h. May be repeated. Consent of adviser required.
4:170 Advanced Inorganic Chemistry 3 s.h. Modern principles including crystal field/ligand field/molecular orbital theory, inorganic reaction mechanisms, coordination chemistry, inorganic chemistry. Corequisites: 4:135, 4:141, and 4:112. or equivalent.
4:171 Advanced Analytical Chemistry 3 s.h. Emphasis on fundamental aspects of electrochemistry, atomic and molecular spectroscopy, chemical separations. Prerequisites: 4:112 and 4:132.
4:172 Advanced Organic Chemistry 3 s.h. Basic concepts from a perspective of structure, mechanism, synthesis, and stereochemistry. Prerequisites: 4:122.
4:173 Advanced Physical Chemistry 3 s.h. Microwave spectroscopy, photochemistry, heating; current research. Prerequisites: 4:172 or consent of instructor.
4:181 Fraud in the Chemical Sciences 3 s.h. Topics include, but are not limited to, fraudulent activities, methods to uncover and prevent fraud; internal, external policing mechanisms, societal impact. Prerequisites: 4:13 or 4:132 or equivalent.
4:191 Chemical Pedagogy 0-1 s.h. Technique and practice of presenting chemical principles and principles of self learning to students. Senior standing required.

Primarily for Graduates

4:201 Special Topics in Inorganic Chemistry 3 s.h. May be repeated. Prerequisite: 4:170.
4:202 Coordination Compounds 3 s.h. Formation, reactions, physical properties, structures of molecules formed by combinations of donor molecules with acceptor elements; emphasis is on vibrational and electronic spectra. Prerequisite: 4:170.
4:203 Organometallic Chemistry 3 s.h. Emphasis on organometallic compounds of transition metal elements. Prerequisite: 4:170.
4:204 Physical Methods in Inorganic Chemistry 3 s.h. Application of physical methods to problems; emphasis on recent developments; emphasis on magnetic resonance spectroscopy. Prerequisite: 4:170.
4:207 Fundamentals of Electrochemistry 1 s.h. Potentials, thermodynamics, electron transfer theory, mass transport, double layers. Prerequisites: 4:11 and 4:112, or 4:171.
4:208 Electrochemical Measurements 1 s.h. Voltammetry, amperometry, microelectrodes, bulk electrolysis, thin layer methods, sp-ectrometric and photometric methods, impedance methods. Prerequisites: 4:11 and 4:112, or 4:171.
4:209 Electrochemical Mechanisms/Modeling 1 s.h. Reaction mechanisms, mathematical methods of modeling, computer simulations; electrochemical topics such as batteries, fuel cells, solar cells, plating corrosion, semiconductors. Prerequisites: 4:111 and 4:112, or 4:171.
4:210 Chemical Sensors 1 s.h. Theory, practical limitations, analytical utility based on immobilized reagents with electrochemical, thermal, optical transduction mechanisms. Prerequisites: 4:111 and 4:112, or 4:171.
4:211 Bioanalytical Chemistry 1 s.h. Mathematical, statistical methods used to analyze experimental data: emphasis on calibration, signal processing, numerical optimization, experimental design. Prerequisites: 4:111 and 4:112, or 4:171.
4:212 Mass Spectrometry 1 s.h. Theory and practice of methods and instrumentation used in modern analytical mass spectrometry: emphasis on hardware components such as ionization sources, sample delivery mechanisms, mass analyzers, instrumental interfaces. Prerequisites: 4:111 and 4:112, or 4:171.
4:213 Chemometrics 1 s.h. Mathematical, statistical methods for experimental data analysis; emphasis on calibration, signal processing, numerical optimization, experimental design. Prerequisites: 4:111 and 4:112, or 4:171.
4:214 Molecular Spectroscopy 1 s.h. Principles of molecular absorption and emission spectroscopy in the ultraviolet, visible, and infrared regions of the spectrum, including fluorescence, phosphorescence, and Raman spectroscopy; applications to analytical problems, with emphasis on modern instrumentation and methodology. Prerequisites: 4:111 and 4:112, or 4:171.
4:215 Atomic Spectroscopy 1 s.h.
4:216 Gas chromatography 1 s.h. Partition, adsorption, instrumentation, detection. Prerequisites: 4:111 and 4:112, or 4:171.
4:217 Liquid Chromatography 1 s.h. Partition, adsorption, instrumentation, detection. Prerequisites: 4:111 and 4:112, or 4:171.
4:218 Fourier Transform Techniques 1 s.h. Application of the Fourier transform to analytical chemistry; emphasis on signal processing, spectroscopy, electrochemical methods. Prerequisites: 4:111 and 4:112, or 4:171.
4:219 Electron spectroscopy of valence electron density in solids and in gases; applications to analytical problems, with emphasis on modern instrumentation and methodology. Prerequisites: 4:111 and 4:112, or 4:171.
4:219 Electrospectroscopy of valence electron density in solids and in gases; applications to analytical problems, with emphasis on modern instrumentation and methodology. Prerequisites: 4:111 and 4:112, or 4:171.
4:221 Introduction to Organic Research 34 s.h. Methods and techniques of structure determination for organic compounds. Prerequisite: 4:152.
4:222 Interpretation of Spectra 3 s.h. Interpretation of electronic ultraviolet and magnetic resonance, and mass spectra of complex molecules. Prerequisites: 4:132 and 4:172.
4:223 Quantum Chemistry I 3 s.h. Quantum mechanics of chemical systems; time-dependent and time-dependent perturbation theory; variational theory; Hartree-Fock theory; atomic structure and spectra. Prerequisite: 4:132.
4:234 Quantum Chemistry 11 3 s.h.
Continuation of 4:233, which is prerequisite; group theory; molecular orbitals and valence bond theories and bond interaction procedure; electronic, vibrational, rotational, spin resonance spectroscopies; quantum statistics; current topics.

4:235 Chemical Kinetics 3 s.h.
Experimental and theoretical aspects of the dynamics of chemical reactions, from phenomenological perspective. Prerequisite: 4:132.

4:236 Reaction Dynamics 3 s.h.
Chemical and physical rate processes from the microscopic perspective, collision dynamics, potential energy surfaces, energy dispersions, energy transfer.

4:237 Calculating Thermochemical Quantities 1 s.h.
Application of additivity rules, empiricula relations, statistical thermodynamics to calculate energy, entropy, free energy for chemical compounds; calculations used in estimating equilibrium constants and kinetic parameters. Prerequisites: 4: 131 and 4:132.

4:238 Data Processing 1 s.h.
Inclusion of experimental errors; sources of error and their probability distributions; least squares fitting and smoothing methodologies useful for interpolation and extrapolation. Prerequisites: 4: 111 and 4:112.

4:239 Atmospheric Chemistry 1 s.h.
Emphasis on monitoring techniques, laboratory simulations of the atmosphere, kinetic mechanisms of gas phase reactions, reverting hydrocarbons and compounds containing nitrogen, oxygen, and sulfur. Prerequisite: 4: 131.

4:242 Physical Chemistry Topics 1-3 s.h.
4:245 Diffraction Analysis 2-3 s.h.
Theory and methods of analysis of electrons, neutrons, X-rays by gases, liquids, solids; structure determination and computational methods. Consent of instructor required.

4:275 Perspectives in Biochemistry 1 s.h.

4:276 Chemical Systems Modeling 2 s.h.
Basic processes, techniques of modeling chemical systems; workshop format in which students apply these methods to systems relevant to their own research. Prerequisite: 4: 111 or 4:112 or 4:171 or equivalent.

4:281 Seminar: Analytical Chemistry 0-1 s.h.
Consent of instructor required.

4:283 Seminar: Inorganic Chemistry 0-1 s.h.
Consent of instructor required.

4:285 Seminar: Organic Chemistry 0-1 s.h.
Consent of instructor required.

4:286 Seminar: Physical Chemistry 0-1 s.h.
Consent of instructor required.

4:287 Research Frontiers in Chemical Materials 1 s.h.
Consent of instructor required.

4:299 Research in Chemistry arr.
Thesis work for advanced degrees; conference and laboratory work arranged. Consent of department head and advisor required.

4:291 Research Seminar 0-1 s.h.
Presentation and discussion of thesis research for advanced degrees.

Classics is the study of ancient languages, literatures, and cultures of the Mediterranean basin from approximately 2000 B.C. to 600 A.D. 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 Program

A Bachelor of Arts in classics provides a solid foundation for graduate work in classics, law, history, art, philosophy, and religion. Graduates have become secondary school and university teacher, lawyers, doctors, librarians, museum curators, and bankers.

Major in Greek

Graduates with a major in Greek learn to read the ancient Greek language, become acquainted with the major works of Greek literature, and acquire knowledge of the history of ancient Greece and the Near East of the seventh through the fifth centuries B.C., when most of the modern Western notions of political, artistic, and social life began.

For a B.A. with a major in Greek, students must earn a minimum of 30 semester hours of credit in the major, of which at least 24 semester hours must be in Greek language courses. The following courses, or their equivalents, are required.

14:1-2 Elementary Greek 8 s.h.
14:11-12 Second-Year Greek I-II 6 s.h.
14:176 Greek Composition 3 s.h.
Four additional Greek language courses numbered 121 or above 12 s.h.

Major in Latin

Graduates with a major in Latin learn to read Latin; they also acquire 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 transmitted the culture of Greece to the West.

Candidates for the B.A. with a major in Latin must earn a minimum of 30 semester hours of credit in the major, at least 24 of which must be in Latin language courses. The following courses, or their equivalents, are required.

20:1-2 Elementary Latin 8 s.h.
20:15 Accelerated Latin 4 s.h.
20:17 Accelerated Elementary Latin (summer session) 4 s.h.
20:16-17 Second-Year Latin I-II 6 s.h.
20:171 Elementary Latin Composition 3 s.h.
Four additional Latin language courses; may include 20:81, 20:82, or any numbered above 121 12 s.h.

See the College of Education section of the Catalog for information on teacher licensure in Latin.

Major in Classics (Greek and Latin)
The B.A. with a major in classics requires a minimum of 36 semester hours of credit in the major, at least 30 of which must be in Greek and Latin language courses. The following courses, or their equivalents, are required.

14:12 Elementary Greek 8 s.h.
14:11-12 Second-Year Greek I-II 6 s.h.
20:1-2 Elementary Latin 8 s.h.
20:16-17 Second-Year Latin I-II 6 s.h.

Two advanced Greek language courses numbered 121 or above (other than 14:171) 6 s.h.

or

Two advanced Latin language courses (other than 20:171); may include 20:81, 20:82, or any numbered above 121 6 s.h.

14:176 Greek Composition 3 s.h.

or

20:171 Elementary Latin Composition 3 s.h.

Major in Ancient Civilization

This major is sponsored by the Schools of Art and Art History and Religion and the Departments of Classics and History. The major concentrates on the ancient civilization of the Mediterranean world and draws on courses offered by various departments of the University. It is not primarily a preparation for a graduate degree program in classics; nevertheless, it provides a sound basis for preparing teachers at the secondary school and junior college levels. It also provides a sound basis in liberal arts for preprofessional training in law, medicine, or the other professions. In addition to the normal college requirements for the B.A., the following are specific requirements of the major.

Ancient art 6 s.h.
Ancient history 6 s.h.
Ancient philosophy or religion 6 s.h.
Classics (either “classics in English” courses, or Latin or Greek language courses) 6 s.h.

Appropriate courses in art, history, philosophy, religion, or linguistics 14:194 Seminar in Ancient Civilization 3 s.h.

Of the required 30 semester hours, at least 15 must be at the advanced level. These include courses in English at the 100 level or 14:11-12 or 20:1-12.

Honors
For exceptional seniors who attain a 3.50 grade-point average in their first three years of classics courses, two courses are offered in honors reading, one each semester of the senior year, for 3 semester hours 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. During the first semester students present an essay every other week; at the end of the second semester they present a long paper, which is read and judged for honors by two members of the department.

**Minors**

A minor requires a minimum of 15 semester hours in classics courses with a minimum grade-point average of 2.00. Of the 15 semester hours, at least 12 must be in advanced courses taken at The University of Iowa. Students may earn a minor from the department in four areas: Greek, Latin, classics, and ancient civilization. The following courses are considered advanced for the minor.

**Greek**

14:1 1-12 Second-Year Greek 1-11 6 s.h.
All courses numbered 14: 121 or higher courses numbered 14: 100-120 do not count toward the minor because they are not courses in the Greek language.

20: 16-17 Second-Year Latin 1-11 6 s.h.
20:81, 20:82, and all courses numbered 20: 121 or higher 6 s.h.
Courses numbered 20: 100-120 do not count toward the minor because they are not courses in the Latin language.

**Latin**

*14:1 1-12 Second-Year Greek I-II 6 s.h.
20:16-17 Second-Year Latin 1-11 6 s.h.
An additional six semester hours of upper-level courses in Latin or Greek

*These courses or their equivalents are required for the minor in classics, so that students will have had both Greek and Latin.

**Ancient Civilization**

All courses in Greek numbered 14:11 or above.

All courses in Latin numbered 20:11 or above.

Appropriate courses from the Schools of Art and Art History and Religion and the Departments of History and Philosophy, as selected by the interdepartmental committee on the major in ancient civilization

**Language for Nonmajors**

Students who want to satisfy the College of Liberal Arts foreign language requirement for the B.A. by studying Greek should take 14:1-2 Elementary Greek and 14:1 1-12 Second-Year Greek I-II. Students who want to meet the requirement by studying Latin may elect 20:1-2 Elementary Latin or 20:15 Accelerated Latin, and 20: 16-17 Second-Year Latin I-II.

**Graduate Programs**

For the general requirements of the Graduate College, including the comprehensive examinations, see the Graduate College section of the Catalog.

Graduate students in classics may not include in their programs more than 6 semester hours of courses numbered 101-160 and 6 semester hours of courses numbered 161-199.

**Master of Arts**

The department offers the M.A. in Latin, Greek, or classics. Candidates must earn a minimum of 30 semester hours of credit by taking courses numbered 101 and above. Usually, students in the Latin program who have not had Greek are expected to include at least elementary Greek in their programs. Students must pass a sight examination in the language(s) studied and an examination on literature and history.

**Doctor of Philosophy**

Requirements for the Ph.D. include course work as listed below, precomprehensive and comprehensive examinations, and a dissertation.

**REQUIRED COURSES**

Greek rapid readings, two semesters 6 s.h.
Latin rapid readings, two semesters 6 s.h.
Greek composition or equivalent 3 s.h.
Advanced Latin composition or equivalent 3 s.h.
Any two of these:
Comparative Greek and Latin 3 s.h.
Greek Palaeography 3 s.h.
Graduate-level art 3 s.h.
Other interdisciplinary courses (with approval of the graduate adviser)

The minimum Graduate College requirement is 72 semester hours; the difference is to be made up from courses offered in and outside of the department.

**PN.D. EXAMINATIONS**

Precomprehensive exams must be taken in Latin sight reading and Greek sight reading. One sight reading exam must be attempted by the end of the first year of graduate study. Competence in reading both German and French must be shown either by course work or exam.

Students must file a request for the comprehensive exam at least three weeks before the date of the exam. Candidates must take the following exams, in any sequence.

Second-year exam on literature and history-4 hours, written
Greek and Latin literature based on reading list-4 hours, written
Special field or author (Greek)-4 hours, written
Special field or author (Latin)-4 hours, written

**Courses**

**Greek—for Undergraduates**

14:1 Elementary Greek 4 s.h.
Ancient Greek, the language of Homer, the New Testament, modern medicine and science; focus on reading Greek, Greek culture. GER foreign language.

14:2 Elementary Greek 4 s.h.
Continuation of 14:1, which is prerequisite; selections from Greek authors. GER foreign language.

14:11 Second-Year Greek I 3 s.h.
Focus on reading Greek prose authors, such as Xenophon and Plato. GER foreign language. Prerequisite: 14:2 or equivalent.

14: 12 Second-Year Greek II 3 s.h.
Continuation of 14: 11, which is prerequisite. Focus on reading and interpretation of Greek poetry. GER foreign language.

**Greek—for Undergraduates and Graduates**

14:176 Greek Composition 3 s.h.
Review of Greek morphology, syntax, sentence structure; composition of sentences, short passages in Greek.

14:187 Archaic and Classical Periods I 3 s.h.
Readings in Greek literature of the Archaic and Classical periods. May be repeated. Consent of instructor required. Prerequisite: 14:12 or equivalent.

14:188 Archaic and Classical Periods II 3 s.h.
Continuation of 14:187. Maybe repeated. Prerequisite: 14:12 or equivalent.

14:189 Classical and Hellenistic Periods I 3 s.h.
Readings in Greek literature of the Classical and Hellenistic periods. Maybe be repeated. Prerequisite: 14:12 or equivalent.

14:190 Classical and Hellenistic Periods II 3 s.h.
Continuation of 14: 189. Maybe repeated. Prerequisite: 14:12 or equivalent.

14:191 Honors Readings 3 s.h.
Discussion, readings, research for a paper on Greek civilization. Open only to majors.

14:192 Honors Readings 3 s.h.
Continuation of 14:191; culminating in honors thesis.

14:199 Private Assignments 1-3 s.h.
For advanced non classics majors. May be repeated.

**Greek-for Graduates**

14:202 Advanced Reading arr.
Open only to graduate students.

14:204 Rapid Readings in Greek I 3 s.h.

14:205 Rapid Readings in Greek II 3 s.h.

14:206 Greek Palaeography 3 s.h.
Greek palaeography, manuscripts, early printed texts, textual criticism.

14:210 Seminar Problems in Ancient Art arr.

14:228 Ancient Rhetoric 3 s.h.

14:231 Euripides 3 s.h.
Selected plays.

14:234 Aristophanes 3 s.h.
Selected plays.

**A minor requires a minimum of 15 semester hours in classics courses with a minimum grade-point average of 2.00. Of the 15 semester hours, at least 12 must be in advanced courses taken at The University of Iowa. Students may earn a minor from the department in four areas: Greek, Latin, classics, and ancient civilization. The following courses are considered advanced for the minor.**
Latin-for Undergraduates
20.000 Cooperative Education Internship 0 s.h.

20:1 Elementary Latin 4 s.h.
Focus on reading Latin and on Roman culture. GER foreign language.

20.2 Elementary Latin 4 s.h.
Continuation of 20.1, which is prerequisite. GER foreign language.

20.15 Accelerated Latin 4 s.h.
One year of Latin in one semester. For students who have studied Latin previously. Offered spring semesters. GER foreign language.

20.16 Second-Year Latin 3 s.h.
Focus on reading Latin prose authors, such as Caesar and Cicero. GER foreign language. Prerequisite: 20.2 or 20.15 or two years of high school Latin.

20.17 Second-Year Latin 3 s.h.
Focus on reading and interpretation of Roman texts such as Vergil and Catullus. GER foreign language. Prerequisite: 20.16 or equivalent.

Latin-for Undergraduates and Graduates
20:1 17 Accelerated Elementary Latin 4 s.h.
One year of Latin in one semester. Offered summer sessions. GER foreign language.

20:171 Elementary Latin Composition 3 s.h.
Review of Latin morphology, syntax, sentence structure; composition of sentences, short passages in Latin.

20:185 Medieval Latin 3 s.h.

20: 187 Latin Literature of the Republic 3 s.h.
Latin literature of the republic. May be repeated. Prerequisite: 20.17 or equivalent.

20: 188 Latin Literature of the Republic 3 s.h.
Continuation of 20.187. Maybe repeated. Prerequisite: 20.17 or equivalent.

20:189 Latin Literature of the Empire 1 s.h.
Latin literature of the empire. May be repeated. Prerequisite: 20.17 or equivalent.

20:190 Latin Literature of the Empire 1 s.h.
Continuation of 20.189. Maybe repeated. Prerequisite: 20.17 or equivalent.

20:191 Honors Readings 3 s.h.
Discussion, readings, research for a paper on Roman civilization. Open only to majors.

20:192 Honors Readings 3 s.h.
Continuation of 20.191, culminating in honors thesis.

20:199 private Assignments 1-3 s.h.
For advanced non-classics majors may be repeated.

Latin-for Graduates
20:202 Advanced Reading 3 s.h.
Open only to graduate students in Classics.

20:203 Comparative Greek and Latin Phonology 3 s.h.
Systematic comparison of classic Greek and Latin phonology and morphology, comparative material from Germanic and Indo-European languages, introduced as needed; electronic approach organizesAlong lines of modern linguistics research.

20:204 Rapid Readings in Latin 1 3 s.h.

20:205 Rapid Readings in latins 13 s.h.

20:227 Cicero’s Philosophical Works 3 s.h.

20:230 Topography of Rome 3 s.h.

20:232 Advanced Vergil 1 3 s.h.

20:234 Ovid 3 s.h.
Close literary study of the 15 books of the Latin text of Ovid’s Metamorphoses emphasis on analysis of form, language, and metamorphosis tradition in ancient literature.

20:240 Sallust 3 s.h.

20:241 Caesar 3 s.h.

20:242 Books from Caesar’s civil and Gallic Wars read in Latin.

20:250 Latin Biography 3 s.h.
Biographical works by Cornelius Nepos and Suetonius, and texts from Latin inscriptions; focus on veracity, historical content.

20:258 Tactitus 3 s.h.
Historical works read to illuminate Roman imperial period.

20:265 Silver Latin 3 s.h.

20:272 Advanced Latin composition 3 s.h.

20:274 Plautus 3 s.h.

20:275 Catullus 3 s.h.

20:276 Latin Poetry 3 s.h.

20:283 Seneca 3 s.h.

For PhD candidates writing the dissertation.

Classics in English
All readings for these courses are in English; no previous knowledge of Greek or Latin is required.

14:13 The Classical Views 3 s.h.
The ancient concept of the hero; major Classical works, including Homer’s Iliad, Vergil’s Aeneid, and Greek literature and culture; same as 8: 13.

14:26 Introduction to Ancient Art 3 s.h.
Art and archaeology of Mediterranean civilization from Mesopotamian times to the age of Constantine. Consent of instructor required. Same as IH 268.

14:34 Greek Civilization 3 s.h.
History, literature, art, architecture, religion, social life, 3000 B.C.E. to the second century B.C.E. GER historical perspectives.

14:103 Women in Antiquity 3 s.h.
Attitudes toward women and role of women in ancient Greek and Roman society; ancient authors—male and female—and modern critics. GER humanities or historical perspectives.

14:104 Ancient Athletics 3 s.h.
Physical surroundings and cultural context of ancient sports, which form the basis for modern track and field events. Same as 28: 117.

14:107 Ancient Views of Justice 3 s.h.
Works concerning questions of right and wrong in antiquity; Hesiod, Aeschylus, Sophocles, Euripides, Aristophanes, Plato, Aristotle, Cicero, Epictetus. GER humanities.

14:108 Greek Drama in Translation 3 s.h.
Tragedies of Aeschylus, Sophocles, and Euripides and comedies of Aristophanes in their dramatic, historical, and social contexts; and ancient and modern production techniques, film adaptations and stage productions. GER humanities. Same as 49: 180.
COMMUNICATION STUDIES

Chair: Steve Duck
Professors emeriti: Samuel L. Becker, Robert Kemp, Richard D. MacCann
Associate professors: Randy Hirokawa, George Klingler, John Peters, Leighton Pierce, Lauren Rabinovitz, Eric W. Rothenbuhler
Assistant professors: Kathleen Farrell, Jennifer Hammett, Joy Hayes, Dianne Rucinski, Michael Saenz
Graduate degrees: M.A., Ph.D. in Communication Studies; M.F.A. in Film and Video Production

The Department of Communication Studies is concerned with communication as a means of personal expression and development; as the means by which people adjust themselves to their society and their society to themselves; and as an essential process for the operation of any society, especially a highly technological society. The department is also concerned with communication as artistic and functional expression, and as meaning construction. These concerns are manifested in studies of personal, public, film, and other mass-mediated forms of communication.

The department offers specializations in communication (B.A.), communication education (B.A. and M.A.), communication research (M.A. and Ph.D.), media studies and film (B.A., M.A., Ph.D.), and rhetorical studies (M.A. and Ph.D.). Freshmen interested in the department should talk with advisers in the Undergraduate Academic Advising Center; sophomores, juniors and seniors are assigned departmental advisers. Anyone wishing to take courses other than those fulfilling General Education Requirements must have a 2.50 cumulative grade-point average.

Undergraduate Programs

Selective Admission
To be eligible for admission to the department’s B.A. programs, applicants must complete, by the end of the semester in which application is made, at least 30 semester hours of approved undergraduate credit; they also must have at least a 2.50 cumulative grade-point average.

Students who do not meet the minimum criteria may petition the undergraduate admissions committee in writing, presenting any additional evidence of their qualifications.

Curriculum

Revised requirements for the communication studies major, effective beginning January 1995, are listed below. Students who enter the major on or after the first day of class in January 1995 must complete the new requirements. Students who entered the major prior to January 1995 may choose to fulfill the old requirements (see the 1992-94 General Catalog). Students who choose the old requirements must complete the major by December 1999.

Students who seek the Bachelor of Arts in communication studies must earn a minimum of 30 semester hours as described under “Media Studies and Film” and “Communication,” below. Students who seek teacher licensure must earn 33 semester hours as described under “Communication Education,” below. In all three of these undergraduate programs, all majors must complete at least one course each from any two of the four core areas—film, interpersonal communication, media studies, and rhetoric—as follows.

Film
36F:1 Introduction to Film Analysis 3 s.h.
36F:2 Survey of Film 3 s.h.

Interpersonal Communication
36C:60 Communication Theory in Everyday Life 3 s.h.

Media Studies
36M:25 Mass Media and Mass Society or 3 s.h.
36M:45 American Broadcasting 3 s.h.

Rhetoric
36C:70 Persuasion in Society or 3 s.h.
36C:80 Communication and Contemporary Culture 3 s.h.

Honors
A degree with honors in communication studies requires maintenance of a 3.20 grade-point average, membership in the University Honors Program, and completion of an honors thesis in the senior year. The honors thesis, which may be taken for 3-6 semester hours of credit over two semesters, offers a unique opportunity for students to develop expertise and contribute to knowledge in a selected area. As prerequisites to registering for thesis credit, candidates first must choose a faculty member to supervise the project, then have a prospectus for the project approved by that faculty member and the departmental honors adviser. The completed thesis is defended before a committee consisting of the faculty adviser, the departmental honors adviser, and one other faculty member.

Students who enroll in the honors program are eligible to take courses labeled “honors only” in the Schedule of Courses and to add an Honors designation to any other departmental course by providing instructions are available from the honors adviser.

Minor
A minor in communication studies requires 15 semester hours of credit in communication studies, with a minimum grade-point average of 2.00 earned in those courses. Of the 15 semester hours, at least 12 must be in University of Iowa courses numbered 36C:60, 36 D:60, 36F:60, or 36M:60 and above. Students must maintain a 2.50 cumulative grade-point average for courses taken toward the minor.

Graduate Programs

Master of Arts
A student can earn a general M.A. in the department or a more specialized degree in one of the programs.

Departmental requirements for the Master of Arts degree are
- a minimum of 30 semester hours, including 36:300 Introduction to Research and at least two courses numbered 200 or above (the requirements for some programs in the department are greater than this minimum);
- a research thesis or, for the nonthesis degree, a graduate seminar paper involving significant original research;
- successful completion of a six-hour written examination, the scope of which is determined by the candidate’s division and graduate committee; and
- at least a 3.00 cumulative grade-point average for all courses in the plan of study.

Applicants for summer session or fall semester whose papers are received in the department by February 1 have the best chance for admission and financial aid. The minimum cumulative undergraduate grade-point average required for admission in good standing is 2.75.

Doctor of Philosophy

Departmental requirements for the Doctor of Philosophy are
- a minimum of 72 semester hours of graduate credit, not including dissertation and courses required for a research skill;
- a minimum of 10 semester hours of dissertation credit;
- 36:300 Introduction to Research;
- successful completion of a qualifying and a predoctoral fellowship in the student’s major research areas;
- a substantial dissertation; and
- a 3.00 minimum cumulative grade-point average for all courses in the plan of study.

Individual Ph.D. programs have additional requirements. Contact the department for additional information.

Applicants for summer session and fall semester whose papers are received in the department by February 1 have the best chance for admission and financial aid. Admission decisions are based on composite consideration of the applicant’s undergraduate achievement, letters of reference, Graduate Record Examination (GRE) General Test results, a statement of purpose, and samples of scholarly work.
Program Areas

Communication

Undergraduate Program
Within a liberal arts philosophy, students in the general communication program study oral, written, and electronic messages and media and their environments, from theoretical, critical, historical, and social-scientific perspectives. Students also improve their analytical and practical communication skills through critiqued practice. Combined with related work in mass communication, social sciences, expository prose, journalism, and business (especially marketing and administration), this specialization prepares students for careers in business, not-for-profit organizations, the media industries, and government. Others use the specialization as professional preparation for advanced studies in teaching, law, business, and the ministry, and for graduate studies.

To graduate in the communication program, students must complete 30 semester hours of work in the department, including the following.

Two courses from different core areas of film, interpersonal communication, media studies, and rhetoric 6 s.h.

At least four additional 36C courses, including at least three numbered above 36C:80 12 s.h.

Any additional 12 semester hours of departmental course work approved by an adviser 12 s.h.

The department sponsors an internship program that provides outside work experience and an active intercollegiate forensics program, the Iowa Forensics Union, located in the International Center. Internships provide opportunities to apply communication knowledge and skills in a variety of settings, such as advertising, public relations, organizational development, politics, personnel, research, and training. In the forensics program, students have an opportunity to work in on-campus debates, with developmental programs designed to improve speech activities in the state, and as members of competitive intercollegiate debate and individual events. Forensics scholarships are available.

Communication Education

Undergraduate Program
The communication teaching specialization requires a minimum of 33 semester hours of course work. Students must take two courses from among the four core areas: four state-required courses; one theatre arts course; and any other communication studies courses, with the approval of a communication education adviser.

To strengthen both their major and their employment opportunities, students are advised to complete a teaching minor in English, reading, or other related fields, and to accumulate a record of achievement in

Teaching Minor Licensure in Communication Studies
Completion of 23 semester hours of course work in communication and theatre arts is required. These hours must be approved by an adviser.

Graduate Program
The M.A. in Communication Education is designed to prepare teachers and supervisors of speech communication for secondary and postsecondary positions. It requires a minimum of 30 semester hours of course work approved by the department.

Media Studies and Film

Undergraduate Program
This program is intended for students interested in film or electronic media as the focus of a general liberal arts education. It assumes that anyone pursuing a career in these areas should not only acquire technical expertise but also should ground that expertise in an understanding of mass media’s place in personal and cultural experience. Conversely, it assumes that no one can understand the history, theory, and criticism of the electronic or film media totally apart from experience and knowledge of production. As study areas, theories of aesthetics, culture, and communication all come together in this program, making it an excellent choice for those who want to study people and their mediated creations.

Students emphasizing production learn to write, plan, shoot, edit, and present film, audio, and television programs. In addition, students obtain a background in the history of the mass media so that they understand reasons for the industry’s present state and possible alternatives. A grounding in media theory and criticism teaches students to appreciate what goes into creating a successful work and to understand the impact that creative and economic/political decisions may have on audiences and society at large.

To graduate with an emphasis in media studies and film, students must complete 30 semester hours in the department, including the following.

Two courses from different course areas of film, interpersonal communication, media studies, and rhetoric 6 s.h.

36M:35 Introduction to Media Production 3 s.h.

At least three advanced courses (numbered above 36 D:60, 36 F:50, 36M:60) in the following subtracks: media studies, film studies, or production studies 9 s.h.

Any additional 12 semester hours of departmental course work approved by an adviser 12 s.h.

Graduate Programs

MEDIA STUDIES
The graduate program in media studies leads to the M.A. or Ph.D. degree. Its central focus is understanding the modern media—radio, television, and associated electronic media, along with other significant forms, such as advertising and popular music—within their historical, social, political, economic, and cultural contexts.

The program has a strong theoretical emphasis. Students are encouraged to develop expertise in critical, cultural, sociological, anthropological, or other social-scientific or philosophical theories.

Plans of study are tailored individually for students. They may cut across all other programs within the department—including rhetorical studies, film studies, communication research, and production studies—as well as other academic units of the University, such as School of Journalism and Mass Communication, the Departments of History, Sociology, English, and Comparative Literature, and the College of Law.

FILM STUDIES
The graduate program in film studies leads to an M.A. or Ph.D. Candidates concentrate on theoretical, critical, and historical aspects of the discipline.

M.F.A. IN FILM VIDEO PRODUCTION
Requirements for the Master of Fine Arts in Film and Video Production are as follows.

Students must earn a minimum of 54 hours of graduate credit, including

36:300 Introduction to Research Two 200-level courses in either Media Theory or Film Theory 36D:640 Colloquium in Film and Video Production (4 semesters) Two 100 level courses outside the department Three 100-level Production courses 36D:201 Advanced Media Production Workshop After successful completion of a written comprehensive examination and after passing a clearance review of creative work, students begin a final, year-long thesis project course, 36 D:325 Master of Fine Arts Thesis.

Rhetorical Studies

Graduate Programs
The program in rhetorical studies leads either to the M.A. or the Ph.D. It is built on foundation courses in the history of rhetorical practices, the criticism of rhetorical discourse, and theoretical relationships between rhetorical activities and other dimensions of society. Some foundation courses in history and criticism are offered on the 100 level and are listed under “Communication” in this section of the Catalog. Others begin at the 200 level. Foundation courses in rhetorical theory, designed to survey bodies of academic writing about rhetoric, are offered at the 300 level. Advanced courses in special areas of rhetorical theory are offered at the 400 level. Proseminars (500 level) and seminars (600 level) allow
students to develop expertise in various historical, critical, and theoretical approaches to rhetoric and communication.

MASTER OF ARTS

The M.A. program in rhetorical studies stresses basic knowledge of rhetorical history, criticism, and theory. That goal usually is met by work in the division and in other parts of the department and University. The degree is intended to build a strong foundation for teaching in high schools and junior colleges or for proceeding to the doctorate. Efforts are made to tailor individual programs of study to students’ needs and career goals.

Minimal requirements for the M.A. in rhetorical studies include

36:300 Introduction to Research;
- at least 15 semester hours of courses in rhetorical studies, including a seminar (any course numbered 500 or above);
- at least 6 semester hours of courses in other program areas of this or related departments; and
- a comprehensive examination across three areas of study determined by students and their committees.

DOCTOR OF PHILOSOPHY

The program leading to the Ph.D. in rhetorical studies is designed to give candidates a mature grasp of the various specialties and perspectives embraced in this division and to develop research competence essential to a life of productive scholarship.

Work in related departments-political science, history, sociology, English, comparative literature, anthropology, American studies, and journalism-complements rhetorical studies course offerings. Many doctoral students also do extensive work in media studies, film, or communication research to improve their range of teaching opportunities and their research skills.

Persons who want information on basic requirements should write to the department. Teaching and research assistantships are available; evaluation of these applications begins mid-February each year.

Communication Research

The program in communication research leads to the Ph.D., although candidates for the M.A. also may be admitted when faculty resources allow. Programs designed for individual students provide background for and experience in research on interpersonal communication or group communication from a social science perspective, with special emphasis on group decision making or relational communication. Students are encouraged to develop skills in both qualitative and quantitative methods of studying communication between persons in face-to-face interaction. Students are expected to develop and practice their research skills during the entire course of study, and they are strongly supported in their efforts to develop an independent, or collaborative, line of research under faculty guidance. Special research labs are dedicated to the conduct of work in the social sciences and equipped for such a purpose. In addition to general departmental requirements, students study related social sciences and select appropriate courses from within and outside the department, in consultation with an adviser and a committee.

Institute for Cinema and Culture

The Institute for Cinema and Culture serves as a bank of information concerning availability of films and film materials for faculty and students. It helps departments, faculty members, and student groups bring to campus films and speakers that attract an interdisciplinary audience.

Each semester the institute sponsors a symposium and related film series on topics that alternate between general aesthetic or theoretic interest and those focusing on a specific culture or moment. The Proseminar in Cinema and Culture (36F.112, 48.112) gives undergraduates and graduate students an opportunity to prepare for the symposiums through weekly readings and screenings.

Facilities

The Samuel L. Becker Communication Studies Building is designed specifically to meet both research and technical needs. Included are two television studios, a complete video postproduction facility, a film sound stage, a scene shop, areas for animation and graphics production, a radio studio, and an advanced 24-track audio studio that serves the needs of courses throughout the program. A large pool of equipment is available to support student work in both studio and location settings. Students and scholars have access to a video and film library, individual viewing areas, a lab complex for experimental and survey research, and computers for research efforts. The Samuel L. Becker Communication Studies Building is one of the best facilities of its kind in higher education.

Courses

General

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>36:97</td>
<td>Senior Seminar</td>
<td>3 s.h.</td>
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<tr>
<td>36:98</td>
<td>Honors Colloquium</td>
<td>1 s.h.</td>
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<tr>
<td>36:99</td>
<td>Honors in Communication Studies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>36:149</td>
<td>Problems in Communication Studies</td>
<td>Consent of instructor required. Prerequisite: 2.50 cumulative grade point average.</td>
</tr>
<tr>
<td>36:178</td>
<td>Workshop in Teaching Communication and Forensics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>36:249</td>
<td>Independent Study</td>
<td>1 s.h.</td>
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36:300 Introduction to Research 1 s.h.

Communication studies as a field of scholarship, selection of research problems, methodology of research represented in the department, and bibliographic tools for scholarship in the field

36:326 Acquisition of Communication 3 s.h.

Theoretical conceptual and emergent issues involved in understanding stock of language and nonverbal systems of local behavior.

36:329 Interpersonal Communication with an Ethnographic Eye 3 s.h.

Processes of interpersonal communication examined using ethnographic approaches to dialogue, dialectics.

36:330 Family Communication 3 s.h.

Communication in families as interpersonal systems.

36:385 Master’s Thesis 3 s.h.

36:685 Ph.D. Dissertation 3 s.h.

Communication

A 2.50 cumulative grade-point average is required for enrollment in all courses except 36C:40 and 36 C:60. Additional prerequisites are listed in course descriptions.

36C:30 Communicating in Public 3 s.h.

Complex forms of informative, argumentative, persuasive speaking: analyzing, criticizing, speaking and writing.

36C:31 Group Communication 3 s.h.

Application of group problem solving techniques: leadership, group participation, projects in social decision action.

36C:32 Interpersonal Communication 3 s.h.

Informal social interaction between individuals, evaluation of students’ own interpersonal skills.

36C:33 Practicum in Debate 3 s.h.

Theory of interscholastic debate.

36C:34 Communication and Public Affairs 3 s.h.

Practice of informative and persuasive speaking, based on current public issues.

36C:35 Business and Professional Speaking 3 s.h.

Public communication in business, education, other professions; theory, guided practice.

36C:36 Elements of Debate 3 s.h.

Debate, debate procedures; teaching debate, directing an interscholastic debate program.

36C:37 Organizational Communication: Theory and Practice 3 s.h.

Major concepts, theories in organizations; communication processes within and between complexes; organization, application of organizational communication concepts, theories to actual organizational practices, functioning.

36C:38 Persuasive Communication 3 s.h.

Applications of persuasive communication; persuasive speaking; persuasive messages.

36C:40 Theory and Practice of Argument 4 s.h.

Public argument as practiced in law, social science, politics other arenas; oral argument; GER quantitative or formal reasoning. Prerequisite: completion of General Education Requirement in rhetoric.

36C:41 Interviewing 2-3 s.h.

Interviewing in business, education, other professions; theory, guided practice.

36C:42 Parliamentary procedure 1 s.h.

Rules of order for meetings of committees, clubs, organizations, making, debating motions from floor; presiding over parliamentary sessions.

36C:43 Organizational Leadership 2-3 s.h.

Focus on communication methods, motivation, parliamentary procedure.

36C:49 Undergraduate Research Practicum 3 s.h.

Application to everyday contexts, situations.

36C:59 Communication Internship 3 s.h.

Communication skills, knowledge in work assignments related to student’s academic and career interests, full or part time, on or off campus. Open only to communication majors. Consent of instructor required.
36C:60 Communication Theory in Everyday Life 3 s.h.
Theory, research on basic skills, processes in everyday communication. GER social sciences.

36C:70 Persuasion in Society 3 s.h.
Theories of public persuasion, types of persuasive campaigns and movements in society; rhetorical analysis of advertising, politics, social unrest.

36C:90 Communication and Contemporary Culture 3 s.h.
Sociocultural roles that govern contemporary communication practices; methods for analyzing settings of discourse, communicative habits in conversational games, print and electronic media, politics.

36C:285 Communication and Conflict 3 s.h.
Implications of communication theories, conflict theories; applications to everyday life.

36C:87 Gender Roles and Communication 3 s.h.
Gender roles and communication processes; function of communication in gender role development. Same as 131-137.

36C:90 Rhetoric and Politics 3 s.h.
Rhetoric of campaigns at national, state, local levels; discussions with candidates, media representatives, individual investigations.

36C:91 Topics in Communication 3 s.h.
Topics vary.

36C:93 Intercultural Communication 3 s.h.
Relationships among culture based assumptions, values, thought patterns, communication behavior; theory and practice. Same as 42:93.

36C:96 Oratory 3 s.h.
Composition of formal speeches for public presentation.

36C:110 Theories of Human Communication 3 s.h.
Symbolic interaction as evidenced by theorists such as Plato, Aristotle, Augustine, Bacon, Carlyle, Campbell, Richards, Burke, McCluhan, Goffman, Wajcman.

36C:2125 Theories of Persuasion 3 s.h.
Focus on persuasion processes.

36C:130 Introduction to Rhetorical Criticism 3 s.h.
Rhetorical discourses, situations.

36C:133 Rhetoric of Utopias 3 s.h.
Same as 10:133.

36C:134 Contemporary Public Communication 3 s.h.
American public communication since World War II.

36C:135 American Public Communication 3 s.h.
History of American public communication from various periods.

36C:136 Organizational Communication Processes 3 s.h.
Communication in organizations; information flow and processing communication networks, role relationships, decision making in formal organizations.

36C:138 The Rhetoric of Self-Justification 2-3 s.h.
Strategies used by persons charged with personal and public shortcomings; case studies from Defendants through contemporary American politicians.

36C:139 Studies in Argument 3 s.h.

36C:140 Communication and Relationships 3 s.h.
Communication issues that come to play as relationships are established, developed, maintained, dissolved.

36C:141 Group Communication Processes 3 s.h.
Group problem solving techniques; leadership and group participation; projects in social decision and action.

36C:142 Interpersonal Communication Processes 3 s.h.
Informal/social interaction; theory, research.

Communication Education
36L:107 Directing Forensic Activities 3 s.h.
Planning, organizing, evaluating forensic programs at secondary level; establishment of curricular forensic programs, preparation for teaching competitive activities, justification of cocurricular programs in secondary schools. Prerequisite: 2.50 cumulative grade point average. Same as 76:100.

36L:160 Methods: Communication 3 s.h.
Patterns in teaching, curricular programs, objectives, instructional methods and materials, effects of oral and written criticism and evaluation, testing and grading tests and references, periodicals and sources of publications; contemporary communication education; theory, research.

Communication Research
36L:250 Colloquium: Teaching Rhetoric 3 s.h.
Exploration of literature and problems related to teaching composition, public speaking, reading. Same as 8P-450, 10:350.

Communication Research
36L:321 Organizational Communication: Theory and Research 3 s.h.
Major concepts, integration of communication theories, perspectives with organizational theories, perspectives.

36L:322 Group Communication: Theory and Research 3 s.h.
Major concepts, in small group communication; nature, function of communication processes in small group settings; theoretical framework for synthesis, critical evaluation of group communication research.

36L:323 Research Methods in Communication 3 s.h.
Design, execution, qualitative, quantitative, experimental, other methods; completion of a small project.

36L:324 Communication Research 3 s.h.
Review, analysis, execution from sociological perspective.

36L:325 Interpersonal Communication: Theory and Research 3 s.h.
Major viewpoints, approaches to communication theory and research on interpersonal, small group topics, interaction perspective.

36L:327 Persuasion Theory and Research 3 s.h.
Major historical and recent approaches to persuasion; emphasis on social scientific approaches; may include experimental approaches.

36L:328 Relational Communication: Theory and Research 3 s.h.
Communication in action, development, maintenance, breakdown, repair of social and personal relationships; open communication, self disclosure, communicative skills; process models of relationships.

36L:350 Research Practicum 3 s.h.
Individual projects.

36L:623 Seminar Ethnography and Diacritics in interpersonal Communication 3 s.h.

36L:630 seminar: Relational Communication 3 s.h.

36L:631 Seminar: Topics in Communication Research Topics vary.

36L:632 Seminar: Group Communication 3 s.h.

36L:633 Seminar: Rhetorical Communication Theory Construction 3 s.h.

36L:634 Seminar: Interpersonal Communication Theory 3 s.h.
Recent theoretical advances, research.

36L:635 Seminar: Organizational Communication Theory 3 s.h.
Recent theoretical advances, research. Same as 19:340.

36L:636 Seminar: Persuasion 3 s.h.
Recent theoretical advances, research.

36L:637 Seminar: Constructs, Communication and Identity 3 s.h.

36L:638 Seminar: Transformation and Change in Communication 3 s.h.

36L:639 Seminar: Conflict and communication 3 s.h.

36L:640 Seminar: Advanced Topics in Persuasion 3 s.h.

36L:641 Seminar: Culture and communication 3 s.h.

Media Studies
A 2.50 cumulative grade-point average is required for enrollment in all courses listed below, except 36M:125, 36F:2-3, 36F:21, and 36F:105. Additional prerequisites are listed in course descriptions.

36M:25 Mass Media and Mass Society 3 s.h.
Processes, effects of mass communication; how communication media operate in the United States; how mass communication scholars develop knowledge. GER social sciences.

36M:35 History of Broadcasting 3 s.h.
Structure, economics, programming of broadcasting media; broadcasting as a cultural and economic system.

36M:45 American Broadcasting 3 s.h.
Technology, finance, organization, regulation, programming of broadcasting and electronic media in the U.S.

36M:46 Broadcast Programming 3 s.h.
Programming practices, strategies, operating procedures of radio, television stations; audience research, program acquisition, scheduling, formats, Syndication, promotion. Prerequisite: 36M:45.

36M:47 Mass Communication Advertising 3 s.h.
Uses of mass media for advertising campaign design and consumer research, marketing strategies, media buying, copywriting, production, media comparisons. Prerequisite: 36M:45.

36M:48 Broadcast Management 3 s.h.
Budgeting, staff, audience research, programming, promotion, sales, labor relations, government regulation, community responsibility. Prerequisite: 36M:45.

36M:49 strong for Television and Radio Basic writing skills for broadcast media.

36M:51 Women and Media 3 s.h.
Representations of women; role of women in media organizations.

36M:59 Practicum its Broadcasting and Film internships in professional mass communication organizations. Major status and consent of instructor required.

36M:76 TV and Radio Documentary 3 s.h.
Topic varies; focuses on history, theory, or criticism.

36M:80 Mass Communication and American Democracy 3 s.h.
Philosophical foundations of American democracy; focus on contemporary issues of news, media and politics, technology, freedom of speech. Prerequisite: 36M:25 or 36M:45.

36M:81 Television Criticism 3 s.h.
Theory and practice; may focus on programs, genres, periods, structures, other issues. Prerequisite: 36M:25 or 36M:45.

36M:83 Media and Politics 3 s.h.
Media content; relationships between media industries, other institutions; political impact of contemporary media content on audiences, other institutions. Prerequisite: 36M:25 or 36M:45.

36M:85 Culture Approaches to Mass Communication 3 s.h.
Theories, methods of analyzing mass mediated artifacts, placing them in social context. Prerequisite: 36M:25 or 36M:45.

36M:86 The Production of Culture Organization, economics, technologies, work routines of the media, their influence on the culture they produce and distribute. Prerequisite: 36M:25 or 36M:45.

36M:90 Topics in Media Mass Communication 3 s.h.
Issues, problems, theories. Prerequisite: 36M:25 or 36M:45.

36M:95 Mass Communication: Processes and Effects 3 s.h.
Social scientific theories, research on processes, functions, impact of mass communication for individuals, societies. Prerequisite: 36M:25.

36M:130 Topics in History of Media 3 s.h.
Focus varies; history of electronic media, related communication systems. Prerequisite: 36M:35.

36M:132 Cultural History of U.S. Advertising 3 s.h.
Evolution of consumer culture in U.S. since late nineteenth century. Prerequisite: 36M:35.

36M:134 Topics: Cultural History of Advertising 3 s.h.
Focus varies; history of advertising as cultural, social, economic, or communication system. Prerequisite: 36M:35.

36M:136 Cultural History of Radio 3 s.h.
Evolution of radio as socio-cultural system. Prerequisite: 36M:35.

36M:138 Culture History of American Television 3 s.h.
Changing structure, content of U.S. television since World War II. Prerequisite: 36M:35.
36M:180 Communication Technologies and social change 3 s.h.
Theory of mass history of social changes wrought by invention, innovations in printing, telephony, broadcasting other media. Prerequisite: 36M:25 or 36M:35 or 36 M:45.

36M:181 Communication Technologies art. History 3 s.h.
How technologies have shaped societies, cultures, politics, art, people's lives. Prerequisite: 36M:25 or 36M:35 or 36M:45.

36M:182 Criticism of Broadcasting 3 s.h.
Theory, practice of media criticism; critical approaches; critical analyses of structure and content of radio, television. Prerequisite: 36M:25 or 36M:35 or 36M:45.

36M:183 Media Industries and Organizations 3 s.h.
Social-scientific theories and research on organization, economics of media work; impact on media content, performance. Prerequisite: 36M:45.

36M:186 Information Technology and the Organization 3 s.h.
Communication processes, management, job performance and satisfaction; organizations that depend on information technology, those that rely on information technology.

36M:187 Radio, Records, and Popular Music 3 s.h.
Representative topics from history, institutions, technologies, aesthetics, audiences, uses, effects of radio, records, and popular music. Prerequisite: 36M:35 or 36M:45.

36M:191 Philosophy of Media 3 s.h.
Twentieth-century media and philosophical background, research on media and society; may include media and democracy, the arts, children, society, consumer culture. Prerequisite: 36M:35 or 36M:35 or 36M:45.

36M:193 Mass Communication Research Methods 3 s.h.
Execution, evaluation of social-scientific communication, consumer research. Prerequisite: 36M:25.

36M:195 Contemporary Issues in Media Studies 2-3 s.h.
Issues involving electronic media.

36M:211 Approaches to Culture 3 s.h.
American theories on relationship between media, art, anthropology, art, media industries, culture.

36M:221 Media Criticism 3 s.h.
Focus on television, video.

36M:221 Theories of Mass Communication 3 s.h.
Major concepts, theories, schools of thought in study of media, mass communication.

36M:240 Women and Television in American Culture 3 s.h.
Relationships between women, television through feminist critical scholarship; cultural analysis. Same as 45:240, 131:240.

36M:303 Media Industry Systems 3 s.h.
Structure of mass communication, popular culture systems; economics, industrial organization, technology, institutionalization.

36M:305 Mass Communication and Politics 3 s.h.
Media and politics; elections; political aspects of news, entertainment; regulation and public policy.

36M:306 Mass Media and Social Change 3 s.h.
Use of mass media to instantiate social change; historical, political, technological, social origins; rationales.

36M:307 Mass Media and Public Opinion 3 s.h.
Public opinion, institutional forces shaping its definition; political uses, impact of public opinion; social-scientific; critical approaches to its study; role of mass media in shaping, reflecting public opinion in democratic systems.

36M:320 Levels of Mass Communication Theory 3 s.h.
Cognitive, social theories underlying mass media studies; problems of integrating communication theories involving individuals, the involving societies.

36M:330 Critical Approaches to Mass Communication 3 s.h.
Approaches by American, European scholars.

36M:335 Media and Modernity 3 s.h.
Mass media, historical changes and experiences called modernity; media in modern culture through social structures, cultural forms.

36M:340 History of Mass communication Theory 3 s.h.
Locke to LaZarfeld; intellectual, historical contexts; politics of theory, theory of politics.

36M:348 The Audience Experience 3 s.h.
Mass communication process from audience's point of view; spectatorship and source, texts as experienced, interpretation in communication, and communication pragmatic.

36M:349 Topics in Mass Communication Scholarship 1.3 s.h.
Theory, research on problems in mass communication.

36M:350 Communication and Community 3 s.h.
How they make each other possible, link each other; changing communication technologies affect community; how changing community structures affect communication.


36M:625 Seminar: Media History and Criticism Focus varies.

Film Studies

36F:171 [Introduction to Film Analysis] 3 s.h.
Methods; emphasis on classic narrative works from American, European traditions; shot by shot breakdown, narrative segmentation, genre. Same as 48:60.

36F:2 Survey of Film 3 s.h.
Film history, theory, criticism; emphasis on technique, technical, cultural function; screenings of narrative, documentary, experimental films. GER humanities.

36F:10 International Cinema 3 s.h.
Current American, foreign cinema; types, directors; relationships between movies and film industries; cultural contexts; the viewing experience.

36F:11 Films and Screenplays 3 s.h.
Introduction to the structure of films in a variety of formats, from narrative films examined with the aid of their scripts to promising screenplays that never reached the screen or die in altered form. Same as 8:11.

36F:12 Film and Society 3 s.h.
Social relationships between motion pictures and American culture, both historical and contemporary; censorship, treatment of social issues; representation of minorities in cinema, role of minority groups in filmmaking.

36F:20 US Film 3 s.h.
Examination of characteristic films across several decades as way of understanding the film industry and its social and artistic effects.

36F:21 European Film History 3 s.h.
Survey of German Expressionism, Soviet Constructivism, Italian Neorealism, the new German film; history of cinematic art in cultural, social, and political contexts. GER humanities.

36F:23 World Film 3 s.h.
Introduction to filmmaking and film culture in several countries or regions outside the United States and Europe; films from Africa, Asia, and Latin America in historical context. Same as 48:22.

36F:23 Documentary Film 3 s.h.
Historical survey of nonfiction film from documentary to cinema verite; impact of television on film.

36F:50 Introduction to Film Theory 3 s.h.
Language, art form, social expression; emphasis on major historical positions in classical film theory recent developments.

36F:51 Film Criticism 3 s.h.
Purposes, presuppositions, styles of film criticism, from journalistic to scholarly; theoretical positions related to concerns of film critics.

36F:52 Gender and Film 3 s.h.
Primarily surveys American films from 1920s to 1980s, centering on images of sexes and how images relate to society; theories of cinema and sexual differences. Same as 131:52.

36F:70 Styles and Genres 3 s.h.
Film genres, film criticism, American film creativity, etc.; validity of treating films in such groups.

36F:71 Film History 3 s.h.
History of film; French cinema, film analysis, relationship of film to process of understanding groups identified by gender, race, class, or ethnicity.

36F:111 Ethnic Approaches to Film 3 s.h.
Relation of film to process of understanding groups of peoples and foreign societies; anthropological films; place of cinema in the social sciences.

36F:120 Issues in Film Theory 3 s.h.
A theorist, approach, or problem in film. Recommended: knowledge of classical film theory.

36F:121 Representation and Social Divisions 3 s.h.
Impolc. of motion pictures in relation to groups identified by gender, race, class, or ethnicity.

36F:122 Film Aesthetics 3 s.h.
Specific aspects.

36F:126 Technology of Film/TV Production 3 s.h.
Specialized vocabulary, scientific principles applied to technical aspects of film, TV production.

36F:131 Film and Art Movements 3 s.h.
Relationship between cinema as various art movements.

36F:160 Film Styles and Genres 3 s.h.
Film genres, art, science fiction, Italian comedy, etc.; validity of treating films in such groups.

36F:161 Film Authors 3 s.h.
Work and vision of a single filmmaker or comparison of two or more filmmakers; film history, critical and analytic thinking about film. May be repeated.

36F:172 Narrative and The Cinema 3 s.h.
Narrative theory, application to specific bodies of film, relations works in another medium; novel, theater, a plastic art, a performing art. Same as 8:172, 48:172.

36F:219 Studies in Film Production 2 s.h.

36F:250 Writing about Cinema 1-3 s.h.
Analysis, criticism of films, film literature.

36F:263 Advanced Film Theory 3 s.h.
Topic in recent film theory, such as postmodernism, feminism.

36F:276 Narrative Modes 3 s.h.
Same as 48:276.

36F:277 Cinema and Historiography 3 s.h.
Practices, problems of writing cinema history.

36F:300 American Film and American Culture 3 s.h.
Relationships between American film culture through a particular approach, period, subject Same as 45:300.

36F:303 Topics in Latin American Film 3 s.h.
Same as 36:38.
36F:305 Studies in Sound and Image 3 s.h.
Technology, style, theory of cinema sound and image.

36F:311 Influences on Film Production 2-3 s.h.
Influence and role of distribution.

36F:605 Seminar: National Cinema 1-4 s.h.
Emphasis varies; France, Great Britain, Italy, Sweden, Russia.

36F:610 Seminar: Film Aesthetics and Criticism 14 s.h.
Problem or theoretical position in film studies; such as French cinema criticism between the wars, Frankfurt School and popular culture, Russian formalism, Merleau Ponty and semiotics.

36F:615 Seminar: Film Theory 1-4 s.h.
Focus on organization of film theory; such as cinematic semiotics, psychoanalysis and cinema, feminist film theory, pedagogy of location/race difference.

36F:616 Seminar: Film History 1-4 s.h.
A period or topic; historical/philosophical, theoretical problems.

Production Studies

36D:35 Introduction to Media Production 3 s.h.
Selection of story, direction of shooting, multi-camera video store, and single camera video production; emphasis on formative principles for effective communication. Sophomore standing required. Same as 19:35.

36D:95 Radio Production I 3 s.h.
The studio as a production resource; projects may include live air checks, multitrack recording and mixing, tape editing. Prerequisite: 36 D:35.

36D:96 Television Production I 3 s.h.
Studio as a live production facility; interview/news show, demonstration, other forms of local station or cable operation. Prerequisite: 36 D:35.

36D:97 Film Production I 3 s.h.
Sixteen millimeter; camera operation, sound recording, editing; production of short nonfiction sound film. Prerequisite: 36 D:35.

36D:98 Electronic Field Production 3 s.h.
Single camera shooting on location, emphasis on videotape editing; exercises oriented to nonfiction forms. Prerequisite: 36 D:35.

36D:99 ScreenWriting 1-3 s.h.
Visualization, sequencing, dialog, preparation of treatment, screenplay for theatrical or television motion picture film; script problems.

36D:101 Radio Production II 3 s.h.
Focus on a particular mode of radio production; students produce several short radio projects in areas such as radio drama, comedy, documentary. Prerequisite: 36 D:95.

36D:102 Radio Production Workshop 3 s.h.
Independent creative work. Prerequisite: 36 D:95.

36D:111 Television Production: Selected Topics 3 s.h.
Emphasis on recent advances in television, including the post production; representative topics include experimental and musical driven forms. Prerequisite: 36 D:95.

36D:112 Television Production: Commercials 3 s.h.
Design, writing, directing, shooting, editing; production computer assisted on film assembly; students create three short commercials in the studio. Prerequisite: 36D:96.

36D:13 13 Television Production: Drama 3 s.h.
Students work in small teams to do writing, setting up, casting, rehearsing, directing editing of a large scale studio drama. Prerequisite: 36 D:96.

36D:118 Television Production 11 4 s.h.
Directing large scale, multi-camera studio productions; developing competent production teams for production management, design problems; blocking and shooting; post production work. Prerequisite: 36 D:96.

36D:121 Film Production: Selected Topics 4 s.h.
Focus on particular aspect of and/or 16mm documentary production; film projects in areas such as editing, experimental film, documentary. Prerequisite: 36 D:97.

36D:122 Film Production: Animation 4 s.h.
Projects in cell and experimental 16mm film animation or computervideo animation. Prerequisite: 36 D:95.

36D:123 Film Production: Cinematography 4 s.h.
Focus on image design in 16mm film production; short film projects revolving around the film stock, camera placement, set design. Prerequisite: 36 D:97.

36D:124 Film Production I 4 s.h.
Sixteen millimeter sync sound camera, camera operators and microphone, recording studio, soundstage crew exercises in lighting, sync sound shooting, editing, sound track building, recording techniques; production of short film with mixed sound track. Prerequisite: 36 D:97.

36D:131 Sound Design for Media Production 4 s.h.
Soundtracks for film and video, short projects in a multitrack recording studio revolving sound/image relationships. Prerequisite: 36D:97 and 36 D:98.

36D:132 Electronic Field Production II 3 s.h.
Single camera video production; student teams produce medium long video programming shot on location; forms may include fiction, documentary. Prerequisite: 36 D:98.

36D:141 Theory and Practice of Production 1-3 s.h.
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. May be repeated. Consent of instructor required.

36D:142 Issues in Film/Video Production 1-4 s.h.
Topics vary.

36D:150 Production Workshop 1-4 s.h.
Individual film or television; common problems, screenings of work in progress. Prerequisite: 36 D:97 or 36 D:98.

36D:201 Advanced Media Production Workshop 1-4 s.h.
Prerequisite: 36D:97 or 36 D:98.

36D:235 Master of Fine Arts Thesis 6 s.h.

36D:400 Colloquium in Film and Video Production 1-3 s.h.
Presentation of a theoretical work on film/video production; open only to production program graduate students.

Rhetorical Studies

36R:230 Rhetorical Criticism 3 s.h.
Approaches to rhetorical analysis of communicative acts, events; rhetorical critical essay writing.

36R:231 Greek and Roman Public Address 2-4 s.h.
Public orations and text with commentary on fifth to third centuries B.C. to third century A.D.; Sophists, Attic orators, Cicero, early church fathers.

36R:233 American Public Address 2-4 s.h.
Popular and political discourses in the United States, the American public address tradition.

36R:235 American Public Address: Colonial America Through Reconstruction 2-4 s.h.
Colonial through Reconstruction. Discourse in law courts, public gatherings, pamphlets, newspapers.

36R:236 American Public Address: Gilded Ages Through Vietnam 2-4 s.h.

36R:301 Classical Rhetoric 2-4 s.h.
Discourse in the ancient world. Same as 28:627.

36R:302 Modern Rhetoric 2-4 s.h.
Theory from 1765 to 1966. Same as 28:628.

36R:303 Rhetoric and Philosophy 2-4 s.h.
Contemporary philosophical approaches to study of rhetoric.

36R:304 Rhetoric and Social Theory 2-4 s.h.
Discourse theories on social consequences of signification, representation, symbolic action; emphasis on rhetoric, cultural studies, Ideological studies.

36R:305 Rhetoric and Argument Theory 2-4 s.h.
Approaches to study of argument, key issues in dispute in contemporary conceptualization of argument.

36R:306 Philosophies and Methods of Historical Research 2-4 s.h.
Problems, methods of researching original materials, work in archives, textual analysis, document, argument.

36R:403 Studies in Language Theory 2-4 s.h.
Semantics, speech acts, philosophy of language; emphasis on logic of language and rhetoric. Same as 36D:406.

36R:404 Ideology and Hegemony 2-4 s.h.
Marxist, post Marxist theories of relationship between communication and social control.

36R:405 Communication and Drama 4-5 s.h.
Theorists' ability in accounting for patterns of human communication.

36R:406 Studies in Political Communication 2-4 s.h.
Political communication theories; utilization in explaining operant of political discourse.

36R:501 Proseminar: Rhetoric/Culture in Antiquity 2-4 s.h.
Rhetorics, relationships to ancient society, culture.

36R:505 Proseminar: Rhetoric in India 2-4 s.h.
Academic discourse in special fields; function of rhetoric in establishing condition and criteria of truth.

36R:506 Proseminar: Contemporary Rhetorical Studies 2-4 s.h.
Problems in contemporary rhetorical studies; may include works of Kenneth Burke, Wayne Booth, deconstructionist feminist theorists and critics of communication technologies.


36R:601 Seminar: Public Address 1-4 s.h.
Speech criticism of discourse addressed to the public, periods, approaches.

36R:602 Seminar: History of Rhetoric Theory 1-4 s.h.
Rhetorical speculation; periods, approaches.

36R:603 Seminar: Argument 1-4 s.h.
Philosophers of argument, ethics logic, rhetorics, epistemologies.

36R:604 Seminar: Contemporary Rhetorical Theory 2-4 s.h.
Perspectives thereof and on theories dominating contemporary conceptual thought. Same as 110:904.

36R:605 Seminar: Communication, Culture, and the Popular Arts 2-4 s.h.
Theories; forms, genres of popular arts texts.

36R:607 Seminar: Rhetoric and Culture 1-4 s.h.
Cultural theories; utility in accounting for communication practices.
Undergraduate Program

The undergraduate major in comparative literature provides an individualized program of literary and interdisciplinary study designed to promote cultural awareness, to increase speaking and writing skills, and to develop capacities for systematic reasoning. Students majoring in comparative literature must acquire substantial training in foreign language, gain an international perspective on literature, and become acquainted with interdisciplinary approaches to cultural study. 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. It also offers excellent preparation for graduate work in the humanities.

The successful pursuit of comparative literature requires that students study one foreign language and literature in historical context. Familiarity with the literatures and cultures of other nations is afforded by theoretical inquiry into the nature of literature itself and by course work that investigates relations among various national literatures and between literature and other arts, such as film, painting, or translation. Course work in comparative literature also emphasizes interdisciplinary relations between literature and other areas of study, such as history, philosophy, linguistics, anthropology, law, and psychology.

Majors in comparative literature do not proceed through a specified prescribed common curriculum toward the B.A. degree. Working closely with faculty advisers, students develop coherent, individualized programs of study that reflect their own interests and developing skills. In addition to completing General Education Requirements for the B.A. degree, majors complete a minimum of 36 semester hours in courses distributed across three areas as follows.

**Comparative Literature**

Students should take the following courses, for a total of 21 semester hours.

- 48:40-41 Major Texts in World Literature I-II 6 s.h.
- 48:50 Non-Western Literary Traditions 3 s.h.
- 48:95 Undergraduate Seminar 3 s.h.
- 48:100 Introduction to Criticism and Theory 3 s.h.
- Elective comparative literature course work at the 100 level 6 s.h.

**Foreign Literature**

Students should take 9 semester hours of courses in one foreign literature, read in the original language, in addition to courses that satisfy the General Education Requirement in foreign language. One course in composition and conversation may count toward the major.

**Related Areas**

Students should take 6 semester hours of courses in a related area (e.g., English and American literature, film, linguistics, anthropology, philosophy, history) or courses in a second foreign literature.

Honors

To graduate with honors in Comparative Literature, students must meet eligibility standards listed in “Guide to Honors,” published by the University Honors Program. 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 adviser. Information is available from the Program in Comparative Literature office.

Minor

Students majoring in other disciplines may earn a minor by completing 15 semester hours of work in comparative literature, with a minimum grade-point average of 2.00. Of these 15 semester hours, at least 12 must be in University of Iowa courses numbered 48:95 and above.

Graduate Programs

**Master of Arts**

The Master of Arts degree in comparative literature requires 37 semester hours of course work. 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 advisers, students combine courses in comparative literature and in the individual allied departments to design a coherent program of study.

**Formal Degree Requirements**

Major degree requirements maybe satisfied by a written examination on reading lists agreed upon by students and their advisers, or by 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 Translation**

The M.F.A. in translation promotes creative performance and study of languages, literatures, criticism, and cultural history. The aim of the program is to encourage the practice of literary translation and to bring about greater awareness of its tradition, its contributions, and its possibilities. The Iowa Translation Workshop is the central course in the program.

Admission to the program is granted on the basis of a submitted portfolio, including translations into and original writing in English, as well as supporting evidence of competence. Degree requirements include a thesis—usually a book-length collection of poems or stories, or a short novel, translated out of the original language into English and accompanied by a critical introduction.

A total of 48 semester hours of graduate study is required, 24 of which must be taken at The University of Iowa. Besides workshop hours, course work includes study of the foreign literature(s), creative writing (stylistic, etc.), and criticism. Thus, M.F.A. students may expect to take courses in foreign language departments, the creative writing program, and the English department, as well as in comparative literature.

**Doctor of Philosophy**

Students seeking a doctorate in comparative literature 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 candidates 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.

Some typical critical and comparative areas are European Renaissance, romanticism, structuralism and poststructuralism, narrative theory in literature and film, symbolist poetics and modern literature, oral literature in antiquity and today, and satire, rhetoric, and the theory of social interaction.

The Ph.D. dissertation should demonstrate the candidate’s ability to write a substantial piece of scholarship or criticism. A translation of a work of sufficient significance and linguistic complexity, preceded by a critical introduction, may serve as an acceptable dissertation. The final oral examination centers on the dissertation and its background.

Admission

The study of literature across linguistic boundaries requires special 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 doctoral study.

Further information is available in the procedural guide for graduate students in comparative literature, available from the program office.

**Courses**

- 48:000 Cooperative Education Internship 0 s.h.
- 48:22 World Film 3 s.h.
- 48:40-41 Major Texts in World Literature I-II 3 s.h.
- 48:100 Introduction to Criticism and Theory 3 s.h.
- Elective comparative literature course work at the 100 level 6 s.h.

**Foreign Literature**

Students should take 9 semester hours of courses in one foreign literature, read in the original language, in addition to courses that satisfy the General Education Requirement in foreign language. One course in composition and conversation may count toward the major.

**Related Areas**

Students should take 6 semester hours of courses in a related area (e.g., English and American literature, film, linguistics, anthropology, philosophy, history) or courses in a second foreign literature.
48:60 Introduction to Film Analysis 3 s.h.
Methods of analyzing various kinds of films, with emphasis on "classic" narrative works from the American and European traditions; shot by shot breakdown, narrative segmentation, genre. Same as 36F: 1.

48:80 Introduction to Translation Studies 3 s.h.
Problems in translating prose, poetry, and drama; emphasis on literary translation. Same as BW:80.

48:81 Film and Literature 3 s.h.
Same as 8:81, 36F:81.

48:95 Undergraduate Seminar 3 s.h.
Senior seminar; focus on a significant text or critical problem; content reflects interests of faculty; individual research projects. Same as 8:95.

48:98 Honors Tutorial 3 s.h.

48:99 Individual Study 3 s.h.

48: 100 introduction to Criticism and Theory 3 s.h.
fundamental method course; critical approaches to the phenomenon of literature. Same as 8:100.

48: 106 European Literature of the Nineteenth Century
Interdisciplinary and national perspectives on literary movements, works, and authors before 1900. Same as 8:106.

48:10 Comparative Arts 3 s.h.
Cultural and aesthetic issues arising from the side-by-side investigation of several arc forms, including literature, cinema, painting, music, opera, and architecture; periods, schools, styles, and theories.

48:11 Cinema and Culture 3 s.h.
Films of one or more countries and periods; emphasis on interrogations among the arts, prevailing social conditions, and technologies reflected in films. Same as 36F:111.

48:12 Proseminar in Cinema and Culture 1-2 s.h.
Research and discussion of the Institute for Cinema and Culture symposium topic. Same as 36F:112.

48:13 Literary Genres in European Literature I 3 s.h.
How genre definitions contribute to the understanding of related literary works, may deal with one or more genres (epic, romance, comedy, historical novel). Same as 8:183.

48:15 Literary Genres in European Literature II 3 s.h.
Continuation of 48:113. Same as 8:126.

48:127 Contemporary Scene in Poetry 3 s.h.
Same as 8:127.

48:136 Philosophy of Literature 3 s.h.
Same as 26:136.

48:140 Contemporary Scene in Fiction 3 s.h.
Same as 8:140.

48:141 Chinese Literature: Poetry 3 s.h.
Same as 36:144.

48:142 Modern Japanese Fiction in Translation 3 s.h.
Same as 35:122.

48:150 Literature and Society 3 s.h.
Same as 8:179.

48:151 Literature and Anthropology 3 s.h.
Same as 8:151, 113:109.

48:153 Latin American Studies Seminar 3 s.h.

48:158 East-West Literary Relations 3 s.h.
Same as 36:158.

48:160 Cultural Identity in Caribbean Literature 3 s.h.
Same as 35:175.

48:163 Post-Colonial Literatures by Women 3 s.h.

48:167 Literature and Psychology 3 s.h.
Literary texts, themes, theory; emphasis on the interrelations of literary criticism, linguistics, psychology. Same as 8:175.

48:172 Narrative and the Cinema 3 s.h.
Same as 8:172, 36F:172.

48:177 Literature and Art 3 s.h.
Same as 8:177.

48:182 American Literature 3 s.h.
Immigration history, ethnic identities, contemporary American culture as represented in literary texts and films by American Americans. Same as 39:182.

48:190 Augustinian to Boccaccio 3 s.h.
Same as 8:190.

48:191 International Literature Today 1-3 s.h.
Same as 8:191.

48:193 Comparative Cultural Criticism 3 s.h.
Same as 8:193, 39:193.

48:194 Introducción to Feminist Criticism 3 s.h.
Same as 8:194, 131:194.

48:196 The Daring Ones: Cuban American Literature 3 s.h.
Experiences of Cuban styles in U.S.; emergence of a vital literature based on sense of dispossession, marginality, and memory of an island past. Prerequisite: 8:1 or equivalent. Same as 36:143.

48:199 Individual Study 3 s.h.
For advanced B.A. candidates with international and comparative literary projects, and for M.A. candidates in comparative literature. Same as 36F:199.

48:200 Comparative Approaches I Theory and methods of comparative literary studies; translation theory, comparative aesthetics, various theories of literature. 3 s.h.

48:211 Comparative Stylistics 3 s.h.
Same as 9:210.

48:217 Introduction to Contemporary Literary Theory 3 s.h.
Major currents in contemporary literary theory and how these theories construct the literary text: structuralism, semiotics, psychoanalytic Marxist, reader response, and Deconstructive criticism. Same as 26:277, 35:281.

48:219 Contemporary Translation Theory Survey 3 s.h.
Same as 89:219, 36:219.

48:233 Romantic Literature 3 s.h.
Same as 8:223.

48:241 Seminar in Chinese Literature 3 s.h.
Same as 8:241.

48:251 Critica Theory and the Non-West 3 s.h.
Relationship between critical theory and non-West: usefulness, relevance of critical theory for study of non-West; theories of modernity, imperialism, colonialism. Same as 39:251.

48:257 Renaissance Lyric 3 s.h.
Same as 8:257.

48:260 Translation Workshop 3 s.h.
Prerequisites: at least one classical or modern foreign language and consent of instructor. Same as BW:260.

48:261 History of Criticism: Plato to 1700 3 s.h.
Theory of literature; emphasis on philosophical implications of literary theory from classical antiquity through the Renaissance. Same as 8:261, 14:261, 45:261.

48:262 History of Criticism: 1700-Present 3 s.h.
Theory of literature from neoclassicism to contemporary critical movements. Same as 8:262, 49:262.

48:263 Issues in Contemporary Literary Criticism 3 s.h.
Same as 8:263.

48:264 Literature and Psychoanalytic Theory 3 s.h.
Major psychoanalytic theories and their critical application to literary works; readings include literary works, literary analyses by psychoanalysts, psychoanalytic analyses by literary critics. Same as 8:264.

48:265 Feminist Criticism 3 s.h.
Same as 8:265, 39:265.

48:266 Eighteenth-Century Literature 3 s.h.
Same as 8:214.

48:276 Narrative Modes 3 s.h.
Same as 8:265, 36:276.

48:284 Types of Modern Criticism 3 s.h.
Selected topics in recent European and American criticism. Same as 8:284, 35:284.

48:285 Vernacular Narrative 13-17th Centuries 3 s.h.
Reading in fourteenth through seventeenth century vernacular texts from the traditions of Europe and Asia; emphasis on literary, sociocomic, and socioeconomic contexts in which vernacular narrative was produced. Same as 39:285.

48:314 Postmodern Studies 3 s.h.
Same as 8:314.

48:382 Literary Genres and Modes 3 s.h.
Same as 8:382.

48:402 Seminar: Medieval Literature 3 s.h.
Same as 8:402.

48:407 Seminar: Renaissance Literature 3 s.h.
Same as 8:407.

48:409 Special Projects 3 s.h.
For doctoral candidates.

48:410 Thesis 3 s.h.

48:417 Marxism, science, and Chaos Theory 1 s.h.
A Marxist understanding of science developed through group reading and discussion, usefulness of chaos theory for Marxist political and social sciences. Consent of instructor required. Prerequisite: one graduate level course in Aesthetical theory, post-Aesthetic theory, or analytic materialism.

48:455 Seminar Post-Colonial Studies 3 s.h.
Same as 8:455.

48:460 Seminar: Problems in Aesthetics and Literary Theory 3 s.h.
Same as 8:460.

48:461 Seminar: Problems in Critical Theory 3 s.h.
Same as 8:461.

48:470 Brazilian and Spanish American Literature 3 s.h.
Same as 35:313, 38:300.

48:471 Seminar: Literature and Other Arts 3 s.h.

### Computer Science

Chair: Joseph Kearney

Professors: Donald Alton, Robert J. Baron, Donald Epley, Arthur Fleck, Greg Oden, Floriant Potra, Ted Rus

Associate professors: Steven Bruehl, David A. Forsyth, Sukumar Ghosh, Douglas Jones, Joseph Kearney

Adjunct associate professor: William Decker

Assistant professors: Maria. Paola Bonacina, James Cremer, Mahesh Dodani, Margaret Fleck, Ted Herman, Kenneth Stienneger, Huan Zhang

Undergraduate degrees: B.A., B.S. in Computer Science; minor in Computer Science

Graduate degrees: M.S., Ph.D. in Computer Science

### Undergraduate Programs

Computers have changed the world and will be one of the dominant forces in the future. Students need to be proficient in today’s ideas and technology and at the same time be broadly prepared to confront tomorrow’s challenges.

Undergraduates majoring in computer science develop competence in programming principles and methodologies, problem solving techniques, mathematics, and computer systems.

The B.S. program provides more intensive concentration in computer science and greater emphasis in science and mathematics than does the B.A. program. Students interested in pursuing graduate work in computer science should seek the B.S. degree. The B.A. program requires fewer courses in computer science and mathematics thus providing for a wider choice of electives.

Majors should consult the department’s Computer Science Undergraduate Handbook available in the MacLean Hall Library, the Division of Mathematical Sciences office, or the
Undergraduate Academic Advising Center. The handbook details department policies, suggests possible elective areas, and discusses the Cooperative Education Program and student groups such as the University's chapter of the Association for Computing Machinery. Students may declare the B.A. in computer science at any time on or after admission to the University. Students who are enrolled in the B.A. program but who may wish to switch to the B.S. program should choose their Natural Science GER courses carefully; see "Natural Science Sequences." Students who are being advised at the advising center may avail themselves of walk-in/call in hours offered by computer science faculty.

Advanced Placement

The Computer Science Advanced Placement test can be used to gain credit for 22C 16 and or 22C 17. See the Computer Science Undergraduate Handbook for more details.

Bachelor of Arts

The General Education Requirements for this degree are stated in the College of Liberal Arts section of the Catalog. Courses that satisfy General Education Requirements, if chosen carefully, may also satisfy the departmental natural science sequence requirement as described below. Students complete all department requirements for the B.A. In addition, they meet the following three requirements:

1. completion of one of these: 22M:72 Elementary Numerical Analysis, 22S:120 Probability and Statistics, 22S:39 Probability and Statistics for the Engineering and Physical Sciences, or another probability and statistics course with a calculus prerequisite, as approved by the computer science advisor (if repeated, may be counted only once as an advanced course)
2. completion of a natural science sequence acceptable toward a major in that science; approved sequences are listed under "Natural Science Sequences," below; and
3. completion of two advanced courses selected from the following list.

**ADVANCED COURSES**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>22C:51</td>
<td>Computer Graphics</td>
<td>3</td>
</tr>
<tr>
<td>22C:55</td>
<td>Elementary Numerical Analysis</td>
<td>3</td>
</tr>
<tr>
<td>22C:96</td>
<td>Topics in Computer Science</td>
<td>arr.</td>
</tr>
<tr>
<td>22C:99</td>
<td>Honors in Computer Science (may be counted</td>
<td>arr.</td>
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<tr>
<td></td>
<td>only once as an advanced course)</td>
<td></td>
</tr>
<tr>
<td>22 C:116</td>
<td>Advanced Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>22 C:122</td>
<td>Advanced Computer Organization and Architecture</td>
<td>3</td>
</tr>
</tbody>
</table>

For the B.A., the following computer science core courses are required.

- 22M:25 Calculus I 4 s.h.
- 22M:35 Engineering Calculus I 4 s.h.
- 22M:45 Accelerated Calculus I 4 s.h.
- 22M:26 Calculus II 4 s.h.
- 22M:36 Engineering Calculus II 4 s.h.
- 22M:4C Accelerated Calculus II 4 s.h.

Students may apply for admission to the B.S. program after completing the four courses if they have achieved:

- a grade-point average of at least 2.46 in the four required courses, and a grade no lower than C- in each; and
- an overall grade-point average of at least 2.00.

Transfer students who have taken a course approved as equivalent to one of the computer science courses are exempt from that course provided the transfer grade is at least a B-. Such transfer grades are used in computing the computer science grade-point average.

Application to the B.S. program is made at the department office. After admission to the major, students need to maintain a grade-point average of 2.00 or higher in the courses required for the B.A. or B.S. in computer science (see "Bachelor of Arts" and "Bachelor of Science") in order to remain in the major and to receive the B.A. or B.S. in computer science. Computer science students are advised by the Undergraduate Academic Advising Center until they have completed 22C 17 and 30 semester hours of course work (including transfer credit), at which time they are assigned a computer science faculty member as adviser. Students who are being advised at the advising center may avail themselves of walk-in/call in hours offered by computer science faculty.

Bachelor of Science

The General Education Requirements for this degree are stated in the College of Liberal Arts section of the Catalog. Courses that satisfy General Education Requirements, if chosen carefully, may also satisfy the departmental natural science sequence requirement as described below. Students complete all department requirements for the B.A. In addition, they meet the following three requirements:

1. completion of one of these: 22M:72 Elementary Numerical Analysis, 22S:120 Probability and Statistics, 22S:39 Probability and Statistics for the Engineering and Physical Sciences, or another probability and statistics course with a calculus prerequisite, as approved by the computer science advisor (if repeated, may be counted only once as an advanced course)
2. completion of a natural science sequence acceptable toward a major in that science; approved sequences are listed under "Natural Science Sequences," below; and
3. completion of two advanced courses selected from the following list.

**ADVANCED COURSES**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>22C:123</td>
<td>Programming Language Foundations</td>
<td>3</td>
</tr>
<tr>
<td>22C:125</td>
<td>Data Abstractions, Types, and Structures</td>
<td>3</td>
</tr>
<tr>
<td>22 C:127</td>
<td>Introduction to Compiler Construction</td>
<td>3</td>
</tr>
<tr>
<td>22 C:132</td>
<td>Parallel Programming</td>
<td>3</td>
</tr>
<tr>
<td>22 C:135</td>
<td>Introduction to Computation Theory</td>
<td>3</td>
</tr>
<tr>
<td>22 C:144</td>
<td>Database Management Systems</td>
<td>3</td>
</tr>
<tr>
<td>22 C:145</td>
<td>Artificial Intelligence I</td>
<td>3</td>
</tr>
<tr>
<td>22 C:153</td>
<td>Design and Analysis of Algorithms I</td>
<td>3</td>
</tr>
<tr>
<td>22C:160</td>
<td>Geometric and Physical Modeling I</td>
<td>3</td>
</tr>
<tr>
<td>22 C:161</td>
<td>Robotics I</td>
<td>3</td>
</tr>
<tr>
<td>22 C:162</td>
<td>Computer Vision I</td>
<td>3</td>
</tr>
<tr>
<td>22 C:167</td>
<td>Theory of Graphs</td>
<td>3</td>
</tr>
<tr>
<td>22 C:178</td>
<td>Computer Communications</td>
<td>3</td>
</tr>
<tr>
<td>22 C:180</td>
<td>Fundamentals of Software Engineering</td>
<td>3</td>
</tr>
<tr>
<td>22 C:181</td>
<td>Formal Methods in Software Engineering</td>
<td>3</td>
</tr>
<tr>
<td>22 C:182</td>
<td>Software Engineering Project</td>
<td>3</td>
</tr>
<tr>
<td>22 C:183</td>
<td>Software Engineering Project</td>
<td>3</td>
</tr>
<tr>
<td>22 C:193</td>
<td>Topics in Programming Languages</td>
<td>3</td>
</tr>
<tr>
<td>22 C:194</td>
<td>Topics in Systems and Networks</td>
<td>arr.</td>
</tr>
<tr>
<td>22 C:195</td>
<td>Topics in Software Engineering</td>
<td>arr.</td>
</tr>
<tr>
<td>22 C:196</td>
<td>Topics in Computer Science (if repeated,</td>
<td>arr.</td>
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<td></td>
<td>may be counted only once as an advanced</td>
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<tr>
<td></td>
<td>course)</td>
<td></td>
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<tr>
<td>22 C:198</td>
<td>Individual Programming Projects (if repeated,</td>
<td>arr.</td>
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<tr>
<td></td>
<td>may be counted only once as an advanced</td>
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</tr>
<tr>
<td></td>
<td>course)</td>
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</tr>
<tr>
<td>22 M:170</td>
<td>Numerical Analysis: Nonlinear Equations</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>and Approximation Theory</td>
<td></td>
</tr>
<tr>
<td>22M:171</td>
<td>Numerical Analysis: Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>and Linear Algebra</td>
<td></td>
</tr>
<tr>
<td>22M:174</td>
<td>Optimization Techniques</td>
<td>3</td>
</tr>
<tr>
<td>22 M:176</td>
<td>Topics in the Numerical Solution of Partial</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Differential Equations</td>
<td></td>
</tr>
</tbody>
</table>

These courses cannot be taken pass/nonpass. Students with certain special elective programs may petition for additional courses to be accepted for this requirement.

NATURAL SCIENCE SEQUENCES

For the B.S., students take two or more courses in a sequence required of majors in a chosen area of natural science. The first course must be a prerequisite or corequisite to the second. This study is intended to enhance the student’s perspective by providing a deeper understanding of the scientific method. It is typical, but not required, that these courses be taken in the same science department. This cognate sequence must total at least 8 semester hours except for the biology/chemistry sequence listed below. Students often choose courses that also will satisfy the natural sciences General Education Requirement. Some possible choices are listed below; the computer science adviser 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
- 29:61 General Astronomy GER lab 4 s.h.
- 29:62 General Astronomy GER lab 4 s.h.

### Biology/Chemistry
- 4:13 Principles of Chemistry I GER 3 s.h.
- 2:10 Principles of Biology I GER lab 4 s.h.

### Botany
- 2:1 Introduction to Botany GER lab 4 s.h.
- 2:100 Land Plants: An Evolutionary Survey (not a natural sciences GER 4 s.h.

### Chemistry
- 4:13 Principles of Chemistry I GER 3 s.h.
- 4:14 Principles of Chemistry II GER 3 s.h.
- 4:16 Principles of Chemistry Lab I GER lab 2 s.h.

### Physics
- 29:17 Introductory Physics I GER lab 4 s.h.
- 29:18 Introductory Physics II GER lab 4 s.h.

### Honors

Any University of Iowa student with a cumulative grade-point average of 3.20 or higher may join the University Honors Program; interested students should contact the honors program office in the Shambaugh House Honors Center.

To graduate with honors in computer science, students must complete 4-6 semester hours of 22C:99 Honors in Computer Science and submit an acceptable honors thesis. (The course 22C:99 can count as one but not both of the two advanced courses for the B. S.) To take 22 C:99, students obtain the consent of a computer science faculty member. The faculty member must know the nature of the intended project for the honors thesis and a plan or timetable for the work. Students are responsible for finding a faculty member willing to supervise their honors project. See the Computer Science Undergraduate Handbook for details.

### Minor

The minor in computer science requires a minimum of 15 semester hours of computer science courses, at least 12 of which must be taken in advanced University of Iowa course work. For the purpose of the minor only, the following courses are considered advanced:
- 22C:9, 22C:10, 22C:12, and 22 C-prefix courses numbered higher than 22C:16, excluding 22C:100-22C:112.

Typical course sequences for the minor are as follows:
- 22C:9, 22 C:10, 22C 12, 22C 16, and 22C 17
- 22C 16, 22 C:17, 22 C:18, 22C 19, and 22C:21
- 22 C:10, 22 C:12, 22 C:16, 22 C:17, and 22C:18
- 22:10, 22 C:16, 22C 17, 22C 18, and 22C 19

### Graduate Programs

#### Master of Science

**Applications for admission to the M.S. program in computer science usually are required to have a background equivalent to a B.A. or B.S. in computer science. In special cases, students lacking adequate undergraduate preparation may be admitted conditionally to the graduate program. In such cases, the student is required to complete specific courses before enrolling in graduate courses. All candidates for the M.S. in computer science must complete the following core courses with grades of B- or higher.**

- **22C 116 Advanced Operating Systems** 3 s.h.
- **22C 122 Advanced Computer Organization and Architecture** 3 s.h.
- **22C 123 Programming Language Foundations** 3 s.h.
- **22C 135 Introduction to Computation Theory** 3 s.h.
- A 200-level 22C course 3 s.h.
- Three additional graduate-level 22C courses (except software engineering subtrack students) 9 s.h.
- Approved elective courses (except software engineering subtrack students) 6 s.h.

**Total** 30 s.h.

Elective courses are selected to support the student’s career objectives and must be approved by the adviser.

Computer science courses should be selected according to students’ special area interests, but they also should provide a broad range of experience and competence in computer science. In particular, some experience with projects involving extensive programming should be included.

M.S. candidates may elect to write a thesis, and with their adviser’s consent may apply up to 9 semester hours of thesis credit toward the minimum total of 30 semester hours of credit required for the M.S.

The M.S. final examination consists of either an oral defense of the thesis or a written report in the style of a professional paper, plus public presentation of an independently performed study. The topic, chosen by the student as an extension of his or her program, is approved by the department’s graduate committee. Consult the Computer Science Graduate Handbook for more information.

#### Software Engineering Subtrack

M.S. candidates may elect the software engineering subtrack, offered jointly with the Department of Electrical and Computer Engineering. Subtrack students must satisfy the following requirements.

- **22C 180 Fundamentals of Software Engineering** 3 s.h.
- **22C 181 Formal Methods in Software Engineering** 3 s.h.
- **22C 182 Software Engineering Project I** 3 s.h.
- **22C 183 Software Engineering Project II** 3 s.h.

Students who elect the software engineering subtrack follow the nonthesis option.

#### Doctor of Philosophy

Doctoral students are required to complete at least 72 semester hours of graduate work, including a thesis. Students need not have a master’s degree to begin the Ph.D. program, and they need not acquire one in order to be eligible for the Ph.D. Course requirements or equivalent proficiency for the doctorate include the following.

- **22C 116 Advanced Operating Systems** 3 s.h.
- **22C 122 Advanced Computer Organization and Architecture** 3 s.h.
- **22C 123 Programming Language Foundations** 3 s.h.
- **22C 135 Introduction to Computation Theory** 3 s.h.
- **22C 153 Design and Analysis of Algorithms I** 3 s.h.

Students also must complete at least 18 semester hours of 200-level computer science course work in addition to 22 C:299 Research for Dissertation.

In addition to the course work in computer science, students must complete at least three courses, with grades of B- or higher, in one of these outside areas: algebra, analysis, logic and set theory, operations research, statistics and probability, and numerical analysis.

At least one course in the outside area must be at the 200 (advanced) level, except in statistics and probability, where the advanced course may be at the 100 level.

**Ph.D. QUALIFYING EXAM**

Upon admission, each Ph.D. candidate is assigned a student committee of three to five faculty members. The committee administers both the qualifying and the comprehensive examinations.

The qualifying examination has the same format as the M.S. non-thesis final examination: the student prepares a written report in the style of a professional paper, using a topic of his or her own interest, and makes an oral public presentation. The topic need not be the eventual research area, but the student should demonstrate technical competence, ability for independent work, and potential for research, by both written and oral portions of the examination.

The qualifying examination can substitute for the M.S. non-thesis final examination, but the latter cannot substitute for the former.

**COMPREHENSIVE EXAM**

After completing the qualifying examination, the student identifies a specialty area and conducts research in the area. The student committee decides the form of the comprehensive examination (which may have both written and
oral parts). Consult the Computer Science Graduate Handbook for more information.

**DISSERTATION**
Students prepare a written proposal for research and present an oral defense to the research committee. They must demonstrate expertise in the area of proposed research and justify the proposal in terms of originality and significance. Students make a final oral defense of their completed dissertation.

**Graduate Service Courses**
Competence and experience in the use of a computer in problem solving is useful for and often prerequisite to advanced study and research in many disciplines. For most students, the two-semester sequence, 22 C:106 Introduction to Programming with Pascal and 22 C:107 Programming Techniques and Data Structures, is recommended. Students in fields in which other programming languages are used heavily may find 22C: 100 Introduction to Computing with FORTRAN, 22 C:109 Programming with COBOL, or 22 C:110 Programming with C more appropriate.

**Courses**

**Primarily for Undergraduates**

22C:000 Cooperative Education Training Assignment 0 s.h.
On or off campus work experience. Consent of department required. Prerequisite: completion of pre-computer science requirements.

22C:1 Survey of Computing 3 s.h.
Nature, uses, operations of computers and computing seen through a broad sample of computing techniques, including batch and interactive computing, packaged programs, nonnumeric programming, retrieval techniques, impact of computing technology on society; personal workstations used for nonnumeric programming, reformation retrieval; impact of computing on society. Consent of instructor required. Prerequisite: satisfactory General Education Requirement in quantitative or formal reasoning.

22C:7 Introduction to Computing with FORTRAN
Basic concepts of computer structure, programming techniques, algorithms, subprograms, file processing, abstract and machine data representations; emphasis on programming with FORTRAN.

22C:9 Programming with COBOL 3 s.h.
Business applications; records, files, mass storage devices; programming techniques for table handling, sorting, generation of reports from files, maintenance of sequential and random-access files. Prerequisite: 22C: 16 or consent of instructor.

22C:10 Programming with C 3 s.h.
Major portions of C language; variables, expressions, statements; program modules through functions, macros, blocks; control structures; representation of numeric, textual data using scalar, structured data types; operating system interfaces to files, other services; programming methodology topics such as use of program design and development tools, management of multiuser programs. Prerequisite: 22C:16 or consent of instructor.

22C:12 Programming in C++ 3 s.h.
Basic constructs in C++, class specification, multiple inheritance, operator and function overloading, virtual functions and templates; map concepts of data abstraction and object oriented programming in C++. Prerequisite: grade of C or higher in 22C:10 or consent of instructor.

22C:16 Introduction to programming with Pascal 4 s.h.
Programming, program design techniques using major portions of Pascal language: simple data types; variables, expressions; program modularization through procedures, functions; block structure; control statements for repetition, selection; data representation; structured data types, including arrays, strings, files, records, sets, abstract data systems; searching and sorting algorithms. GER: quantitative or formal reasoning.

22C:17 Programming Techniques and Data Structures 3 s.h.
Continuation of 22 C:16: complex and dynamically allocated data structures such as lists, queues, stacks, trees, files; application of software engineering principles to design, implementation of programs; recursion; comparison of data structure implementations; sorting, searching algorithms; analysis of program efficiency, verification. Prerequisite: grade of C or higher in 22 C:16.

22C:18 Computer Organization and Assembly Language Programming 4 s.h.
Hardware organization; memory addressing and structure; CPU-memory/V/C relationships; machine language versus assembly language; assembly, loading, execution; data, data structure representations, limitations, conversions, arithmetic, character processing; condition test, branch; control structures; subroutines and an example, parameter passage; macros; 1/0. Prerequisite: grade of C or higher in 22C: 17.

22C:19 Discrete Structures 3 s.h.
Propositional and predicate logic, proof techniques with emphasis on induction; sets, functions, relations, graph theory, trees; combinatorics, analysis of algorithms; program correctness. Prerequisites: grade of C or higher in 22C:17 and 22M:25 or 22M:35 or 22 M:45.

22C:21 Algorithms and Data Structures 3 s.h.
Algorithms and relation to implementing data structures: sorting and searching, including AVL, trees, binary trees, hashing; graph algorithms including depth first and breadth first search; shortest path; string, array, matrix representations; dynamic storage management techniques, garbage collection. Prerequisite: grade of C or higher in 22C:17, 22 C:18, and 22 C:19.

22C:23 Programming Language Concepts 3 s.h.
Syntax specification, informal semantic models; control structures including recursion, coroutines, backtracking; concurrency; data abstraction, structuring methods; introduction to functional, logic, and object oriented programming; use of several languages-Pascal, Ada, Modula, Prolog, LISP, SNOBOL. Prerequisite: grade of C or higher in 22 C:17, 22 C:18, and 22 C:19.

22C:31 Image Systems and Computers 3 s.h.
Basic hardware components, gate, flip-flop, decoders, multiplexer, registers; register operation; arithmetic logical units and algorithms; memory systems; secondary devices addressing and instruction types; control use 1/0 organizations: direct memory access, 1/0 interrupt, 1/0 architectures; case studies of multiprocessor and microcomputer. Prerequisite: grade of C or higher in 22 C:18.

22C:32 Introduction to Systems Software 3 s.h.
System programming; structure of language processors using examples from assemblers, macro processors, linkers, loaders; job control languages, sequential and random-access device management, file systems, storage allocation; concurrent programming, scheduling, resource sharing, protection. Prerequisite: grade of C or higher in 22 C:17, 22 C:18, and 22 C:31.

22C:51 Computer Graphics 3 s.h.
Introduction to graphics hardware; design of human/graphic interface; coordinate systems; viewing; clipping; viewers, scaling, translation; rotation; three-dimensional representations; protections from three to two dimensions; hidden lines, surfaces; vector/raster conversions; reflection, shading, color; animation. Prerequisite: grade of C or higher in 22C:17 and 22 M:27.

22C:55 Elementary Numerical Analysis 3 s.h.
Numerical algebra of polynomials, general algebraic equations; numerical solution of simple linear equations, matrix operations; least squares curve fitting techniques; interpolation polynomials; numerical solution of ordinary differential equations; detailed error analysis of several techniques; programming projects. Prerequisite: grade of C or higher in 22M:26 or 22M:36 or 22 M:44, and programming experience. Same as 22 M:72.

22C:96 Topics in Computer Science arr. Complements material in 22M:45 courses. May be repeated. Consent of instructor required.

22C:99 Honors in Computer Science arr. Individual projects. Open only to computer science majors in honors program. May be repeated. Consent of instructor required.

**Graduate Service Courses**
Not open to undergraduates; no degree credit for computer science students.

22C:100 Introduction to Computing with FORTRAN See 22C:7.

22C:102 Computer Literacy Nonteaching approach to computers and their use, misuse; telecourse. Consent of instructor required.

22C:106 Introduction to programming with Pascal 3 s.h.

22C:107 programming Techniques and Data Structures 2 s.h.
Continuation of 22 C:106; see 22C:17. Prerequisite: grade of C or higher in 22 C:106.

22C:108 Computer Organization and Assembly Language Programming 3 s.h.
See 22 C:18. Prerequisite: grade of C or higher in 22 C:107.

22C:109 Programming with COBOL 2 s.h.
See 22C:8. Prerequisite: 22C: C:I06 or consent of instructor.

22C:110 Programming with C 2 s.h.

22C:112 programming in C++ 2 s.h.
See 22C:12. Open only to non computer science graduate students. Prerequisite: grade of C or higher in 22C: 110 or consent of instructor.

22C:151 Computer Graphics 3 s.h.
See 22C:51. Open only to non computer science graduate students. Prerequisite: grade of C or higher in 22C: 107 and 22 M:27.

22C:152 Computer Graphics Laboratory 1 s.h.
Use of high level graphics languages such as CL, PHIGS, Starbase, 3D buffer, image buffer, 3D, other ray tracing speed-up techniques, advanced shading, texture mapping. Corequisite: 22C:51 or 22C:51.

**Primarily for Computer Science Majors**

22C:116 Advanced Operating Systems 3 s.h.
Operating system support for sequential, concurrent, distributed programming; interprocess communication; synchronization constructs: semaphores, semaphores, monitors, remote procedure calls; management, protection of memory, communication resources. Prerequisite: grade of C or higher in 22C: 16, 22C:21, 22 C:22, and 22 C:32, or consent of instructor.

22C:122 Advanced Computer Organization and Architecture 3 s.h.
Processor architectures: Von Neumann machine, evolutions in instruction set design, RISC and CISC, implementation of instruction set, microprogramming, storage systems—cache, main and secondary memory, virtual memory; 1/0 organizations; CPU design—introduction, arithmetic pipelines; high performance computers; array and vector processors, shared memory and distributed memory multiprocessors; case studies of historic, current architectures. Prerequisite: grade of C or higher in 22C:3:1 and 22 C:32.

22C:123 Programming Language Foundations 3 s.h.
Formal specification of semantics of conventional programming languages using a variety of models, including attribute grammars, operational, axiomatic, Sensational algorithmic techniques; proofs of program correctness, termination, semantics models, logic programming. Prerequisite: grade of C or higher in 22C: 16, 22C:21, and 22 C:23.
22C:124 Data: Abstractions, Types, and Structures 3 s.h.
Abstract data type and program specification, including graph theoretic and geometric models, emphasis on algebraic techniques; specific languages: testing, verification of specifications; type systems, reference; data abstraction facilities in modern programming languages; principal associated algorithms. Prerequisite: grade of C or higher in 22C: 19, 22C:21, and 22C:23.

22C:127 Introduction to Compiler Construction 3 s.h.
Concept, design, implementation; simple one pass compiler; lexical analysis, error detection and recovery, automatic scanner generation; syntax analysis-context-free grammars, top down, bottomup, and operator precedence parsing; LL and LR parser techniques; ambiguous grammars, error recovery, intermediate code generation— postfix notation, three address code, syntax trees; code optimization—local, global, loop; large programming project. Prerequisite: grade of C or higher in 22 C:19, 22 C:21, 22 C:22, and 22 C:32.

22C:132 Parallel Programming 3 s.h.
Parallel computation: concepts, design, implementation; performance evaluation; concept of process, parallel algorithms, language and architecture supports; development, running of parallel programs on available parallel machines. Prerequisite: grade of C or higher in 22C:32 or consent of instructor.

22C:133 Introduction to Computation Theory 3 s.h.
Finite automata; regular sets and expressions; context free and context-sensitive grammars, their properties; push down automata; standard, universal, and linear bounded Turing machines; relationships between formal languages and automata, undecidability and its consequences. Prerequisite: grade of C or higher in 22C: IQ, 22C:21, and 22 C:32.

22C:144 Database Management Systems 3 s.h.
Architecture and models, extended relational model, storage representations, access methods, relational calculus and algebra, integrity constraints, decomposition to normal forms; projects using DBMS, topics from query optimization, concurrency, recovery, security, distributed systems. Prerequisite: grade of C or higher in 22C: IQ, 22C:21, and 22 C:32.

22C:145 Artificial Intelligence I 3 s.h.
Basic concepts: problem solving methods, state space representations, heuristics: search, problem reduction techniques, machine reference, game playing; knowledge representations; performance evaluation of systems; machine perception. Prerequisite: grade of C or higher in 22C: 19, 22C:21, and 22 C:23.

22C:153 Design and Analysis of Algorithms I 3 s.h.
Correctness of iterative and recursive algorithms; design techniques such as divide and conquer, dynamic programming; analysis techniques such as recurrence equations, amortized complexity, advanced data structures, NP complete problems. Prerequisite: grade of C or higher in 22C: 19 and 22 C:21.

22C:160 Geometric and Physical Modeling I 3 s.h.
Introduction to mathematics, data structures, algorithms for 2D, 3D objects; boundary, pixel occupancy representations; constructive solid geometry, boolean operations, transformations, relational operations; interpolation, approximation; robustness of geometric computations; rendering. Prerequisites: grade of C or higher in 22C: 19, 22C:21, and 22 M:27, or consent of instructor.

22C:161 Robotics I 3 s.h.
Computational perspective; spatial representation, kinematics, inverse kinematics, dynamics, control, trajectory determination, motion planning, simulation, manipulation, error avoidance and recovery, task planning, robot locomotion. Prerequisites: grade of C or higher in 22C: 19, 22C:21, and 22 M:27, or consent of instructor.

22C:162 Computer Vision I 3 s.h.
Edge detection, texture analysis, color constancy, shape from shading, motion analysis, stereo matching, shape recognition, object recognition, supporting mathematical techniques for fundamental computer vision problems: learning, recognition, characterization of visual data. Prerequisites: grade of C or higher in 22C: 19, 22C:21, and 22 M:77, or consent of instructor.

22C:167 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: grade of C or higher in 22 C:19. Same as M:152.

22C:178 Computer Communications Networks 3 s.h.
Networking concepts, network topology, physical network, data link control, errors, control protocols, network broadcast, local networks, local protocols; transmission, multicasting, security; privacy; senior standing in electrical and computer engineering or computer science required. Prerequisite: 22S:39 or 22S:120. Same as 55:134.

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, development methodologies; software validation, verification; group project experience. Senior standing in computer science or electrical and computer engineering required. Same as 55:180.

22C:181 Formal Methods in Software Engineering 3 s.h.
Models and methods, their application in all phases of software engineering process; operational, algebraic, model based, property basic specification methods; verification of consistency, completeness of specifications; verification of software properties; experimenting in specification construction, verification using method based tools. Prerequisite: grade of C or higher in 22C: 180. Same as 55: 181.

22C:182 Software Engineering Project I 3 s.h.
Team project work for real software product; abstraction, risk analysis, scheduling, tracking and control, software metrics. CASE tools and project management techniques followed by 22C:183. Prerequisites: grade of C or higher in 22C:180 and 22C:181. Same as 55:182.

22C:183 Software Engineering Project II 3 s.h.
Continuation of 22C:182, which is prerequisite. Same as 55:183.

22C:189 Software Engineering Project Management 1-3 s.h.
Resource requirements estimation, planning, management; risk analysis; scheduling, tracking, controlling; personnel supervision, training evaluation, process development and management, including change control, configuration management; technical project leadership; assessment; two consecutive semesters assisting in supervision of teams in 22C:182, 22C:183. Prerequisites: grade of C or higher in 22 C:182, 22 C:183, and consent of instructor.

22C:191 Research for Thesis 1-3 s.h.
For M.S. candidates in computer science. Consent of adviser required.

22C:193 Topics in Programming Languages 3 s.h.
May focus on functional programming, logic programming, object-oriented programming, or another paradigm; emphasis on program design, implementation issues, or semantics; theoretical, practical aspects of the paradigm. May be repeated. Consent of instructor required. Prerequisites: grade of C or higher in 22C:21 and 22C:23.

22C:194 Topics in Systems and Networks 1-3 s.h.
May include discrete event simulation, real-time systems, distributed systems theory, network protocols, Petri nets and performance evaluation, operating systems, laboratory. Consent of instructor required. Prerequisites: 22C: 116 and 22C: 178.

22C:195 Topics in Software Engineering 3 s.h.
Formal treatment of issues such as requirements analysis/modeling, specification, design, software reusability, implementation techniques and techniques, programming support environments, testing theory, management. Consent of instructor required.

22C:196 Topics in Computer Science 3 s.h.
Complements material in other courses. May be repeated. Consent of instructor required.

22C:197 Readings in Computer Science 3 s.h.
Material not covered in other courses; individual study. Maybe repeated. Consent of instructor required.

22C:198 Individual Programming Projects 3 s.h.
May be repeated.

22C:216 Topics in Operating Systems 3 s.h.
May include distributed, fault tolerant and failsafe, concurrent real-time systems. Prerequisites: 22C:116 and consent of instructor.

22C:217 Topics in Programming Language Design and Implementation 3 s.h.
May include comparison, evaluation of programming language design; formal semantics, specification techniques, compiler specification; programming runtime environments; type computations; code generation, optimization. Prerequisites: 22C:123 and 22C:127.

22C:231 Advanced Theory of Computation 3 s.h.
Partial recursive, recursive, primitive recursive functions; recursive, recursively enumerable sets; universal machines; noncomputable results, recursion theorem, complexity measures, speed up, limited halting problem. Prerequisite: 22 C:135.

22C:244 Topics in Database Management Systems 3 s.h.
May include semantics and modeling, object-oriented databases, functional and multivalued dependencies, language interfaces, query optimization, recovery, security, concurrency, distributed systems, database machines, performance evaluation. Prerequisite: 22C: 144.

22C:245 Artificial Intelligence II 3 s.h.
May include theorem proving, concept formation, AI programming languages and concepts, machine understanding, robot models, philosophies of machine intelligence. Prerequisite: 22C: 145.

22C:261 Robotics II 3 s.h.
Continuation of 22C: 161; current literature in robotics; analysis of papers, proposed algorithms; projects to prepare students for independent research. Prerequisite: 22C: 161 or consent of instructor. Recommended: relevant mathematics (numerical analysis, differential equations, vector calculus, statistics) and 22C: 160.

22C:242 Computer Vision II 3 s.h.
Continuation of 22C: 162; current literature; analysis of papers, proposed algorithms; projects to prepare students for independent research. Prerequisite: 22C: 162 or consent of instructor. Recommended: relevant mathematics (numerical analysis, differential equations, vector calculus, statistics) and 22C: 160.

22C:260 Topics in Artificial Intelligence 3 s.h.
Showcase research, techniques and implementations. Consent of instructor required.

22C:261 Topics in Artificial Intelligence 3 s.h.
Showcase research, techniques and implementations. Consent of instructor required.

22C:262 Topics in Artificial Intelligence 3 s.h.
Showcase research, techniques and implementations. Consent of instructor required.

22C:263 Topics in Artificial Intelligence 3 s.h.
Showcase research, techniques and implementations. Consent of instructor required.
Undergraduate Programs

The undergraduate major in dance provides a liberal arts education and thorough preparation for careers in professional dancing, choreography, and education as well as for graduate studies. The program offers many opportunities for performance and choreography as well as an abundance of master classes with guest teachers and touring companies. Since 1986, the dance department’s touring company, Dancers In Company, has given the best qualified students an opportunity to perform in Iowa and surrounding states.

Bachelor of Arts

The B.A. program in dance is designed for students who want a strong liberal arts background and solid undergraduate dance preparation. It stresses performance, choreography, and teaching, as well as theory courses such as Labanotation, dance history, dance theory, and dance production. To graduate, students in the program must complete 50 semester hours of credit in dance courses, including two semesters of 137:113 Major Ballet II or 137:114 Major Modern Dance 11 with a minimum grade of B- or higher. A maximum of 50 semester hours in dance department courses is accepted toward the 124 semester hours required for graduation.

Required Courses

### DANCE THEORY

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>S.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>137:40</td>
<td>Introduction to Dance</td>
<td>1</td>
</tr>
<tr>
<td>137:50</td>
<td>Dance Production</td>
<td>3</td>
</tr>
<tr>
<td>137:60</td>
<td>Rhythmic Analysis of Dance</td>
<td>2</td>
</tr>
<tr>
<td>25:10</td>
<td>Fundamentals of Music</td>
<td>3</td>
</tr>
<tr>
<td>137:100</td>
<td>180 Dance History: From Primitive Through the Nineteenth Century</td>
<td>3</td>
</tr>
<tr>
<td>137:181</td>
<td>Twentieth-Century Dance</td>
<td>3</td>
</tr>
</tbody>
</table>

### STUDIO (NONTECHNICAL)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>S.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>137:70</td>
<td>Choreography</td>
<td>2</td>
</tr>
<tr>
<td>137:71</td>
<td>Choreography</td>
<td>2</td>
</tr>
<tr>
<td>137:170</td>
<td>Choreography</td>
<td>2</td>
</tr>
<tr>
<td>137:171</td>
<td>Choreography</td>
<td>2</td>
</tr>
</tbody>
</table>

### DANCE ELECTIVES

Seven semester hours from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>S.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>137:80</td>
<td>Dance and Society</td>
<td>3</td>
</tr>
<tr>
<td>137:105</td>
<td>Workshop: Artist-in-Residence</td>
<td>1-4</td>
</tr>
<tr>
<td>137:106</td>
<td>Dance Performance</td>
<td>0-1</td>
</tr>
</tbody>
</table>

### Bachelor of Fine Arts

In contrast to the B.A. in dance, the B.F.A. requires 12 more semester hours in studio courses and emphasizes performance and choreography at the undergraduate level. Students may be admitted to the B.F.A. program after they have completed a minimum of 30 semester hours at The University of Iowa. Only those students who have achieved the equivalent of “Major II” technique level and who show academic and professional promise are admitted. B.F.A. candidates must complete three to four semesters in 137:123 Major Ballet 111 or 137:124 Major Modern Dance 111 with a grade of B- or higher.

The B.F.A. requires that the 124 semester hours needed to graduate include 62 semester hours in courses taken outside the dance department and 62 semester hours in dance department courses.

B.F.A. students may waive 3 seminar hours of the General Education Requirement in natural sciences if they complete 4 semester hours of the General Education Requirement in physical education.

### Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>S.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>137:107</td>
<td>Repertoire Dance Company</td>
<td>1-4</td>
</tr>
<tr>
<td>137:133</td>
<td>Ballet Pointe</td>
<td>1</td>
</tr>
<tr>
<td>137:134</td>
<td>Improvisation</td>
<td>2</td>
</tr>
<tr>
<td>137:140</td>
<td>Honors Project in Dance</td>
<td>arr.</td>
</tr>
<tr>
<td>137:143</td>
<td>Elementary Ballet Pedagogy</td>
<td>3</td>
</tr>
<tr>
<td>137:144</td>
<td>Teaching of Modern Dance</td>
<td>3</td>
</tr>
<tr>
<td>137:151</td>
<td>Intermediate Labanotation</td>
<td>3</td>
</tr>
<tr>
<td>137:172</td>
<td>Independent Choreography</td>
<td>arr.</td>
</tr>
<tr>
<td>137:173</td>
<td>Topics in Dance</td>
<td>arr.</td>
</tr>
<tr>
<td>137:190</td>
<td>Independent Study</td>
<td></td>
</tr>
<tr>
<td>137:191</td>
<td>Readings in Dance</td>
<td></td>
</tr>
</tbody>
</table>

#### STUDIO TECHNIQUE

Twenty semester hours from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>S.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>137:1</td>
<td>Beginning Tap</td>
<td>2</td>
</tr>
<tr>
<td>137:2</td>
<td>Beginning Jazz</td>
<td>2</td>
</tr>
<tr>
<td>137:3</td>
<td>Beginning Ballet</td>
<td>2</td>
</tr>
<tr>
<td>137:4</td>
<td>Beginning Modern Dance</td>
<td>2</td>
</tr>
<tr>
<td>137:11</td>
<td>Continuing Tap</td>
<td>2</td>
</tr>
<tr>
<td>137:12</td>
<td>Continuing Jazz</td>
<td>2</td>
</tr>
<tr>
<td>137:13</td>
<td>Continuing Ballet</td>
<td>2</td>
</tr>
<tr>
<td>137:14</td>
<td>Continuing Modern Dance</td>
<td>2</td>
</tr>
<tr>
<td>137:21</td>
<td>Low Intermediate Tap</td>
<td>2</td>
</tr>
<tr>
<td>137:22</td>
<td>Low Intermediate Ballet</td>
<td>2</td>
</tr>
<tr>
<td>137:23</td>
<td>Low Intermediate Ballet</td>
<td>2</td>
</tr>
<tr>
<td>137:24</td>
<td>Low Intermediate Modern Dance</td>
<td>2</td>
</tr>
<tr>
<td>137:33</td>
<td>Intensive Training for the Male Dancer</td>
<td>2</td>
</tr>
<tr>
<td>137:43</td>
<td>Continuing Intensive Training for the Male Dancer</td>
<td>2</td>
</tr>
<tr>
<td>137:103</td>
<td>Major Ballet I</td>
<td>1-2</td>
</tr>
<tr>
<td>137:104</td>
<td>Major Modern Dance 1</td>
<td>1-2</td>
</tr>
<tr>
<td>137:13</td>
<td>Major Ballet II</td>
<td>1-3</td>
</tr>
<tr>
<td>137:114</td>
<td>Major Modern Dance 11</td>
<td>1-3</td>
</tr>
<tr>
<td>137:123</td>
<td>Major Ballet 111</td>
<td>1-3</td>
</tr>
<tr>
<td>137:124</td>
<td>Major Modern Dance 111</td>
<td>1-3</td>
</tr>
</tbody>
</table>

#### NONDEPARTMENTAL

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>S.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>25:165</td>
<td>Opera Dance Theatre Production (section 2)</td>
<td>4</td>
</tr>
<tr>
<td>27:53</td>
<td>Human Anatomy</td>
<td>3</td>
</tr>
<tr>
<td>27:81</td>
<td>Kinesiology (see adviser)</td>
<td>3</td>
</tr>
</tbody>
</table>

### Honors Program

The 8- to IO-semester-hour honors program is designed to serve and recognize outstanding students in the areas of performance and special projects. Honors students must maintain a 3.20 grade-point average during their junior and senior years. All honors projects must be approved by the dance department faculty. Students must be members of the University Honors Program to graduate with honors in dance.

### Minor

A minor in dance requires 15 semester hours of credit in dance department courses with a minimum grade-point average of 2.00, at least 12 semester hours of which must be in University of Iowa courses numbered 137:100 and above.
Graduate Program

Master of Fine Arts

Students who demonstrate exceptional ability in dance technique and choreography may apply for admission to the M.F.A. program. Admission is based on an interview, a teaching and technique audition, review of videotaped choreographic and performance work, and letters of recommendation. The M.F.A. program is designed to be completed in six semesters in residence, but students who have completed some of the prerequisites before entering the program may complete it in five semesters.

Students select the choreography or performance track. A total of 60 semester hours is required.

Prerequisites

Advanced technique (ballet and modern). Demonstrated accomplishment in choreography, music for dance, or equivalent.

Required Courses

DANCE CORE

137:143 Elementary Ballet Pedagogy 3 s.h.
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 Dance Theory 3 s.h.
137:234 Graduate Improvisation 1-2 s.h.
137:277 Thesis 8 s.h.

DANCE TECHNIQUE

For performance track, 18 semester hours from the following; for choreography track, 15 semester hours; courses may be repeated.

137:213 Graduate Majors Ballet II 3 s.h.
137:214 Graduate Majors Modern II 3 s.h.
137:223 Graduate Majors Ballet II1 3 s.h.
137:224 Graduate Majors Modern III 3 s.h.
Ballet students must take a minimum of 4 semester hours of modern dance; students in modern dance must take a minimum of 4 semester hours of ballet.

EMPHASIS COURSES-CHEOREOGRAPHY TRACK

137:206 Graduate Dance Performance 2 s.h.
A total of two semesters chosen from the following choreography courses:

137:270 Graduate Choreography I 2 s.h.
137:271 Graduate Choreography II 2 s.h.
137:272 Graduate Choreography 111 2 s.h.
137:273 Graduate Choreography IV 2 s.h.
137:274 Graduate Independent Choreography (one semester hour for each project) 4 s.h.
137:275 Advanced Chorographic Design 4 s.h.

EMPHASIS COURSES-PERFORMANCE TRACK

137:107 Repertory Dance Company 8 s.h.
137:206 Graduate Dance Performance (one semester hour for each performance) 4 s.h.

137:274 Graduate Independent Choreography (one semester hour for each project) 2 s.h.
A course from the choreography sequence (137:20 through 137:273) 2 s.h.

ELECTIVES

M.F.A. candidates in performance must earn a total of 9 semester hours in elective courses numbered 100 or higher. A minimum of 6 semester hours must be earned in nondepartmental courses; the remaining 3 may be earned in dance or nondepartmental courses.

M.F.A. candidates in choreography must earn a total of 12 semester hours in elective courses numbered 100 or higher. A minimum of 6 semester hours must be earned in nondepartmental courses; 3 semester hours must be earned in a course or courses that provide research material for the thesis; the remaining 3 may be earned in dance or nondepartmental courses.

Facilities

The dance department has some of the finest facilities in the country: six technique studios, two classrooms, video viewing and labanotation computer rooms, and its own performance space in the Peabody Auditorium, the University’s premier performance hall, is available for formal concerts.

Courses

Primarily for Undergraduates

137:000 Cooperative Education Internship 0 s.h.

137:1 Beginning Tap 1-2 s.h.
May be repeated. GER: humanities.

137:2 Beginning Jazz 1-2 s.h.
May be repeated. GER: humanities.

137:3 Beginning Ballet 1-2 s.h.
May be repeated. GER: humanities.

137:4 Beginning Modern Dance 1-2 s.h.
May be repeated. GER: humanities.

137:1 Continuing Tap Continuation of 137:1. May be repeated. GER: humanities 1-2 s.h.

137:12 Continuing Jazz Continuation of 137:2. May be repeated. GER: humanities 1-2 s.h.


137:14 Continuing Modern Dance Continuation of 137:4. May be repeated. GER: humanities 1-2 s.h.

137:21 Low Intermediate Tap 2 s.h.
May be repeated. GER: humanities.

137:22 Low Intermediate Jazz 1-2 s.h.
May be repeated. GER: humanities.

137:23 Low Intermediate Ballet 1-2 s.h.
May be repeated. GER: humanities.

137:24 Low Intermediate Modern Dance 1-2 s.h.
May be repeated. GER: humanities.

137:27 Basic Movement and Body Awareness 3 s.h.
Structure and systems of the body; how personal body design determines weight, moves with gravity, shifts weight stands upright, etc. Same as 18:27-49:27.

137:33 Intensive Training for the Male Dancer 2 s.h.
Beginning classical ballet or beginning modern dance (choice of either class section). Open only to males. May be repeated. GER: humanities.

137:40 Introduction to Dance 1 s.h.
Dance careers; current dance issues; related dance areas; introduction to the arts at The University of Iowa.

137:45 Continuing Intensive Training for the Male Dancer 2 s.h.
Continuation of 137:33; emphasis on advanced ballet vocabulary, enchainments. May be repeated.

137:58 Dance Production 3 s.h.
Scene design, costume, lighting; audio, video, publicity.

137:60 Rhythmic Analysis of Dance 2 s.h.
Rhythmic form, in relationship to dance.

137:70 Choreography I 2 s.h.
Elementary methods used to explore choreographic process and form short dance works.

137:71 Choreography II 2 s.h.
Continuation of 137:70.

137:80 Dance and Society 3 s.h.
Dance styles, their relationship to societal developments, dance as an expression of human condition: choreographers and artists; special relationships of dance to other arts; historical perspective; form and content. GER: humanities.

137:103 Major Ballet I Intermediate May be repeated. GER: humanities 1-2 s.h.

137:104 Major Modern Dance I Intermediate May be repeated. GER: humanities 1-2 s.h.

137:105 Workshop: Artist-in-Residence 1-4 s.h.

137:106 Dance Performance East-West and World Comparisons: program auditions conducted throughout academic year. May be repeated. GER: humanities.

137:107 Repertory Dance Company 1-4 s.h.
Open only to members of University’s touring dance company. May be repeated.

137:108 Dance Rehearsal Lab 1 s.h.
Provides academic credit for satisfactorily attended rehearsals of complete choreographic pieces not included in full concert productions.

137:113 Major Ballet II 1-3 s.h.
High intermediate. May be repeated. GER: humanities.

137:114 Major Modern Dance II 1-3 s.h.
High intermediate. May be repeated. GER: humanities.

137:118 Advanced Ballet Pedagogy 3 s.h.

137:123 Major Ballet III 1-3 s.h.
Advanced; preparation for professional dance world. May be repeated. GER: humanities.

137:124 Major Modern Dance III 1-3 s.h.
Advanced; preparation for professional dance world. May be repeated. GER: humanities.

137:133 Ballet Pointe 1 s.h.
Based on students needs. May be repeated.

137:134 Improvisation 1-2 s.h.

137:140 Honors Project in Dance 2-3 s.h.

137:143 Elementary Ballet Pedagogy Methods, materials.

137:144 Teaching of Modern Dance Methods, materials.

137: 145 Methods and Materials in Teaching Children’s Dance same as 11:125.

137:149 Honors Studies in Dance 2-3 s.h.
May be repeated.

137:150 Beginning Labanotation Theory; practice of Laban’s principles of movement notation.

137:151 Intermediate Labanotation Continuation of 137:150.

137:160 Introduction to Ballet Accompaniment 1 s.h.
Progression of exercises in the ballet class, selecting and organizing repertoire; determining appropriate music for each exercise. Advanced proficiency in piano performance required.
BACHELOR OF ARTS

Requirements for the B.A. with a major in economics are as follows.

22M:17 Quantitative Methods I (students who have taken 22M:25 Calculus I or 22M:35 Engineering Calculus I may use that class) 4 s.h.
22S:8 Quantitative Methods II or 6E:50 Introduction to Economic and Social Statistics 3 s.h.

6K:71 Statistical Analysis 3 s.h.

Twenty-one semester hours of credit in 100-level economics courses, including the following.

6E: 104 Macroeconomic Theory 3 s.h. 6E: 105 Macroeconomics 3 s.h.
Two field courses chosen from 6E: 170 through 6E: 189 6 s.h.

Credit is not allowed for both 6E: 104 and 6E: 105. 106 and 6E: 106 does not count toward the 21 semester hours of 100-level course credit required for the B.A. without permission of the undergraduate director.

PREREQUISITES

Most 100-level courses in economics have as prerequisites both 6E: 1 and 6E: 2, or senior standing; 6E: 104 and/or 6E: 105 are prerequisite to most courses numbered above 6E:1 70; grades of C or higher in 6E: 1 and 6E: 2 or consent of the undergraduate director are required for 6E: 104 and 6E: 105; 22M: 17 is prerequisite to 6E:104; and 22S:8 or 6E:50 is prerequisite to 6K:71.

BACHELOR OF SCIENCE

The B.S. requires the following.

22M:25-26 Calculus I-H 8 s.h.
22S: 120 Probability and Statistics 4 s.h.
22 S:130-131 Introduction to Mathematical Statistics 1-11 6 s.h.

Twenty-one semester hours of credit in 100-level economics courses, including the following.

6E: 104 Macroeconomic Theory 3 s.h. 6E: 105 Macroeconomics 3 s.h.
6E: 184 Introduction to Econometrics 3 s.h.
Two other field courses numbered from 6E: 170 through 6E: 189 6 s.h.

For students planning to pursue a graduate degree in economics, 22 S:130 and 22S:131 are recommended in lieu of 22S: 120.

PREREQUISITES

Some of the prerequisites listed under “Bachelor of Arts” apply; also 22M:26 is prerequisite to 22S: 120 and 22S: 130, and 22S: 120 or 22S: 131 is prerequisite to 6E: 184.

BACHELOR OF BUSINESS ADMINISTRATION

The B.B.A. program is described in the College of Business Administration section of the Catalog.
Honors
Students working toward a B.A. or B.S. with an economics major are encouraged to take part in the honors program in economics, which gives high-achieving students the opportunity to pursue special research interests.

To enter the honors program, students must have completed 6E: 104 Macroeconomic Theory and 6E: 105 Macroeconomics before the senior year, and must have an overall grade-point average of at least 3.20. Honors students typically register for 6E:197 Honors Seminar in the spring of the junior year and by the end of the junior year have defined a research project under the guidance of the undergraduate honors adviser. They then complete the project under the guidance of a supervising faculty member, earning up to 6 semester hours of credit in 6E: 198 Senior Thesis in Economics. The thesis is then presented orally to a committee of three faculty members, typically the undergraduate honors adviser, the student’s research supervisor, and a third faculty member of the student’s choice.

Interested students should consult the honors adviser before the second semester of their junior year.

Minor
The minor in economics requires at least 15 semester hours of credit in economics with a minimum grade-point average of 2.00. Twelve of these semester hours must be taken at The University of Iowa in courses numbered 6E: 100 and above. Students cannot receive credit for both 6E: 100 and 6E: 104.

Course Work for Nonmajors
Courses 6E:1 Principles of Macroeconomics and 6E:2 Principles of Macroeconomics satisfy the College of Liberal Arts General Education Requirement in social sciences and introduce the broad field of economics and the specialized topics of upper-division courses. The intermediate theory courses in macroeconomics (6E:100 and 6E:104) and macroeconomics (6E:105) 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.


A number of students combine related interests by pursuing double majors in economics and in fields such as computer science, geography, global studies, history, mathematics, political science, sociology, or statistics.

Economics Forum
Students are invited to join the Economics Forum, the undergraduate economics organization. The forum sponsors social events, special lectures, and round table discussions. It is an excellent way for students to meet other economics majors and department faculty members.

Graduate Program
The department offers the Masters of Arts (M.A.) and the Doctor of Philosophy (Ph.D.). The doctoral program has a theory and quantitative core enhanced by a set of field courses and is designed to provide students with rigorous training in macroeconomic theory, macroeconomic theory, mathematical economics, and econometrics. In addition to taking the core area, students select a major area for intensive study and specialization. The usual time required to complete the Ph.D. program is four years.

The Master of Arts is offered only to students working toward a Ph.D. degree or to those who earn, through the College of Business Administration, a joint M.A. with geography or a joint M.A.-J.D. with law.

See the College of Business Administration section of the Catalog for details on Ph.D. and joint M.A. program requirements.

Special Seminar
Each year the department offers a seminar program that brings eminent economists from other universities and from government to The University of Iowa campus. Presentations by faculty and student members of the department also are featured.

Courses

Primarily for Undergraduates
Note: 6E: 1 and 6E:2 may be taken in either order or they may be taken simultaneously; they satisfy the College of Liberal Arts General Education Requirement in social sciences.

6E:000 Cooperative Education Internship 0 s.h.
6E:1 Principles of Macroeconomics 3-4 s.h. Organization, workings of modern economic systems; role of markets, prices, competition in efficient resource allocation by market discipline; role of government in modern economies. Prerequisites: 6E:1, 6E:2, and senior standing. 6E:2 Principles of Macroeconomics 3-4 s.h. National income and output, employment and inflation; money, credit; government finance; monetary and fiscal policy; economic growth, development, international finance.GER: Social sciences (except B.B.A. students). 6E:6 Contemporary Economic Problems and Policy 3 s.h. Economic concepts developed and applied to analysis of current economic problems. Students policies; representative topics include budgetary, taxation, income mobility. 6E:50 Introduction to Economic and Social Statistics 3 s.h. Statistical methods applied to problems in economics; regression analysis; contingency tables and goodness of fit tests; time series modeling; presentation of economic statistics. Same as 44:85.
6E:99 Internship
Open only to students participating in the Washington Center for Internships and other approved internship programs. Consent of undergraduate director required.
6E:100 Economics for Business Decision Making 3 s.h. Economic theory of consumer demand, producer behavior and market equilibrium with emphasis on applications to business decisions; organization and structure of international input markets. Prerequisites: 6E:1, 6E:2, and senior standing or consent of undergraduate director.
6E:104 Macroeconomic Theory 3 s.h. Economic theory of consumer behavior, producer behavior and market equilibrium with emphasis on applications to business decisions; organization and structure of international input markets. Prerequisites: 6E:1, 6E:2, and senior standing or consent of undergraduate director.
6E:105 Macroeconomics 3 s.h. Measurement of national product, unemployment, inflation, determination of national income, price level; role of stabilization policies; economic growth, dynamics of inflation. Prerequisites: grade of C or higher in 6E: 1 and 6E:2, or consent of undergraduate director.
6E:111 Labor Economics 3 s.h. Microeconomic analysis of labor markets; related institutions; labor supply and demand; labor demand decisions made by firms; market equilibrium; economic analysis of unions; returns to education; family decisions. Prerequisites: 6E:1 or consent of instructor.
6E:113 Health Economics 3 s.h. Structure of America’s health care industry, economic analysis applies to its problems of production, pricing, distribution, cost effectiveness, financing of medical costs, and role of government. Prerequisites: 6E: 1 and 6E:2, or senior standing.
6E:117 Money, Banking and Financial Markets 3 s.h. Role of money, payments, determination of income, employment, prices in domestic and world economy. Prerequisites: 6E:1 and 6E:2, or senior standing.
6E:119 Economics of the Government Sector 3 s.h. Economic functions of government in modern economies. Economic policy-making; budgetary processes; effects of government expenditures, taxation on allocation of resources. Distribution of income, economic growth, stability. Prerequisites: grade of C or higher in 6E: 1 and 6E:2, or consent of instructor.
6E:125 International Economics 3 s.h. Foreign exchange, balance of payments; international monetary arrangements, policy theory of international trade; role of tariffs, restrictions in international trade. Prerequisites: 6E:1 and 6E:2, or senior standing.
6E:129 Economic Growth and Development 3 s.h. Determinants of rising living standards; accumulation of physical human capital; predictions of economic growth models compared to changes in real standards. Prerequisites: 6E:1 or consent of instructor.
6E:133 Environmental and Natural Resource Economics 3 s.h. Environmental resource use problems; efficient mechanisms and other policies for environmental protection; management of public property resources. Prerequisites: 6E:1 and 6E:2, or senior standing or consent of instructor.
6E: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 urban land use patterns, rents, empirical tests of models. Policy applications. Prerequisites: 6E: 1 and 6E:2, or senior standing.
6E:141 Economics of American Industries 3 s.h. Structure evolution, imperfect competition, resource allocation, development of public policy on monopoly selected industries. Prerequisites: 6E:1 and 6E:2, or senior standing.
6E:145 Introduction to the Economics of Transportation 3 s.h.
Same as 102: 133, 144.133.

6E: 150 Introduction to Economic History 3 s.h.
Western economic development from antiquity to present; evolution of population, technology, business organization, seduction, trade; dynamics of economic systems; methodology. Prerequisite: 6E: 1 or equivalent.

6E:163 Comparative Economics 3 s.h.
Comparative study of operation, performance, of major economies around the world: private versus collective ownership; valuation and market orientation; regional and trade patterns; international trade; centralization versus decentralized decision making: privatization of industries growing globaliztion of markets, apparent strength of capitalism. Prerequisites: 6E: 1 and 6E:2.

6E:164 Economics in Transition 3 s.h.
Theory, experience of central economic planning; causes of collapse of communism in eastern Europe, former Soviet Union; major episodes of economic reform, current problems of transition to market to the system. Prerequisites: 6E: 1 and 6E:2.

6E:171 Antitrust: Legal and Economic Analysis 3 s.h.
Federal policy merger policy, monopolization, predatory pricing, collusion, vertical restraints and resale price maintenance, enforcement, case law, economics. Prerequisite: 91: 208 or 6E: 100 or 6E: 104 or consent of instructor. Same as 91: 208.

6E:172 Law and Economics 3 s.h.
Law economics through analytical tools of microeconomics: impact of legal rules on resource allocation, risk bearing, distribution of economic well being. Prerequisite: 6E: 100 or 6E: 104 or consent of instructor. Same as 91: 208.

6E:173 Advanced International Economics 3 s.h.
Neoclassical model of international trade, theory of comparative advantage, role of trade barriers, balance of payments, foreign exchange, macroeconomic policy in an open economy. Prerequisite: 6E: 100 or 6E: 104, and 6E: 105, or graduate standing.

6E:174 Monetary Economics 3 s.h.
Demand, supply of money, money's role in economy; empirical studies of money's impact; problems with monetary control. Prerequisite: 6E: 105 or consent of instructor.

6E:175 Economic Analysis of Labor Markets 3 s.h.
Labor supply, demand, investments in human capital, compensating wage differentials, discrimination, long term contracts, occupational choice, union decisions, migration. Prerequisites: 6E: 100 or 6E: 104, and elementary calculus and statistics.

6E:176 Public Sector Economics 3 s.h.
Economic functions of government; budgetary processes; effects of government expenditures, axiomatic vs. normative, education, income distribution, economic growth and stability. Prerequisites: 6E: 104 and 6E: 105, or consent of instructor.

6E:177 Industrial Organization 3 s.h.
Market structure, effects of business practices, international problems on market structure; appraisal of antitrust policies, government regulation of business Prerequisite: 6E: 100 or 6E: 104.

6E:178 American Economic History 3 s.h.
Emphasis on role of population, technology. Prerequisite: 6E: 100 or 6E: 104, and 16A: 81 for non-economics majors. Same as 16A: 144.

6E:179 History of Economic Thought 2-3 s.h.
Evolution development of economics as a social science; ideas of Smith, Ricardo, Malthus, Walras, Marshall, Keynes, and their role in modern economics. Prerequisite: 6E: 100 or 6E: 104, or 6E: 105.

6E:184 Introduction to Econometrics 3 s.h.
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: 228: 5 or equivalent.

6E:187 Introduction to Mathematical Economics 3 s.h.
Mathematical structure of economic principles problems, systems; may include constrained optimization, convexity under uncertainty; general equilibrium and welfare economics: dynamical systems and control theory; game theory. May be repeated. Prerequisite: 6E: 100 or 6E: 104, or consent of instructor.

6E:189 Topics in Economics Consent of instructor required.

For Advanced Undergraduates

6E:197 Honors Seminar Consent of instructor required.

6E:198 Senior Thesis in Economics Consent of instructor required.

6E:199 Readings and Independent Study in Economics Consent of instructor required.

Primarily for Graduates

With consent of the department chair, qualified undergraduate students may enroll in courses listed for graduate students.

6E:200 Mathematics for Economists I 3 s.h.
Consolidated optimization, difference equations, differential equations, dynamic optimization.

6E:201 Statistical Methods 3 s.h.
Probability theory, statistical inference, linear regression model, econometric methods. Prerequisite: one year of calculus and matrix algebra.

6E:203 Microeconomics I 3 s.h.
Price theory, emphasis on problem formulation and solving, economic intuition: producer and consumer behavior, competitive and noncompetitive models; welfare economics. Offered fall semesters. Consent of instructor required.

6E:204 Microeconomics II 3 s.h.
Economic growth, business cycles, money and inflation. Offered fall semesters. Consent of instructor required.

6E:205 Microeconomics II 3 s.h.
Neoclassical paradigm; axioms, essential conclusions; limitations of paradigm: alternative theories. Offered spring semesters. Prerequisite: 6E: 205 or 6E: 200 or one year of calculus.

6E:206 Mathematical Economics 3 s.h.
Dynamic macroeconomic models; stochastic macroeconomics; time consistency equilibrium business cycle theory. Offered spring semesters. Prerequisite: 6E: 204 or consent of instructor.

6E:211 Mathematical Economics I 3 s.h.
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. Prerequisites: 6E: 205 and 6E: 206.

6E:212 Mathematical Economics II 3 s.h.
Theories of n-person games, noncooperative or cooperative; applications to general economic equilibrium analysis. Prerequisite: 6E: 211.

6E:213 The Economics of Uncertainty 2-6 s.h.
Information, informational equilibrium; risk and risk aversion; temporary resolution of uncertainty. Prerequisite: 6E: 211.

6E:217 Microeconomics I 3 s.h.
Statistical inference in single, multiple equation stochastic models; models with nonindependent or nonidentically distributed error structure; dynamic models; ULS, 2LS, N, ML estimation; asymptotic distribution theory; exact, asymptotic hypothesis tests Prerequisite: 225: 154 or equivalent.

6E:218 Advanced Econometrics 3 s.h.
Empirical problems; multiple linear regression, nonlinear regression, maximum likelihood, hazard functions, univariate and multivariate time series, flexible functional forms. Prerequisite: 6E: 211.

6E:223 Econometric Theory I 3 s.h.
Statistical theory underlying econometric inference; emphasis on estimation, hypothesis testing in linear models. Prerequisite: 6E: 221.

6E:226 Travel Demand Modeling 3 s.h.
Mathematical, statistical background; choice theories random utility models; econometric methods for travel demand models; random utility models applied to travel demand forecasting; demand/performance evaluation. Prerequisite: 6E: 214 or 6E: 221. Same as 6E: 231.

6E:231 Economic Development and Policy Alternatives 3 s.h.
Emphasis on theories of development, policy alternatives. Consent of instructor required.

6E:234 International Business -M.B.A. 3 s.h.
Problems in international business; how to export; how to deal with major competitors internationally; real ventures; country study. Consent of instructor required.

6E:235 International Trade Theory 3 s.h.
Tariff theory policy. Consent of instructor required.

6E:26 International Monetary Economics 3 s.h.
Balance of payments adjustment; exchange controls; international investment; macroeconomics in an open economy. Consent of instructor required.

6E:241 Macroeconomics III 2-6 s.h.
Current research in macroeconomics; development of research topics with emphasis on theoretical, empirical analysis. Prerequisites: 6E: 205 and 6E: 221.

6E:245 Money Theory 2-3 s.h.
Optimum quantity of money; models of monetary growth; overlapping generation models with applications to monetary economics; determinants of interest rates; effects of anticipated and unanticipated money supply changes; empirical estimates of money's impact Consent of instructor required.

6E:250 Labor Economics 3 s.h.
Problems, models, including permanent income models of labor markets; uncertainty and labor market economy; 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 Propositions. Prerequisites: 6E: 205, and 6E: 221 or 6E: 184.

6E:251 Labor Economics 3 s.h.
Current research, with emphasis on prospects for original research; may include life cycle models of labor supply, dynamic labor demand models, compensating wage differentials labor turnover, cyclical employment fluctuations, aspects of collective bargaining. Prerequisites: 6E: 205, and 6E: 221 or 6E: 184.

6E:263 Economic History 3 s.h.
Western economies; emphasis on population (growth) and labor force growth, evolution of capital markets, patterns of capital accumulation, resultant rates of economic growth; analyses of technological progress, growth of open economies. Consent of instructor required.

6E:264 History of Economic Thought 3 s.h.
Development of marxist, neoclassical, keynesian thought; American economic thought, including institutional economics; various socialist economics: utopian, liberal, radical. Consent of instructor required.

6E:271 Industrial Organization 2-4 s.h.
The firm, monopolistic competition, oligopoly and workable competition; industrial organization, nature of equilibrium under uncertainty. Prerequisites: 6E: 205 and 6E: 211.

6E:264 History of Economic Thought 3 s.h.
Development of marxist, neoclassical, keynesian thought; American economic thought, including institutional economics; various socialist economics: utopian, liberal, radical. Consent of instructor required.

6E:291 Economics of the Government Sector Taxation 3 s.h.
Role, effects of tax on allocation of resources, distribution of income, economic growth and stability. Debt finance as an alternative to tax finance.

6E:299 Contemporary Topics in Economics Topics not offered in other courses. Consent of instructor required.

6E:300 Readings in Economics Consent of instructor required.

6E:301 Thesis in Economics Consent of instructor required.

6E:302 Dissertation Seminar Approval of prospectus required.

6E:305 Economic Seminar 1-3 s.h.

6E:321 Workshop in Applied Econometrics and statistics Consent of instructor required.

Advanced Graduate Seminars

6E:310 Seminar in Economic Theory Consent of instructor required.

6E:321 Workshop in Microeconomics Consent of instructor required.
The major in English gives students a solid core of interpretive, analytical, and writing skills rather than a uniform view of any particular literary history or theory. The department’s goal is to offer an undergraduate program designed to challenge students, to help them develop essential reasoning and communication skills, and to introduce them to the many pleasures and rewards of the study of artful language.

**Undergraduate Programs**

A Bachelor of Arts with a major in English requires a minimum of 33 semester hours of courses in English, of which at least 9 must come from courses dealing principally with literature written before 1800 and of which at least 18 must be taken in residence at The University of Iowa.

In fulfilling the above requirements, English majors must complete at least:
- 3 semester hours in readings courses;
- 3 semester hours in authors courses, in which no more than two authors are studied;
- 3-4 semester hours in literature and culture courses;
- 3 semester hours in cultural study courses; and
- 9 semester hours in literature written before 1800.

These requirements apply to all students who have declared an English major after the close of the spring 1989 semester. The **Schedule of Courses** for each semester specifies which English department courses fit the above categories. The requirement of at least 9 semester hours focusing on literature written before 1800 may be satisfied by courses that no more than two authors are studied; and 8 semester hours of approved humanities courses, with a grade-point average of 2.00. At least 12 of the 15 semester hours must be taken on campus, in advanced courses (8.34 and above, all 8W courses except 8W: 1, 8L courses, and 8P courses). Courses designated 8G do not count toward the minor in English. Neither transfer credit nor credit by examination is accepted toward the 12 semester hours of advanced work.

No course in the minor may be taken pass/nonpass.

The minor in English requires 15 semester hours of course work in Department of English courses, with a grade-point average of 2.00. At least 12 of the 15 semester hours must be taken on campus, in advanced courses (8.34 and above, all 8W courses except 8W: 1, 8L courses, and 8P courses). Courses designated 8G do not count toward the minor in English. Neither transfer credit nor credit by examination is accepted toward the 12 semester hours of advanced work.

The minor is first officially acknowledged and recorded only after the student has completed the application for graduation.

**Creative Writing**

Many undergraduates come to The University of Iowa because of the excellence of its creative
writing program. With the consent of his or her adviser, any student may elect the undergraduate courses in this program. These are 8W:23 Creative Writing, 8W:151 Fiction Writing, 8W:152 Poetry Writing, and 8W:1, the newly instituted General Education Humanities Creative Writing Studio Workshop.

Admission to the undergraduate workshops in fiction and poetry (8W: 163 Undergraduate Writers' Workshop: Fiction and 8W: 166 Undergraduate Writers' Workshop: Poetry) requires consent of instructor. Students who wish to participate in these workshops must submit samples of their poetry or fiction to the Writers' Workshop no earlier than a week before registration and no later than the last day of registration.

**English and Education**

The department offers an undergraduate program for students planning to teach English in secondary schools.

**COURSE REQUIREMENTS**

By the end of the program, students must have taken the following courses.

In English, as Part of the Undergraduate Major

- 8P: 182 Language and Learning 2-3 s.h.
- 8P:198 Teaching Literature to Adolescents 3 s.h.
- 8W: 141 Approaches to Teaching Writing 3 s.h.

A course in Shakespeare

Three courses in American literature, one of which focuses on cultural studies

A course in nineteenth or twentieth century British literature

A course in writing (in addition to 8W: 141)

A course in oral communication

In Education

- 7F: 180 Human Relations for the Classroom Teacher 3 s.h.
- 7P: 131 Educational Psychology 3 s.h.
- 7S: 91 Introduction to Practicum: English and Speech 3 s.h.
- 7S: 100 Foundations of Education 3 s.h.
- 7S: 115 Methods: English 3 s.h.
- 7S: 187 Seminar: Curriculum and Student Teaching 1-3 s.h.
- 7S: 191 Observation and Laboratory Practice in the Secondary School arr.
- 7S: 192 Observation and Laboratory Practice in the Secondary School arr.
- 7S: 194 Methods: High School Reading 2-3 s.h.
- 7U: 100 Mainstreaming the Exceptional Learner 3 s.h.
- 7W: 92 Introduction to Microcomputing for Teachers 1 s.h.

**Admission**

Applicants to the Teacher Education Program in English must have earned a minimum of 6 semester hours in English before they can be admitted (General Education Requirement courses do not count toward the 6 hours). Applicants must have at least a 2.50 grade-point average in their University of Iowa course work and at least a 3.00 grade-point average in their English courses. Finally, applicants must submit two letters of recommendation and write a personal statement explaining why they would like to enter the teaching profession.

**Minor Licensure in English**

Students who seek licensure for secondary teaching in fields other than English may seek minor licensure in English. This is particularly appropriate for students majoring in speech, journalism, Spanish, French, or German. These students must complete 28-33 semester hours of English. Freshman courses in rhetoric, speech, or writing do not count toward this requirement.

The English minor licensure program must include a course in each of these areas: advanced composition, approaches to teaching high school writing, linguistics, American literature of the twentieth century, British literature of the nineteenth or twentieth centuries, language for adolescents, and visual/oral communication. In addition, students are required to take 7S: 115 Methods: English, and 7S: 194 or 7S:195 (reading for secondary school students), offered by the College of Education’s Division of Curriculum and Instruction.

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.

**Graduate Programs**

**Master of Arts (Literary Studies)**

The M.A. in Literary Studies is a program for students who want to understand what it means to study literature professionally. Those who seek an M.A. in Literary Studies may include students who would like some exposure to graduate study before deciding whether to continue toward a doctorate; teachers in secondary schools who want to gain extra credit and background; or independent readers and writers seeking intellectual growth unrelated to teaching. This program is designed for persons wishing to become essayists, freelance writers, editors, or writing teachers.

To qualify for the M.A. with emphasis in nonfiction writing, students must complete 30 semester hours of graduate work with a grade of A or B. In addition to the 30 semester hours of course work, students are required to complete at least 3 and no more than 6 semester hours of credit for the thesis.

In consultation with an adviser, each student designs a program of courses suited to his or her professional interests. Thus, each student’s plan of study is highly individualized and may include courses from widely different areas and departments of the University.

Finally, each student must produce a thesis, which may be an extended essay, a collection of essays, or a project involving some other form of nonfiction writing. The student must take an oral examination covering the project, and must gain final approval for the finished thesis from his or her thesis committee.

Students interested in this program should consult the director of the M.A. with emphasis in nonfiction writing.
Master of Fine Arts

The purpose of the M.F.A. program is to provide professional guidance and a stimulating environment for students with previous achievement or notable promise in writing poetry or fiction. The flexible requirements include 48 semester hours of graduate credit, earned chiefly in the Writers' Workshop; a collection of poems or short stories, or a novel; and satisfactory performance on an examination covering modern poetry or fiction.

Doctor of Philosophy

The Ph.D. program is designed as preparation for the teaching, publishing, and administrative service required of college and university faculty members. The doctorate requires 72 semester hours of graduate credit, at least 30 of which must be earned in residence at The University of Iowa.

Concentrations are offered in areas such as literary history, literary theory, cultural studies, genre criticism, rhetorical theory, stylistic, and writing theory and pedagogy.

Requirements for the Ph.D. include:

- formal admission to candidacy by a vote of the full faculty of the department, usually during the third semester of doctoral study;
- demonstration of competence in two foreign languages or mastery of a single foreign language and its literature;
- three seminars taken at The University of Iowa;
- a comprehensive examination that consists of the following: written responses to set questions in a period of English and/or American literary history and in a special area, presentation of an “issues paper,” and a subsequent oral examination;
- a dissertation; and
- a final examination in defense of the dissertation.

All doctoral candidates are encouraged to gain teaching experience, preferably in the College of Liberal Arts programs in rhetoric and in the literature General Education Requirement.

Application forms and a complete description of the program are available from the graduate secretary of the department.

Financial Aid

Aid is available to graduate students in the form of scholarships, fellowships, and teaching and research assistantships. It is awarded on a competitive basis. Since sources are limited, many, but not all, doctoral students receive support.

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 February 15 for the following academic year. Forms are available from the English department and the University’s Office of Admissions.

Admission

Admission requirements are stated in Graduate Studies in English, which is available from the English department graduate office. Applications for admission are due January 15.

Writing Programs

For the past 50 years, The University of Iowa has been a national leader in virtually all areas of the teaching of writing.

Founded in 1936, the Writers’ Workshop was a pioneer in the field of creative writing; it numbers scores of distinguished poets and novelists among its alumni. The workshop provides opportunities for students at all levels to work with outstanding teacher-authors. It also brings numerous prominent authors to campus each year for lectures and readings.

The International Writing Program, founded in 1966, brings prominent foreign writers to campus each year.

The University of Iowa also is a leader in the area of nonfiction writing and rhetorical theory; it is one of the few academic institutions in the nation that offer a full range of graduate course work in this area.

Facilities

The University’s library collection is strong in all areas of English and American literature. Particularly because of the influence of the Writers’ Workshop, the library has particular strengths in twentieth-century fiction and poetry, including manuscript collections of twentieth-century authors.

The Zimansky Reading Room (the departmental library) has a small but select collection of books and journals for use by faculty and students.

Several periodicals are published under the department’s aegis: The Iowa Review, The Walt Whitman Quarterly Review, and Philological Quarterly. These journals offer opportunities for especially qualified graduate students to work as research assistants or editorial associates. The Iowa Journal of Literary Studies-edited by English department graduate students, features creative and scholarly work by students in English and related areas.

The University of Iowa Press, which publishes fine editions of works by contemporary authors, offers qualified students the opportunity to learn the art of fine printing.

The Department of English, the Writers’ Workshop, and the International Writing Program 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.

Courses

Individual descriptions for most English courses are not included because content and emphasis may vary considerably from one semester to the next. Detailed course descriptions for all undergraduate courses in a specific semester are published in the Liberal Arts Guide to Courses. Detailed course descriptions for each semester’s graduate courses are available in the English department office well in advance of the semester.

Literature- General Education

Students can satisfy the General Education Requirement in the humanities by taking 8G: 1 The Interpretation of Literature and two other approved humanities courses. English majors need not take 8G: 1, but may satisfy the requirement by taking 9 semester hours of approved humanities courses.

8G: 1 (or its equivalent by examination or transfer) is a prerequisite for the other courses (8G:2 through 8G: 15) and must be taken first. The pass/nonpass option is available only for students in the Colleges of Nursing and Engineering with the consent of the student’s adviser and the instructor. Students must successfully complete the rhetoric requirement before they may take 8G courses.

8C:1 The Interpretation of Literature 3 s.h.

Poetry, short fiction, drama, the novel. GER: humanities.

8C:2 Biblical and Classical Literature 3 s.h.

Literatures of ancient cultures-Jewish and Christian, Greek and Roman-that have deeply affected later civilizations. GER: humanities. Prerequisite: 8G: 1.

8C:3 Medieval and Renaissance Literature 3 s.h.

English and European poetry, prose, drama. 0001-500 in dialogue with contemporary concerns. GER: humanities. Prerequisite: 8G: 1.

8C:4 Epic and Tragic Literature 3 s.h.

Heroes and societies as the products of imagination; literary representations of heroes and heroines in differing social and historical situations; how their representation shapes our understanding of "society." GER: humanities. Prerequisite: 8G: 1. Not open to students who have taken 8G: 12.

8C:5 Comedy and Society 3 s.h.

Examination of the comic as an interaction among individuals, communes, and cultures; encourages students to investigate the comic imagination in a variety of media as it confronts, revises, or supports social conventions. GER: humanities. Prerequisite: 8G: 1. Not open to students who have taken 8G: 12.

8C:6 Narrative Literature 3 s.h.

Selected masterpieces and recent developments in the art of storytelling in poetry and prose. GER: humanities. Prerequisite: 8G: 1.

8C:7 Lyric Poetry 3 s.h.

Poetry from major periods of development as well as contemporary verse; emphasis on distinctive language, major format patterns of poetry. GER: humanities. Prerequisite: 8G: 1.

8C:8 Literature of the Theater 3 s.h.

Plays from a wide range of periods; relationship of text to performance. GER: humanities. Prerequisite: 8G: 1.

8C:9 American Lives 3 s.h.

Major works of American autobiography. GER: humanities. Prerequisite: 8G: 1.

8C:11 Literature and Sexuality 3 s.h.

Works from various genres, time periods, cultures that reflect and construct a wide range of sexual identities. GER: humanities. Prerequisite: 8G: 1.
Literature—Primarily for Undergraduates

English department courses are open to all undergraduates who have satisfied the rhetoric requirement. Undergraduates should complete one or more departmental courses below the 100-level before attempting 100-level courses. English majors are required to take at least one course from the first four categories.

Readings

These specialized discussion courses are intended for English majors; other students should consult the instructor before registering.

8:34 Reading Novels 3 s.h.
8:35 Reading Poems 3 s.h.
8:36 Reading Short Stories 3 s.h.
8:37 Reading Plays 3 s.h.
8:38 Reading Essays 3 s.h.
8:39 Reading Criticism 3 s.h.

Authors

8:71 Chaucer 3 s.h.
8:72 Shakespeare Same as 49:72.
8:73 Milton 3 s.h.
8:74 selected American Authors 3 s.h.
8:76 selected Modern Authors 3 s.h.
8:77 selected Authors 2-3 s.h.
8:10 selected Authors 3 s.h.
8:120 Chaucer 2-3 s.h.
8:122 Shakespeare Same as 49:182.
8:137 selected American Authors 3 s.h.
8:165 Shakespeare selected Plays Same as 49:183.
8:178 Old English Beowulf 3 s.h.
8:192 Dante and Romance Poetry 3 s.h.

Literature and Culture

8:101 Literature and Culture of the Middle Ages 3-4 s.h.
8:102 Literature and the Culture of the Renaissance 3-4 s.h.
8:103 Literature and the Culture of 16th-Century England 3-4 s.h.
8:104 Literature and the Culture of 19th-Century England 3-4 s.h.
8:105 Literature and Culture of 19th-Century America 3-4 s.h.
8:106 Literature and the Culture of 20th Century America 3-4 s.h.
8:107 Literature and Culture of 19th-Century Scotland 3-4 s.h.
8:129 Irish Literature and Culture 1 3-4 s.h.
8:131 Literature and Culture of 17th Century England 3-4 s.h.
8:141 Literature and Culture of America Before 1800 Same as at 45:110.
8:164 Literature and the Culture of the 20th Century 3-4 s.h.
8:180 Irish Literature and Culture 11 3-4 s.h.

Cultural Study

8:81 Film and Literature Same as 6:81, 68:11.
8:11 American Folk Literature 3 s.h.
8:12 American Ethnic Literature 3 s.h.
8:13 American Indian Literature 3 s.h.
8:14 American Regional Literatures 3 s.h.
8:16 Afro-American Literature 1 Same as 129:116.
8:17 Afro-American Literature 11 Same as 129:117.
8:18 Black Women Writers Same as 129:127. 123: 127.
8:180 Images of Black Women in Modern American Fiction Same as 129:120.
8:142 Popular Literatures 3 s.h.
8:151 Literature and Anthropology Same as 48:151, 113: 109.
8:154 Afro-American Drama Same as 49:192, 129: 180.
8:159 Regional Women Writers Same as 131: 159.
8:161 Women in Literature Same as 131: 161.
8:166 Themes and Modes in Literature by Women Same as 131: 166.
8:168 Literature and Music Same as 25: 164.
8:172 Narrative and the Camera Same as 36: 172, 48: 172.
8:175 Literature and Psychology Same as 48:167.
8:176 Literature and Philosophical Thou@ Same as 32: 148.
8:177 Literature and Art Same as 48:177.
8:179 Literature and Society Same as 48:150.
8:182 Science Fiction 3 s.h.
8:188 Prose by Women Writers Same as 131: 188.

Period and Genre

8:1 Modern Fiction 3 s.h.
8:8 Classical and Biblical Literature 3 s.h.
8:11 Film and Screenplays 3 s.h.
8:13 The Classical Views GER: foreign civilization and culture, humanities. Same as 14:12.
8:40 Major Texts in World Literature I GER: humanities. Same as 48:40.
8:41 Major Texts of World Literature II GER: humanities. Same as 48:41.
8:55 American Poetry 3 s.h.
8:56 American Literary Classics 3 s.h.
8:57 American Novel I 3 s.h.
8:58 American Novel II 3 s.h.
8:59 American Short Story 3 s.h.
8:60 selected Works of the Middle Ages 3 s.h.
8:62 selected Works of the 18th Century 3 s.h.
8:64 selected American Works Before 1900 3 s.h.
8:66 selected Works of the 20th Century 3 s.h.
8:67 Masterpieces of the Renaissance 3 s.h.
8:68 Masterpieces of the Renaissance II 3 s.h.
8:69 selected Romantic Works 3 s.h.
8:70 selected Victorian Works 3 s.h.
8:85 topical American Literature 3 s.h.
8:109 European Literature of the 19th Century Same as 48:108.
8:115 Classical Mythology GER: humanities. Same as 14:12.
8:121 British Poetry 3 s.h.
8:124 American Poetry 2-3 s.h.
8:125 Modern British and American Poetry 3 s.h.
8:126 Literary Genres in European Literature 11 Same as 48:15.
8:127 Contemporary Scene in Poetry Same as 48:27.
8:132 English Novel Defoe to Austen 3 s.h.
8:133 English Novel Scott to Butler 3 s.h.
8:135 American Novel 1900-1945 2-3 s.h.
8:136 American Short Story 2-3 s.h.
8:138 Post-Colonial Studies 3 s.h.
8:140 Contemporary Scene in Fiction Same as 48:140.
8:144 Medieval Drama Same as 49:181.
8:145 English Renaissance Drama Same as 49:184.
8:146 Restoration Drama Same as 49:185.
8:148 Modern Drama Ibsen to Shaw Same as 49: 186.
8:149 Modern Drama Brecht to Steppard Same as 49: 177.
8:150 American Drama to 1945 Same as 49: 176.
8:155 Contemporary British Drama Same as 49:188.
8:160 selected Themes in Literary Works 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>8:163</td>
<td>17th-Century Lyric Poetry</td>
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</tr>
<tr>
<td>8:167</td>
<td>Studies in Drama</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:170</td>
<td>Literary Genres and Modes</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:183</td>
<td>Victorian Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:184</td>
<td>Contemporary Theatre and Drama</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:185</td>
<td>American Autobiography I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:186</td>
<td>American Autobiography II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:190</td>
<td>Augustine to Boccaccio</td>
<td>3 s.h.</td>
</tr>
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<td>8:191</td>
<td>International Literature Today</td>
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<tr>
<td>8:193</td>
<td>Celtic and Norse in Translation</td>
<td>3 s.h.</td>
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<td>8:196</td>
<td>American Novel Since 1945</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:197</td>
<td>American Drama Since 1945</td>
<td>3 s.h.</td>
</tr>
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<td>Cooperative Education Internship</td>
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<td>8:53</td>
<td>Lyric Structures</td>
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<td>8:99</td>
<td>Undergraduate seminar</td>
<td>3 s.h.</td>
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<td>8:100</td>
<td>Introduction to Criticism and Theory</td>
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<tr>
<td>8:147</td>
<td>Literary Publishing</td>
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<tr>
<td>8:171</td>
<td>Great Books</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:187</td>
<td>The Handprinted Book: Design and production</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:188</td>
<td>Comparative Culture Criticism</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:194</td>
<td>Introduction to Feminist Criticism</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:195</td>
<td>Computer Applications in the Humanities</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:199</td>
<td>Special Project for Undergraduates</td>
<td>arr.</td>
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<td>8:022</td>
<td>Later Eighteenth-Century Literature: 1740-1800</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:223</td>
<td>Romantic Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:224</td>
<td>Early Victorian Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:226</td>
<td>Late Victorian and Edwardian Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:231</td>
<td>Early American Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:232</td>
<td>American Romantic Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:233</td>
<td>American Realistic Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:234</td>
<td>Early Twentieth-Century American Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:235</td>
<td>American Poetry</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:236</td>
<td>American Fiction</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:237</td>
<td>American Drama</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:246</td>
<td>Modernist Crosscurrents</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:254</td>
<td>Renaissance Tragedy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:257</td>
<td>Renaissance Lyric</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:258</td>
<td>Renaissance Comedy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:227</td>
<td>Three African Writers</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:251</td>
<td>Chaucer</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:253</td>
<td>Shakespeare</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:255</td>
<td>Milton</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:256</td>
<td>Selected Authors</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:261</td>
<td>History of Criticism: Plato to 1700</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:262</td>
<td>History of Criticism: 1700-Present</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:263</td>
<td>Issues in Contemporary literary Criticism</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:264</td>
<td>Literature and Psychoanalytic Theory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:265</td>
<td>Feminist Criticism</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:267</td>
<td>Classical Rhetoric</td>
<td>24 s.h.</td>
</tr>
<tr>
<td>8:268</td>
<td>Modern Rhetoric</td>
<td>24 s.h.</td>
</tr>
<tr>
<td>8:277</td>
<td>Introduction to Contemporary literary Theory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:284</td>
<td>Types of Modern Criticism</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:306</td>
<td>Studies in Language Theory</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>8:330</td>
<td>Modes of Critical Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:382</td>
<td>Literary Genres and Modes</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:228</td>
<td>Studies in African-American Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:238</td>
<td>American Ethnic Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:259</td>
<td>Law and lawyers in Literature</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Special Topics**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:270</td>
<td>Introduction to Culture Studies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:313</td>
<td>Modem Studies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:314</td>
<td>Postmodern Studies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:316</td>
<td>Studies in Poetry</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:318</td>
<td>Topics in Eighteenth-Century Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:319</td>
<td>Issues in Eighteenth-Century Literature</td>
<td>3 s.h.</td>
</tr>
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<td>Issues in Seventeenth-Century Literature</td>
<td>3 s.h.</td>
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<td>Topics in Eighteenth-Century Literature</td>
<td>3 s.h.</td>
</tr>
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<td>8:322</td>
<td>Post-Colonial Studies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:323</td>
<td>Topics in Nineteenth-Century Literature</td>
<td>3 s.h.</td>
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<tr>
<td>8:325</td>
<td>Feminist Studies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:340</td>
<td>Studies in American Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>8:360</td>
<td>Issues in Sixteenth and seventeenth Century Literature</td>
<td>3 s.h.</td>
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**Seminars**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:402</td>
<td>Seminar: Medieval Literature</td>
<td>arr.</td>
</tr>
<tr>
<td>8:407</td>
<td>Semina: Renaissance Literature</td>
<td>arr.</td>
</tr>
<tr>
<td>8:411</td>
<td>Seminar: Shakespeare</td>
<td>arr.</td>
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<tr>
<td>8:414</td>
<td>Seminar: 17th-Century literature</td>
<td>arr.</td>
</tr>
<tr>
<td>8:431</td>
<td>Seminar: English Romanticism</td>
<td>arr.</td>
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<tr>
<td>8:432</td>
<td>Seminar: Victorian Literature</td>
<td>arr.</td>
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<tr>
<td>8:434</td>
<td>Seminar: Twentieth-century British Literature</td>
<td>arr.</td>
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<tr>
<td>8:435</td>
<td>Seminar: Twentieth-Century British and American Literature</td>
<td>arr.</td>
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<tr>
<td>8:446</td>
<td>Seminar: Nineteenth-century American Literature</td>
<td>arr.</td>
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<tr>
<td>8:452</td>
<td>Seminar: short Fiction</td>
<td>arr.</td>
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<td>8:455</td>
<td>Seminar: Post-Colonial Studies</td>
<td>arr.</td>
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<tr>
<td>8:458</td>
<td>Seminar: American Writers of the Twentieth Century</td>
<td>arr.</td>
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<tr>
<td>8:460</td>
<td>Seminar: problems in Aesthetics and Literary Theory</td>
<td>arr.</td>
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<tr>
<td>8:462</td>
<td>Seminar: Cultural Studies</td>
<td>arr.</td>
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<td>8:463</td>
<td>Seminar: Narrative Theory</td>
<td>arr.</td>
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<tr>
<td>8:465</td>
<td>Seminar: History, Literature, and American Culture</td>
<td>arr.</td>
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<tr>
<td>8:466</td>
<td>Seminar: History, Literature, and Culture</td>
<td>arr.</td>
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</tbody>
</table>

**Independent Study**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>8:500</td>
<td>Advanced Studies in an Author</td>
<td>arr.</td>
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<tr>
<td>8:505</td>
<td>Advanced Studies in a Literary Period</td>
<td>arr.</td>
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<tr>
<td>8:510</td>
<td>Advanced Studies in a Literary Form</td>
<td>arr.</td>
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<tr>
<td>8:515</td>
<td>Advanced Studies in a Literary Genre</td>
<td>arr.</td>
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<tr>
<td>8:520</td>
<td>Advanced Studies in a Literary Mode</td>
<td>arr.</td>
</tr>
</tbody>
</table>
Natural text: **Exercise Science ● Liberal Arts**

8:525 Advanced Studies in a Literary Movement arr.
8:530 Advanced Studies in a Literary Theme arr.
8:535 Advanced Studies in literary Criticism arr.
8:550 Advanced Studies in an Interdisciplinary Subject arr.
8:585 M.A. Thesis in Literary Studies arr.
8:590 Special Project for Graduate Students arr.

**Linguistics and Language**
8L:100 Introduction to Linguistics (Same as 103:100)
8L:104 Varieties of English Present and Past (Same as 103:131)
8L:132 Elementary Old English (Same as 103:112)
8L:142 Modern English Grammar (Same as 103:142)
8L:198 Old Norse (Same as 103:251)

**Professional Training**
Although the following courses are open to all graduate students, their primary purpose is to offer theoretical and practical training to those who plan to teach.

8P:140 Approaches to Teaching Literature (Same as 78:181)
8P:182 Language and Learning (Same as 78:182, 7E:182)
8P:190 Methods: English (Same as 73:118)
8P:198 Teaching Literature to Adolescents (Same as 78:183)
8P:316 Seminar: Recent Developments in Literature for Adolescents arr.
8P:370 Teaching in a Reading Lab (Same as 103:370)
8P:405 M.A. seminar: English Education (Same as 78:315)
8P:425 Ph.D. Seminar: English Education (Same as 78:415)
8P:450 Colloquium: Teaching Rhetoric (Same as 20:200, 10:200)

**Nonfiction Writing**
The following courses may be repeated:
8W:100 Nonfiction Writing (Same as 20:101)
8W:104 Personal Writing (Same as 20:104)
8W:112 Writing for the Sciences (Same as 20:112)
8W:250 Forms of Nonfiction (Same as 20:250)
8W:350 Essay Writing Workshop (Same as 20:350)
8W:355 Nonfiction Writing Workshop (Same as 20:355)

**Theory and Practice of Writing**
Theory and analysis of nonfiction writing combined with practical experimentation in writing, for people who intend to practice, criticize, and/or teach nonfiction writing.
8W:135 Forms of the Essay (Same as 20:135)
8W:141 Approaches to Teaching Writing (Same as 20:141)
8W:237 Style and Voice (Same as 20:237)
8W:239 Rhetorical Theory: Analysis and Application (Same as 20:239)
8W:243 Colloquium in the Teaching of Writing (Same as 20:243)
8W:244 Colloquium: Free-lance Writing and Publishing (Same as 20:244)
8W:255 Forms of the Essay (Same as 20:255)
8W:336 Theories of Style (Same as 20:336)
8W:340 Theories of Writing (Same as 20:340)
8W:345 Research on Writing (Same as 20:345)
8W:375 Teaching in a Writing Lab (Same as 20:375)
8W:472 Seminar: Theories of Writing (Arr.)

**Independent Study**
8W:199 Undergraduate Project in Nonfiction writing (Arr.)
8W:550 Special Project in Nonfiction Writing (Arr.)
8W:560 Special Project in Teaching of Writing (Arr.)
8W:580 M.A. Thesis in Nonfiction Writing (Arr.)

**Creative Writing**

**General Education**
All may be repeated except 8W:1 and 8W:219:
8W:1 Creative Writing Studio Workshop (3 s.h.)
8W:22 Creative Writing (3 s.h.)
Undergraduate Program

Bachelor of Science in Exercise Science

The Bachelor of Science degree program provides preparation for continuing education at the graduate level in exercise science; the health professions, including medicine and physical therapy; and athletic training. It also prepares students for careers in athletic training or exercise science.

Requirements for the major in exercise science changed in 1994. Students who declared the exercise science major before August 22, 1994, may choose to complete either the old requirements (see 1992-94 General Catalog or the new requirements. Students admitted beginning August 22, 1994, must complete the new requirements. (Students who completed 2:3 Principles of Animal Biology before August 22, 1994, may use that class instead of 2:10-11 sequence if they graduate August 1999 or earlier.)

Candidates for the B.S. degree in exercise science are expected to satisfy the College of Liberal Arts General Education Requirement in natural sciences by taking 4:13-14 Chemistry and 2:10 Principles of Biology. Part of the General Education Requirement in social sciences should be satisfied by taking 31:3 General Psychology.

The exercise science major includes study in anatomy, biomechanics, exercise physiology, motor control, and athletic training. The first four areas of study are designed primarily for students who intend to pursue advanced degrees in an exercise science specialization or to seek admittance to a professional program in the health sciences (e.g., medicine, dentistry, physical therapy, or physician assistant).

Athletic training is a separate degree track in exercise science; it incorporates an extensive clinical component.

Qualifications for admission to exercise science include completion, with a grade-point average of 3.00 or higher, of the following courses.

- 2:10 Principles of Biology I 4 s.h.
- 4:13 Principles of Chemistry I 3 s.h.
- 22M:16 Calculus for the Biological Sciences 4 s.h.
- 22M:25 Calculus I 4 s.h.
- 22M:35 Engineering Calculus I 4 s.h.

**EXERCISE SCIENCE REQUIREMENTS**

Students must earn at least 20 semester hours.

All of these:

- 27:1 50 Gross Anatomy for Exercise Science 2 s.h.
- 27:151 Gross Anatomy Lab for Exercise Science 2 s.h.
- 27:141 Exercise Physiology 3 s.h.
- 27:124 Exercise Physiology Laboratory 1 s.h.
- 27:197 Biomechanics of Human Motion 4 s.h.
- 27:160 Motor Control I: Neurophysiological Basis 3 s.h.

At least two electives chosen from:

- 27:96 Special Projects 3 s.h.
- 27:107 Introduction to Biomechanics 3 s.h.
- 27:17 Human Growth and Motor Development 2 s.h.
- 27:153 Connective, Muscle, Nerve Tissue Anatomy 2 s.h.
- 27:155 Skeletal Muscle Biology 3 s.h.
- 27:157 The Qualitative Analysis of Human Motion 3 s.h.
- 27:196 Exercise Science Senior Seminar 3 s.h.

**REQUIREMENTS IN OTHER SUBJECTS ("COGNATES")**

Biology, chemistry and mathematics listings include courses that are prerequisites.

**Biology**

At least 12 semester hours

- 2:10-2:11 Principles of Biology I-II 8 s.h.

At least 4 semester hours chosen from:

- 2:112 Cell, Tissue, and Organ Biology 5 s.h.
- 2:114 Cell Biology 3 s.h.
- 2:108 Vertebrate Zoology 4 s.h.
- 2:124 Animal Physiology 3 s.h.
- 2:143 Animal Behavior 4 s.h.
- 2:150 Endocrinology 3 s.h.
- 2:152 Endocrinology Laboratory 2 s.h.
- 2:155 Cell Physiology 4 s.h.
- 2:180 Fundamental Neuroscience 3 s.h.
- 2:181 Neurophysiology 3 s.h.

**Chemistry**

At least 8 semester hours

- 4:13 Principles of Chemistry I 3 s.h.
- 4:14 Principles of Chemistry II 3 s.h.
- 4:16 Principles of Chemistry Lab I 2 s.h.

The following additional courses are highly recommended.

- 4:121 Organic Chemistry I 3 s.h.
- 4:122 Organic Chemistry II 3 s.h.
- 4:141 Organic Chemistry Laboratory 3 s.h.

**Computer Science**

At least 3 semester hours chosen from:

- 6K:70 Computer Analysis 3 s.h.
- 22C:7 Introduction to Computing with FORTRAN 3 s.h.
- 22C:10 Programming with C 3 s.h.
- 22C:16 Introduction to Programming with PASCAL 4 s.h.
- 57:17 Computers in Engineering 3 s.h.

**Mathematics**

At least 4 semester hours chosen from:

- 22M: 16 Calculus for the Biological Sciences 4 s.h.
- 22M:25 Calculus I 4 s.h.
- 22M:35 Engineering Calculus I 4 s.h.

**Statistics**

At least 3 semester hours chosen from:

- 7P: 143 Introduction to Statistical Methods 3 s.h.
- 22S:101 Biostatistics 3 s.h.
- 22S: 102 Introduction to Statistical Methods 3 s.h.
- 63:161 Introduction to Biostatistics 3 s.h.

**Physics**

Total of 8 semester hours

- 29: 11-12 College Physics I-II 8 s.h.
- 29: 17-18 Introduction to Physics I-II 8 s.h.

**Psychology**

Total of 4 semester hours

- 72:130 Systemic Psychology 3 s.h.
- 72:150 Intermediate Psychology 4 s.h.

**RECOMMENDED ELECTIVES**

It is recommended that students select from the following electives in order to complete the 124 semester hours required for a B.S. degree in the College of Liberal Arts. Courses in biology and chemistry are also listed above, under “Requirements in Other Subjects (‘Cognates’).”

**Biology**

- 2:112 Cell Tissue Organ Biology 5 s.h.
- 2:114 Cell Biology 3 s.h.
- 2:108 Vertebrate Zoology 4 s.h.
- 2:124 Animal Physiology 3 s.h.
- 2:143 Animal Behavior 4 s.h.
- 2:150 Endocrinology 3 s.h.
- 2:152 Endocrinology Laboratory 2 s.h.
- 2:155 Cell Physiology 4 s.h.
- 2:180 Fundamental Neuroscience 3 s.h.
- 2:181 Neurophysiology 3 s.h.

**Chemistry**

- 4:13 Principles of Chemistry I 3 s.h.
- 4:14 Principles of Chemistry II 3 s.h.
- 4:16 Principles of Chemistry Lab I 2 s.h.

- 4:121 Organic Chemistry I 3 s.h.
- 4:122 Organic Chemistry II 3 s.h.
- 4:141 Organic Chemistry Laboratory 3 s.h.

**Computer Science**

- 6K:70 Computer Analysis 3 s.h.
- 22C:7 Introduction to Computing with FORTRAN 3 s.h.
- 22C:10 Programming with C 3 s.h.
- 22C:16 Introduction to Programming with PASCAL 4 s.h.
- 57:17 Computers in Engineering 3 s.h.

**Speech Pathology and Audiology**

- 3:40 Manual Communication I 1 s.h.
- 3:141 Manual Communication II 1 s.h.
- 3:116 Basic Neuroscience for Speech and Hearing 3 s.h.

**Chemistry**

- 4:101 Elementary Quantitative Analysis 4 s.h.
- 4:121 Organic Chemistry I 3 s.h.
- 4:122 Organic Chemistry II 3 s.h.
- 4:141 Organic Chemistry Laboratory 3 s.h.

**Education**

- 7C:185 Introduction to Substance Abuse 3 s.h.

**English**

- 8W: 100 Nonfiction Writing 3 s.h.

- 8W: 15 Writing for Practical Purposes 2-3 s.h.

**Geology**

- 12:123 Vertebrate Osteology 2 s.h.
the freshman year. To be considered for admission, students must submit an application; complete the following course requirements: human anatomy, basic athletic training, first aid and CPR, human growth and motor development, contemporary issues in health education; and maintain a grade-point average of 2.50 or higher.

Prior to admission, students must have completed, with a grade-point average of 2.50 or higher, at least one course in at least two of the following areas: principles of biology, chemistry, mathematics, physics, and psychology.

Program requirements include the following.

- 27:107 Introduction to Biomechanics 3 s.h.
- 27:140 Exercise Physiology for Practitioners 3 s.h.
- 27:160 Motor Control I: Neurophysiological Basis 3 s.h.
- 27:171 Administration of Athletic Training Programs 3 s.h.
- *27:172 Clinical Sciences I 2 s.h.
- *27:173 Clinical Sciences II 1 s.h.
- *27:182 Clinical Sciences III 3 s.h.
- *27:183 Clinical Sciences IV 3 s.h.
- *27:184 Seminar in Athletic Training 5-10 s.h.
- *27:185 Practicum in Emergency Care 0-3 s.h.
- 27:253 Laboratory in Advanced Anatomy 6 s.h.
- 28:130 Human Nutrition 3 s.h.
- 7C:199 Counseling for Related Professions 3 s.h.
- 71:120 Drugs: Their Nature, Action, and Use 2 s.h.
- 72:253 Seminar in Athletic Training 0-3 s.h.

Enrollment is limited to students formally admitted into the athletic training program.

Graduate Programs

Master of Science without Thesis

The programs leading to the M.S. without thesis are terminal units of advanced study for athletic trainers and students in the combined physician assistant-exercise science program.

Athletic Training Program

The nonthesis program in athletic training is designed primarily as an advanced area of study in clinical education and research for the certified athletic trainer. Emphasis is on developing and applying a research and education base to the knowledge and skills of the entry-level athletic trainer. The program focuses on a health care team approach to sports medicine, professional preparation, and sports epidemiology.

The following undergraduate course work (total of 30 semester hours) is required background for the nonthesis M.S. program in athletic training.

- Human anatomy, minimum of 3 s.h.
- Human physiology, 3 s.h.

Athletic Training Core:
- Prevention, 3 s.h.
- Evaluation and recognition, 3 s.h.
- Rehabilitation, 3 s.h.
- Administration, 2 s.h.

Exercise Science Core:
- Neural Control, 3 s.h.
- Exercise physiology, 3 s.h.
- Biomechanics, 3 s.h.

Electives in Related Areas, 3-4 s.h.

Current emergency certifications NATA certification or eligibility

Course Requirement

For the M.S. without thesis, students must complete 30 semester hours, at least 20 of which must be in exercise science.

The following courses are required for the M.S. without thesis in athletic training.

Exercise Science

Three courses chosen from:

- 27:141 Exercise Physiology 3 s.h.
- 27:153 Connective, Muscles, Nerve Tissue Anatomy 2 s.h.
- 27:155 Skeletal Muscle Biology 3 s.h.
- 27:157 The Qualitative Analysis of Human Motion 3 s.h.
- 27:160 Motor Control I: Neurophysiological Basis 3 s.h.

Clinical Research Tools

Two courses:

- 7P:143 Introduction to Statistical Methods 3 s.h.
- 63:161 Introduction to Biostatistics 3 s.h.

An approved data processing or instructional technology course in computer science 2-4 s.h.

Athletic Training

- 27:301 Non-Thesis Seminar 3 s.h.
- 27:184 Seminar in Athletic Training (3 registrations) 6 s.h.
- 63:158 Principles of Epidemiology or 7W:121 Design and Developing Instructional Materials 3 s.h.
- 69:133 Introduction to Human Pathology 3 s.h.

Electives

A total of 4 semester hours.

Physician Assistant-Exercise Science Program

For information about the physician assistant-exercise science combined program, see "Physician Assistant Program" in the College of Medicine section of the Catalog.

Master of Science with Thesis

The thesis program leading to the M.S. in exercise science is designed primarily as a first
step in graduate study leading to the Doctor of Philosophy. As such, it is a research-oriented program that introduces students to the nature and quality of research in exercise science and gives them an opportunity to specialize in an area of interest. The five areas of specialization leading to the M.S. degree with thesis are anatomy, athletic training, biomechanics, exercise physiology and motor control.

Because the M.S. with thesis is regarded as the first step toward the Ph.D. degree in one of five areas of specialization, the undergraduate prerequisite courses required depend on the area in which the candidate intends to specialize for doctoral study. Specific courses in mathematics, chemistry, physics, biology, anatomy, athletic training, biomechanics, exercise physiology, or psychology are required in some areas of specialization. These courses must be approved by the M.S. adviser and the professor in charge of the emphasis area selected by the candidate.

**COURSE REQUIREMENTS**

The following courses (total of 30 semester hours) are required for the M.S. with thesis.

**Courses Outside Specialization Area**

Two courses chosen from:

- 27:141 Exercise Physiology $3 \text{ s.h.}$
- 27:142 Exercise Physiology Laboratory $1 \text{ s.h.}$
- 27:153 Connective, Muscle, Nerve Tissue Anatomy $2 \text{ s.h.}$
- 27:155 Skeletal Muscle Biology $3 \text{ s.h.}$
- 27:160 Motor Control I: Neurophysiological Basis $3 \text{ s.h.}$
- 27:197 Biomechanics of Human Motion $4 \text{ s.h.}$

Three courses chosen from:

- 7P:143 Introduction to Statistical Methods $3 \text{ s.h.}$
- 63:161 Introduction to Biostatistics $3 \text{ s.h.}$
- An approved graduate-level course in computer science $2-4 \text{ s.h.}$
- An approved graduate-level course in scientific writing $3 \text{ s.h.}$

**Specialization Area Courses**

- 27:404 Thesis: M.A. $4 \text{ s.h.}$
- Specialization courses approved by adviser $5-7 \text{ s.h.}$
- Electives $4-5 \text{ s.h.}$

**Doctor of Philosophy**

**Admission**

Admission to the Ph.D. program is based on the applicant’s grade-point average on work completed for the M.A or M.S. and on his or her score on the Graduate Record Examination (GRE) General Test. To be considered for admission, applicants must have earned a grade-point average of 3.00 or higher on all graduate work.

For admission to the Ph.D. program in therapeutics, applicants must be graduates of an approved professional program in physical therapy and must hold a master’s degree, which need not be in physical therapy. Deadlines for admission applications are October 15, March 15, and May 15; notification is made approximately two months after the respective application deadline.

**Requirements**

Ph.D. candidates should have a general knowledge of all areas in exercise science, a working knowledge of research techniques applicable to problems in the field, and an in-depth knowledge in at least one area of specialization in exercise science.

The specialization areas are anatomy, biomechanics, exercise physiology, motor control, and therapeutics.

The thesis program for the M.S., together with the Ph.D. core courses, provide the background required for the Ph.D. candidate’s specialization. Candidates must complete a minimum of 72 semester hours beyond the B.A. or B.S. This must include the completion of a dissertation in the area of specialization. It is expected that an appropriate manuscript of the dissertation will be submitted to an approved refereed professional journal for publication.

Many of the courses in the specialization areas are offered by departments other than the Department of Exercise Science. Professors from these departments frequently serve on comprehensive examination committees and on dissertation committees for the initial presentation of the candidate’s prospectus. They also participate in the final oral examination.

**GENERAL REQUIREMENTS**

Ph.D. candidates must fulfill the following requirements:

- completion of the M.A. or M.S. with thesis, or equivalent;
- a minimum of 10 semester hours of independent research, exclusive of the thesis requirement; and
- at least 72 semester hours of graduate credit beyond the B.A. or B.S. (typically more than 90 semester hours).

**CORE COURSE REQUIREMENT**

Two approved comes in statistics

One approved computer science course

27:201 Research (minimum of 10 s.h.)

27:202 Practicum in College Teaching

(minimum of 3 s.h.)

27:405 Thesis: Ph.D. (12 s.h.)

**SCIENTIFIC AREA COURSES**

In order to ensure that exercise science doctoral candidates obtain a breadth of knowledge over the key scientific areas that constitute the basis of the major, the following scientific area course requirements must be satisfied.

Students specializing in anatomy, biomechanics, exercise physiology, and motor control must select one course from each of the four areas listed below. Three must be second-level courses.

Students specializing in therapeutics must select one course in three of the four areas. Two must be second-level courses. Students may submit a formal request to the exercise science faculty to substitute specific therapeutic courses for the scientific area courses listed below, provided the substitute courses contain both a lecture and a laboratory format.

**Anatomy**

First level: 27:150 and 27:151 (4 s.h.)

Second level: 27:253 (6 s.h.)

**Biomechanics**

First level: 27:107 (3 s.h.)

Second level: 27:197 (4 s.h.)

**Motor Control**

First level: 27:160 (3 s.h.)

Second level: 27:314 (3 s.h.)

**Exercise Physiology**

First level: 127:141 and 127:142 (4 s.h.)

Second level: 27:274 and 27:303, or 27:275 and 27:304, or 27:276 and 27:305 (3 s.h.)

**QUALIFYING AND COMPREHENSIVE EXAMINATIONS**

To assess general background knowledge, all Ph.D. candidates must pass an initial qualifying examination, which should be taken prior to the third semester of graduate study (prior to the fifth semester if the candidate entered with only a bachelor’s degree). Ph.D. candidates also must pass a comprehensive examination, which should be taken following the completion of the fourth semester of graduate study (sixth for students entering with only the bachelor’s degree). Candidates specializing in exercise physiology who wish a minor in physiology may write a separate comprehensive examination prepared and evaluated by faculty members of the Department of Physiology and Biophysics in the College of Medicine.

**Specializations**

Candidates are expected to obtain a broad knowledge base within their area of specialization. This normally entails approximately 30 semester hours. Recommended courses for each area of specialization are as follows.

**ANATOMY**

- 27:112 Cell, Tissue, and Organ Biology
- 27:153 Connective, Muscle, Nerve Tissue Anatomy
- 27:253 Laboratory in Advanced Anatomy
- 27:295 Electromyography in Kinesiology and Biomechanics
- 60:217 Developmental Anatomy
- 60:234 Medical Neuroscience
- 77:103 Introduction to Radiocarbonates and Radiobiology
- 77:224 Radiotopes in Biological Research
- 99:110 Biochemistry
- 99:120 Biochemistry and Molecular Biology I
- 99:130 Biochemistry and Molecular Biology II

**BIOMECHANICS**

- 27:253 Laboratory in Advanced Anatomy
- 27:295 Electromyography in Kinesiology and Biomechanics
27:357 Research Techniques in Biomechanics 4 s.h.
57: 19 Mechanics of Deformable Bodies 3 s.h.
57:20 Mechanics of Fluids and Transfer Processes 4 s.h.
57:21 Principles of Design 1 3 s.h.
58: 155 Intermediate Dynamics 3 s.h.
63:162 Design and Analysis of Experiments in the Biomedical Sciences 3 s.h.
101:212 Biomedical Instrumentation 3 s.h.

EXERCISE PHYSIOLOGY

2: 112 Cell, Tissue, and Organ Biology 5 s.h.
60:205 General Histology for Graduate Students 4 s.h.
2: 150 Endocrinology 3 s.h.
2: 152 Endocrinology Laboratory 2 s.h.
71: 105 Pharmacology for Health Sciences Medical 5 s.h.
72:212 Medical Physiology 4 s.h.
72:234 Medical Neurosciences 4 s.h.
72:274 Exercise Physiology Seminar 2 s.h.
77:103 Introduction to Radioisotopes and Radiobiology 4 s.h.
77:224 Radioisotopes in Biological Research 4 s.h.
99:110 Biochemistry 3 s.h.
99:120 Biochemistry and Molecular Biology I 4 s.h.
99:130 Biochemistry and Molecular Biology II 11 s.h.

MOTOR CONTROL

3:180 Fundamental Neuroscience 3 s.h.
27:295 Electromyography in Kinesiology and Biomechanics 3 s.h.
27:314 Seminar in Motor Control 2 s.h.
101:212 Biomedical Instrumentation arr.

Three courses chosen from the following areas: computer science, neuroscience, biomechanics, anatomy, and exercise physiology

THERAPEUTICS

Candidates for this area of specialization must be accepted to the graduate program in physical therapy education as well as in exercise science. Prerequisites are listed under required courses for the Master of Arts in physical therapy under “Division of Associated Medical Sciences” in the College of Medicine section of the Catalog. Students specializing in therapeutics must satisfy the scientific area course requirements listed for the exercise science major.

General Core

22C: 100 Introduction to Computing with Fortran (or equivalent) 2 s.h.
63:273 Research Data Management 3 s.h.
27:405 Thesis: Ph.D. 12 s.h.
101:214 Advanced Seminar in Physical Therapy 3 s.h.
101:280 Teaching Practicum 3 s.h.
Total 23 s.h.

Research

27:201 Research arr.
101:284 Practicum in Research 3 s.h.
101:325 Independent Study arr.
101:327 Research in Therapeutics arr.
Total 10 s.h.

Specialty Emphasis

Individual plans of study are developed jointly by the graduate student and faculty adviser. Course requirements depend on the student’s specific specialty area (cardiopulmonary, ergonomics, musculoskeletal, neuromuscular).

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 exercise science students to use additional special facilities and research equipment in other departments on campus (e.g., biology, biochemistry, orthopedic surgery, internal medicine, pharmacology, physiology and biophysics, and the College of Engineering).

Courses

Primarily for Undergraduates

27:000 Cooperative Education Internship 0 s.h.
27:53 Human Anatomy 3 s.h.
General human anatomy covering most systems of the body.
27:56 First Aid and CPR 2 s.h.
American Red Cross certification: basic first aid, CPR procedures. Same as 28:32.
27:57 Basic Athletic Training 3 s.h.
Basic pathology, epidemiology, materials biology for prevention and immediate care of athletic injuries Prerequisite: 27:53.
27:81 Kinesiology 3 s.h.
27:96 Special projects arr.
27: 117 Human Growth and Motor Development 2 s.h.
Human growth, development of nervous systems; focus on motor development from birth through puberty. Offered fall semesters. Same as 7E:117.

For Undergraduates and Graduates

27: 107 Introduction to Biomechanics 3 s.h.
Biomechanics concepts and their application to improving performance in physical activities. Offered fall semesters and summer sessions.
27:140 Exercise Physiology for Practitioners 3 s.h.
Effects of acute and chronic exercise on different physiological systems (energy, circulatory, respiratory, endocrine). Topics include fitness evaluation, weight control strategies, training programs. Preparatory studies for ACSM Certification. Offered spring semesters and summer sessions. Recommended prior to course in human physiology.
27:141 Exercise Physiology 3 s.h.
Mechanisms responsible for the acute and chronic effects of exercise on the different organ systems of the body. Offered fall semesters. Prerequisite: 72: 130 or 72:150 or equivalent.
27:142 Exercise Physiology Laboratory 1 s.h.
Supplements 27:141. Laboratory: scientific principles of exercise investigation used to demonstrate acute and chronic effects of exercise. Consent of instructor required.
27:150 Gross Anatomy for Exercise Science 2 s.h.
Major systems of the body with emphasis on the nervous, muscular, connective tissue systems related to movement. Open only to exercise science majors. Offered fall semesters.
27:151 Gross Anatomy Lab for Exercise Science 2 s.h.
Major systems of the body with emphasis on nervous, cardiovascular, muscular systems related to movement. Open only to exercise science majors. Offered fall semesters.
27: 153 Connective, Muscle, Nervous Tissue and Anatomy 2 s.h.
Structure, growth, and development of connective, muscular, nervous tissues from histogenesis to adult stage. SPECIFICs: their structure and movements. Offered spring semesters.
27:155 Skeletal Muscle Biology 3 s.h.
Skeletal muscle structure, contractile mechanisms, production of movement, biomechanical properties, adaptation to increased use, tissue and injury offered spring semesters.
27:157 The Qualitative Analysis of Human Motion 3 s.h.
Applicator of basic concepts in biomechanics to qualitative analysis of motor skills analyses are based on development of a deterministic model: observation of performance, identification of faults; establishment of priority among faults; instruction of the performer. Offered summer sessions.
27:160 Motor Control I: Neuropsychological Basis 3 s.h.
Neuroanatomical and neuropsychophysical bases of human motor control. Topics include mechanisms for locomotion and posture, head-eye coordination, control of arm and hand movements, role of sensory information. Offered spring semesters. Prerequisite: course in human anatomy.
27:171 Administration of Athletic Training Programs 3 s.h.
Health care supervision, professional responsibility, philosophies in athletic health care. Offered fall semesters.
27:172 Clinical Sciences I 2 s.h.
Theoretical and practical skill development in therapeutic modalities. Open only to exercise training majors. Offered spring semesters.
27:173 Clinical Sciences II 1 s.h.
Pathology and evaluation, theory of sports reduced trauma. Open only to athletic training majors. Offered summer sessions. Prerequisite: 27:172.
27:182 Clinical Sciences III 3 s.h.
Theoretical and practical skill development in the areas of muscular/bone injury evaluation and therapeutic exercises. Open only to athletic training majors. Offered fall semesters. Prerequisite: 27:173.
27:183 Clinical Sciences IV 3 s.h.
Continuation of muscular/bone evaluation, completion of EENT, chest, abdomen, and genitourinary evaluation, plus rehabilitation programs. Offered spring semesters. Prerequisite: 27:182.
27:184 Seminar in Athletic Training arr.
Current issues and relationships in research, education, clinical practice. Open only to athletic training majors. Consecutive registrations required for a total of 16 s.h. Offered fall and spring semesters.
27: 185 Practicum in Emergency Care 3 s.h.
Open only to athletic training majors.
27:196 Exercise Science Senior Seminar 2-3 s.h.
Independent study or laboratory research in one of four areas of specialization (anatomy, biomechanics, exercise physiology, or motor control); results presented orally and in writing. Open only to exercise science majors. Offered fall and spring semesters.
27:197 Biomechanics of Human Motion 4 s.h.
Application of principles of mechanics to the investigation of human motion in two dimensions: topics include system modeling, force balance 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.
27:216 Physiological Responses to Exercise and Training 3 s.h.
Effects of exercise and training on neuromuscular, respiratory, circulatory functioning, and energy systems.

Primarily for Graduates

27:200 Problems arr.
Consent of instructor required.
27:201 Research arr.
Consent of instructor required.
27:202 Practicum in College Teaching  
Consent of instructor required. Same as 28:292.
27:253 Laboratory in Advanced Anatomy 6 s.h. 
Offered summer sessions.
27:258 Seminar: Current Developments in Biomechanics  
Offered spring semesters. Same as 001-205.
27:274 Exercise Physiology Seminar  
Same as 72:274.
27:275 Advanced Exercise Physiology 2 s.h.
27:276 Advanced Exercise Physiology 2 s.h.
27:295 Electromyography in Kinesiology and Biomechanics 3 s.h.
Electromyographic techniques for studying muscle activity in human motion. Offered spring semesters. Same as 91:205.
27:301 Non-Thesis Seminar  
For candidates for the M.S. without thesis. Offered spring semesters.
27:303 Advanced Exercise Physiology Laboratory 1 s.h.
27:304 Advanced Exercise Physiology Laboratory 1 s.h.
27:305 Advanced Exercise Physiology Laboratory 1 s.h.
27:311 Orientation to Graduate Study  
Consent of instructor required. Same as 101:295.
27:314 Seminar in Motor Control 2 s.h. 
Offered spring semesters.
27:357 Research Techniques in Biomechanics 4 s.h. 
Offered spring semesters.
27:404 Thesis: M.A. 0-4 s.h.
Single or repeated registration for up to 12 semester hours.

**FRENCH AND ITALIAN**

Chair: Geoffrey R. Hope
Professors: Charles F. Altman, Janet G. Altman, Jacques A. Bourgeacq, Simone Delay, Richard O’Gorman, Steven Ungar
Professors emeriti: Florindo Cerreta, Camille Levois, John T. Vedrine, Janis B. Ratermanis
Associate professors: Wendelin Guentner, L. Kathy Henleman, Geoffrey Hope, Michel Laucos, Rosemarie Scullion
Assistant professors: Cinzia Blum, Deborah Contrada, Downing Thomas
Undergraduate degrees: B.A. in French, Italian, minor in French, Italian
Graduate degrees: M.A., Ph.D. in French

**Undergraduate Programs**

The department introduces students to the cultures of France and Italy, provides an understanding of those countries’ historical and contemporary importances and facilitates development of proficiency in the French and Italian languages. It also fosters critical appreciation of French, Francophone, and Italian literature and civilization.

Students choose from a variety of programs for majors in French and Italian and electives for nonmajors with prerequisite linguistic skills. They are afforded flexible means to meet the liberal arts General Education Requirement in foreign language 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, comparative literature, or history 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, or communications, where the knowledge of a foreign language is essential.

**Bachelor of Arts in French**

The major in French was revised in 1994. All students who declare the major August 22, 1994, or later must complete the new major requirements. Students who declare before that date may choose to complete either the old requirements (see the 1992-94 General Catalog) or the new requirements. Students who wish to graduate under the old requirements must complete the major and graduate by August 1998.

The undergraduate major in French may be completed with an emphasis on literature, culture and civilization, teaching, or language.

All majors must complete the following courses (total of 31 semester hours).

- 9:111 1 Third-Year Composition 3 s.h.
- 9:126 French Conversation: Third Level 2 s.h.
- 9:136 French Conversation: Fourth Level 2 s.h.

Seven courses in French language, culture, or literature (one of these seven may be taught in English under the French department number, 9, such as 9:141, 142, 147) 21 s.h.

Students must maintain at least a 2.00 grade-point average in all major work, including all University of Iowa work in the major. Majors must maintain portfolios documenting their progress toward attaining the objectives of the French major. On the basis of materials in his or her portfolio, a student may petition the department to count a literature course toward the culture and civilization distribution requirement, or vice-versa.

Upon declaring the major (or later, but prior to the senior year), students should choose an emphasis in one of the following four tracks.

1. **The literature track** is designed for students who are interested in French literature or in combining the study of French literature with a major in another area, such as English, comparative literature, cinema, or fine arts.
2. **The B.A. requirements for the literature track** include the following courses.
   - Five or six courses in literature (at least two numbered above 9:150)
   - One or two courses in culture or language

3. **The culture and civilization track** is designed for students interested in French history, politics, and culture. [It is recommended for students wishing to combine studies in French with a major in another area, such as history, political science, pre-law, communications, or journalism.
4. **The B.A. requirements for the culture and civilization track** include the following courses.
   - Four courses in culture
   - Three courses in literature or language (at least two numbered above 9:150)

**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. Several courses in the College of Education are required, as is one semester of student teaching. Contact the College of Education, Division of Curriculum and Instruction, for more information.

**B.A. requirements for the teaching track** include the following courses.

- Two courses in culture
- Two courses in literature
- Three courses in culture, literature, pedagogy, or language (at least two numbered above 9:150)

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 the College of Education section of the Catalog.

**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 stylistic, and translation.

**B.A. requirements for the language track** include the following courses.

- 9:115 Business French
- 9:155 Techniques of Translation
- 9:197 Translation Project

Four courses in culture or literature

Courses in French stylistic and textual analysis, another language, economics, political science, and/or business administration are recommended as adjunct electives.

**Bachelor of Arts in Italian**

Requirements for the major in Italian total 28 semester hours, as follows.

- 18:11-12 Intermediate Italian 6 s.h.
- 18:11-112 Advanced Composition and Conversation 7 s.h.
- 18:105-106 Introduction to Modern Italian Literature 6 s.h.
- 18:119-120 Medieval and Renaissance Italian Literature 6 s.h.
- A 100-level course taught in Italian 3 s.h.

**Elementary and Secondary Teaching Licensure in Italian**

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 semester hours in either 18:13 or 18:14, 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 College of Education, Division of Curriculum and Instruction for more information.

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 the College of Education section of the Catalog.

Honors
The department participates in the University Honors Program. To gain admission to the honors program in French or Italian, a student must have a 3.20 overall grade-point average and a 3.50 departmental grade-point average, and must be enrolled in the University Honors Program. For more information about requirements for honors in French or Italian, contact the French and Italian honors adviser.

Minor in French
The requirements for a minor in French are 16 semester hours with a minimum grade-point average of 2.00. Twelve of these must be taken at The University of Iowa in courses numbered 9:107 or above. Courses numbered in the 140s, 150-152, 158, and other courses taught in English do not count toward the minor in French.

Minor in Italian
The requirements for a minor in Italian are 15 semester hours with a minimum grade-point average of 2.00. Twelve of these must be taken at The University of Iowa in courses numbered 18:105 or above.

Summer Program in France
The department cosponsors a summer program in France for students enrolled in the three State Board of Regents’ universities. 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 program combines formal class work in language skills, courses in the culture and civilization of France, and visits to points of culture and historical interest. Students may earn 8 or 9 semester hours of credit 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.

Foreign Language House
The French and Italian department maintains close connections with the Maison Française in the Foreign Language House at Hillcrest 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

Master of Arts in French without Thesis
Candidates must earn a minimum of 30 semester hours of graduate credit and pass a written and oral examination. The program must include 9:209 Advanced Grammar and Lexicology, 9:210 Comparative Stylistic, and at least four graduate level (200 and above) literature or culture courses. With the permission of the department chair, candidates may take up to 6 of the required 30 semester hours outside the department. Teaching assistants in the department also must take 9:234 Principles of Teaching and Learning Foreign Languages.

Master of Arts in French with Thesis
The requirements for the thesis program are the same as for the M.A. without thesis, except that candidates may earn up to 6 semester hours of credit for thesis work. Candidates must defend the thesis at the time of the comprehensive examination.

Master of Arts in French Education
This program is intended primarily for prospective secondary school and junior college teachers. Requirements include a total of 38 semester hours of graduate credit in French. The program must include 9:209 Advanced Grammar and Lexicology (3 semester hours) and 9:2 10 Comparative Stylistic (3 semester hours), and at least 9 semester hours in graduate (200-level) courses in French literature.

The following courses also are suggested:
9:154 Literary Analysis 3 s.h.
9:113-1 14 French Civilization 6 s.h.
9:150 Methods: Secondary School Foreign Language 3 s.h.
9:162 Contemporary France 3 s.h.
9:165 French Civilization Through the Arts 3 s.h.
9:175 Advanced French Pronunciation 3 s.h.
Candidates must pass a final written and oral examination.

Doctor of Philosophy in French
The Ph.D. program is designed to prepare students for research, teaching, and professional service normally required of college and university faculty members.

To fulfill requirements for the Ph.D. degree in French, candidates must complete at least three years of graduate study, of which at least one must be spent in residence at The University of Iowa. They must pass a comprehensive examination and make a successful oral defense of their dissertation.

Specific requirements include 9:251 Introduction to Old French Grammar and four semesters of college study or equivalent proficiency in a foreign language other than French.

Candidates also must complete three graduate courses, for a total of at least 8 semester hours of credit in a related field, such as another literature, history, or philosophy, and must earn at least 6 semester hours of credit in 9:277 Thesis.

Students working toward the doctorate are required to spend at least one year teaching as graduate assistants in the department.

Admission
To be considered for admission to an M.A. program in French, applicants must have completed the equivalent of The University of Iowa undergraduate major in French. Students may make up deficiencies in previous training by taking appropriate courses.

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 studies.

Following admission to the Ph.D. program, students must be formally accepted for candidacy by a vote of the faculty, usually in the third semester of doctoral study.

The Graduate Record Examination (GRE) General Test scores are required by the Graduate College.

Appointments
Teaching and research assistantships and University fellowships and scholarships are available to qualified graduate students (see the Graduate College section of the Catalog). Inquiries should be addressed to the departmental office.

Exchange assistantship agreements with the University of Haute Bretagne, the University of Picardie, and the University of Pottiers provide one year of residence in France for a limited number of graduate students.

Courses
A detailed description of courses offered each semester is available in the department office. 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 - Primarily for Undergraduates

Courses numbered 150-199 are intended primarily for advanced undergraduates; graduate students should consult with their adviser before registering for these courses. Courses numbered 140-149 are conducted in English. Only one such course may be used to fulfill requirements for the major in French; consultation with the adviser is recommended prior to registration. Students who have had significant experience with French through study or foreign residence are advised to consult with the department before enrolling.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>9:103</td>
<td>French for Research/Research</td>
<td>2 s.h.</td>
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<tr>
<td>9:104</td>
<td>French for Research/Research</td>
<td>2 s.h.</td>
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<tr>
<td>9:107</td>
<td>Introduction to French Literature: Medieval and Renaissance</td>
<td>3 s.h.</td>
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<tr>
<td>9:108</td>
<td>Introduction to French Literature: Seventeenth and Eighteenth Centuries</td>
<td>3 s.h.</td>
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<tr>
<td>9:109</td>
<td>Introduction to French Literature: Nineteenth Century</td>
<td>3 s.h.</td>
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<tr>
<td>9:1 10</td>
<td>Introduction to French Literature: Twentieth Century</td>
<td>3 s.h.</td>
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<tr>
<td>9:111</td>
<td>Third-Year Composition</td>
<td>3 s.h.</td>
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<tr>
<td>9:112</td>
<td>Third-Year French Grammar</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>9:113</td>
<td>French Civilization</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>9:114</td>
<td>French Civilization</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>9:115</td>
<td>Business French</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>9:116</td>
<td>International in France</td>
<td>0-3 s.h.</td>
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<tr>
<td>9:119</td>
<td>Regents Summer Program in France</td>
<td>8-9 s.h.</td>
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<td>9:120</td>
<td>Internship in France</td>
<td>0-3 s.h.</td>
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<tr>
<td>9:126</td>
<td>French Conversation: Third Level</td>
<td>2 s.h.</td>
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<tr>
<td>9:136</td>
<td>French Conversation: Fourth Level</td>
<td>2 s.h.</td>
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<tr>
<td>9:141</td>
<td>Literature and Society</td>
<td>3 s.h.</td>
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<td>9:142</td>
<td>French and Francophone literature and Culture</td>
<td>3 s.h.</td>
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<tr>
<td>9:145</td>
<td>Literature, Music, and Aesthetics</td>
<td>2-4 s.h.</td>
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<tr>
<td>9:147</td>
<td>French Cinema</td>
<td>3 s.h.</td>
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<tr>
<td>9:150</td>
<td>Methods: Secondary School Foreign Language</td>
<td>3 s.h.</td>
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<tr>
<td>9:152</td>
<td>Issues and Materials in Foreign Language Education</td>
<td>3 s.h.</td>
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<tr>
<td>9:154</td>
<td>Literary Analysis</td>
<td>3 s.h.</td>
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<tr>
<td>9:155</td>
<td>Techniques of Translation</td>
<td>3 s.h.</td>
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<tr>
<td>9:156</td>
<td>Pastiche and Parody</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>9:158</td>
<td>Topical in Foreign Language Instruction Technology</td>
<td>3 s.h.</td>
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<td>9:161</td>
<td>Topics in French Civilization</td>
<td>3 s.h.</td>
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<tr>
<td>9:162</td>
<td>Contemporary France</td>
<td>3 s.h.</td>
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<td>9:163</td>
<td>Francophone Literature of the African Diaspora</td>
<td>3 s.h.</td>
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<td>9:164</td>
<td>Quebecois Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>9:177</td>
<td>The French Writer and Social Criticism</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>9:178</td>
<td>Topics in French Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>9:180</td>
<td>Women Writers</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>9:181</td>
<td>Women in literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>9:182</td>
<td>Critical Approaches to French Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>9:186</td>
<td>Twentieth-Century French Poetry</td>
<td>3 s.h.</td>
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<tr>
<td>9:187</td>
<td>Aspects of Poetry</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>9:188</td>
<td>Twentieth-Century French Drama</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>9:189</td>
<td>The Novel</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>9:192</td>
<td>French Classical Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>9:193</td>
<td>French Literature of the Enlightenment</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>9:194</td>
<td>Nineteenth-Century French Novel</td>
<td>3 s.h.</td>
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<tr>
<td>9:195</td>
<td>Twentieth-Century French Novel</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>9:196</td>
<td>Special Work</td>
<td>arr.</td>
</tr>
<tr>
<td>9:197</td>
<td>Translation Project</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>9:198</td>
<td>Honors Research and Thesis</td>
<td>3 s.h.</td>
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</tbody>
</table>

### French - For Undergraduates and Graduates

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>9:209</td>
<td>Advanced Grammar and Lexicology</td>
<td>3 s.h.</td>
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<tr>
<td>9:210</td>
<td>Comparative Stylistics</td>
<td>3 s.h.</td>
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<tr>
<td>9:211</td>
<td>Realism and Naturalism</td>
<td>3 s.h.</td>
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<td>9:213</td>
<td>Eighteenth-Century Fiction</td>
<td>3 s.h.</td>
</tr>
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<td>9:214</td>
<td>Studies in the Enlightenment</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>9:215</td>
<td>The Renaissance in France</td>
<td>3 s.h.</td>
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<tr>
<td>9:218</td>
<td>Symbolism</td>
<td>3 s.h.</td>
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<tr>
<td>9:221</td>
<td>Literature of the Twentieth Century</td>
<td>3 s.h.</td>
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<td>9:224</td>
<td>Modern French Novel</td>
<td>3 s.h.</td>
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<td>9:225</td>
<td>Literature of Immigration in France</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>9:227</td>
<td>Studies in the Seventeenth Century</td>
<td>3 s.h.</td>
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<tr>
<td>9:234</td>
<td>Principles of Teaching and Learning</td>
<td>3 s.h.</td>
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<tr>
<td>9:240</td>
<td>African Francophone Literature</td>
<td>3 s.h.</td>
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<tr>
<td>9:251</td>
<td>Introduction to Old French Grammar</td>
<td>3 s.h.</td>
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<tr>
<td>9:252</td>
<td>French Literature to 1180</td>
<td>3 s.h.</td>
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</table>
9:253 French Literature in the Reigns of Philippe Auguste and Saint Louis 3 s.h.
9:260 Critical Theory and Practice 3 s.h.
9:265 Narrative Modes 3 s.h.
Same as 36 F 278, 48:278.
9:277 Thesis art.
9:279 Special Work art.
9:355 Seminar 3 s.h.
9:358 Seminar 3 s.h.

Italian - Primarily for Undergraduates

18:1 Elementary Italian I 4 s.h.
For students who have no knowledge of Italian. Offered fall semesters. GER: foreign language.
18:2 Elementary Italian II 4 s.h.
Offered spring semesters. GER: foreign language. Prerequisite: 18:1 or equivalent.
18:11 Intermediate Italian I 3 s.h.
Offered fall semesters. GER: foreign language. Prerequisite: 18:2 or equivalent.
18:12 Intermediate Italian II 3 s.h.
Offered spring semesters. GER: foreign language. Prerequisite: 18:1 or equivalent.
18:13 Conversational Italian I 2 s.h.
Offered fall semesters. Prerequisite: 18:2 or 18:103.
18:14 Conversational Italian II 2 s.h.
Offered spring semesters. Prerequisite: 18:1 or equivalent.
18:53 Special Work art.

Italian – For Undergraduates and Graduates

18:103 Intensive Elementary Italian 6 s.h.
Offered spring semesters. GER: foreign language. Prerequisite: two years of another foreign language.
18:105 Introduction to Modern Italian Literature 3 s.h.
Prerequisite: 18:12.
18:106 Introduction to Modern Italian Literature Continuation of 18:105, but may be taken as an independent unit. Prerequisite: 18:12 or equivalent.
18:111 Advanced Composition and Conversation 4 s.h.
Offered fall semesters. Prerequisite: 18:12 or equivalent.
18:112 Advanced Composition and Conversation Offered spring semesters. Prerequisite: 18:111.
18:14 Studies in Italian Language May be repeated. Prerequisite: 18:12 or equivalent.
18:19 Medieval and Renaissance Italian Literature 3 s.h.
18:120 Medieval and Renaissance Italian Literature 3 s.h.
18:153 Special Work art.
18:162 Topics in Italian Civilization 3 s.h.
18:198 Honors Research and Thesis 3 s.h.

Italian—Primarily for Graduates

18:217 Studies in Italian Literature 3 s.h.
18:279 Special Work art.

GENETICS

Co-chairs: Gary Gussin (Biological Sciences) and Jeff Murray (Pediatrics)
Professors: Wayne Carlson (Biological Sciences), Raymond Crowe (Psychiatry), John Donelson (Biochemistry), Michael Feiss (Microbiology), Joseph Franklin (Biological Sciences), Victor Ionasescu (Pediatrics), Robert Malone (Biological Sciences), Jim Jung-Ching Lin (Biological Sciences), John Menninger (Biological Sciences), Shih-Ming Poo (Pediatrics), William Rhode (Pediatrics), David Sol (Biological Sciences), Erich Six (Microbiology), George Stauffer (Microbiology), Mark Stinski (Microbiology), C. Martin Stolz (Microbiology), Wei-yeh Wang (Biological Sciences), Chun-Fang Wu (Biological Sciences)

Associate professors: Steven Clew (Microbiology), David Price (Biochemistry), Ming-Chieh Shih (Biological Sciences), Lubomir Turcik (Pathology)
Assistant professors: Alex Alfonso (Biological Sciences), Chi-Lien Cheng (Biological Sciences), Robert Deschenes (Biochemistry), Jan Fassler (Biological Sciences), Pamela Geyer (Biochemistry), Erin Irish (Biological Sciences), Wayne Johnson (Physiology and Biophysics), W. Scott Peyton-Rowley (Physiology and Biophysics), Rodney Nagoshi (Biological Sciences), Andrew Russo (Physiology and Biophysics), Val Sheffield (Pediatrics), Edwin Stone (Ophthalmology), Marcia Willing (Pediatrics)

Graduate degree: Ph.D. in Genetics

Graduate Programs

The interdepartmental Ph.D. program in genetics 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, ranging from molecular to human genetics. Within this context, course requirements are flexible enough to permit students to tailor their formal course work to their individual needs.

All students enrolled in the program are required to take either 2:171 Molecular Genetics I or 142:210 Molecular Biology I. In addition, they must earn a total of at least 12 semester hours of credit in molecular and microbial genetics, cell and developmental genetics, or human genetics, and 5 semester hours of credit in seminar courses approved by the program.

Even more important than formal course work is the opportunity to do significant research in genetics. Students are encouraged to begin their own research as quickly as possible. 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, 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.

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.

Admission to the program is based on assessment of applicants’ undergraduate academic record, performance on the Graduate Record Examination (GRE) Aptitude Test (verbal and quantitative), and letters of recommendation. Admission requirements are not rigid. Most students currently working toward the Ph.D. in genetics at The University of Iowa have undergraduate grade-point averages higher than 3.50, and their GRE Aptitude Test scores (verbal plus quantitative) exceed 1250. Students with lower grade-point averages or GRE scores may be admitted, depending on other indications of academic potential.

The program accepts applications for admission at any time, but students generally begin graduate work during the fall semester.

Financial Aid

All genetics graduate students currently receive a financial stipend that is in the range of $12,000 plus tuition per year. By April 1, nearly all financial aid is committed for students entering in the fall.

Financial support comes from 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 scientists and University faculty members.

Medical Scientist Training Program

Students may combine study toward an M.D. and a Ph.D. in genetics. Information about this program is available from the director of the Medical Scientist Training Program in the College of Medicine.

Departmental Ph.D. Programs

The Departments of Biochemistry, Biological Sciences, Physiology and Biophysics, and Microbiology offer degree programs in which students may specialize in a particular aspect of genetics. See the appropriate departmental sections in the Catalog for information about these programs.

Associated Courses

The following genetics courses are open to graduate students. Not all courses are offered every year.
2:125 Cyto genetics 
2:131 Evolution 
2:161 Plant Molecular Biology 
2:162 Population Genetics and Molecular Evolution 
2:163 Topics in Plant Molecular Biology 
2:168 Developmental Genetics 
2:171 Molecular Genetics I 
2:172 Topics in Molecular Genetics 
2:176 Topics in Eukaryotic Molecular Biology 
2:195 Pattern Formation in Development 
2:210 Topics in Nematode Developmental Genetics 
61:179 Bacterial Diversity 
61:268 Molecular Biology of Animal Viruses 
70:161 Human Genetics 
99:130 Biochemistry and Molecular Biology 11 
99:237 Topics in Biochemistry 
142:215 Molecular Biology 11 (eukaryotic) 

Courses

127:270 Ethics and Responsible Conduct in Research 1 s.h.

Undergraduate Programs

The geography faculty has developed an undergraduate instructional program that serves students majoring in geography, as well as those concentrating in other disciplines who are interested in elective geography courses as part of a liberal education. The department also participates in interdepartmental programs with global, urban, and environmental components.

Bachelor’s Degrees

Each student majoring in geography selects one of the following three concentration areas: urban and regional studies, international development studies, or environmental studies.

Majors may work toward either a Bachelor of Science or a Bachelor of Arts. Students who plan advanced training or careers in geography should elect the B.S. Those with a liberal arts objective may elect either the B.A. or B.S.

Requirements for the majors in geography were changed in 1994. All students who declare a geography major before August 22, 1994, must complete the new requirements. Students who declared a geography major before August 22, 1994, may choose to complete either the new or the old requirements (see the 1992-94 General Catalog). Students who wish to use the old requirements must complete the major and graduate by August 1998.

General Requirements

All geography majors must complete the following courses.

Both of these methods courses:
44:85 Introduction to Economic and Social Statistics 3 s.h.
44:109 Computer Methods in Geographical Analysis 3 s.h.

One of the following writing/research courses:
44:150 Undergraduate Seminar for Geography Majors 3 s.h.
44:151 Senior Thesis 3 s.h.

One of the following computer programming courses:
22C:7 Introduction to Computing with FORTRAN 3 s.h.
22C:16 Introduction to Programming with Pascal 4 s.h.

Bachelor of Science students must satisfy a mathematics requirement consisting of one of the following pairs of courses.
22M:15 Mathematics for the Biological Sciences and 22M:16 Calculus for the Biological Sciences 4 s.h.

With the consent of the geography faculty, students may fulfill the computer programming and mathematics requirements by taking equivalent courses with objectives similar to these.

In addition, all geography majors must complete one of the three course sequences described below. Students are advised to pay close attention to the prerequisites of the intermediate and advanced courses in each sequence and to develop programs of study that ensure timely satisfaction of the prerequisites of required courses.

Urban Regional Studies

The undergraduate program in urban and regional studies is designed for students who are preparing for positions in government and private business, graduate programs in geography, or professional programs such as urban and regional planning, business administration, or policy analysis. The program provides a thorough understanding of the processes of urban and regional development; the roles of elites, institutions, and social movements in effecting changes; and the processes through which policy decisions are reached. Courses cover economic theories of location, methods of locational analysis and modeling, 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 development potential, identifying the best locations for service facilities, evaluating urban and regional transport systems, and forecasting the populations of small areas.
Students concentrating on urban and regional studies are required to complete the following sequence of courses.

**INTRODUCTORY COURSES**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>44:1</td>
<td>Introduction to Human Geography</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>44:3</td>
<td>Introduction to Earth Systems Science</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

At least one of these:

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>44:15</td>
<td>Introduction to Political Geography</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>44:30</td>
<td>Introduction to Economic Geography</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**ADVANCED COURSES**

At least two of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>44:2</td>
<td>Geography of the Middle East</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>44:130</td>
<td>Location Strategy of Firms</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>44:162</td>
<td>Geography of Underdevelopment</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>44:163</td>
<td>Geography of the Newly Industrializing Countries</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>44:172</td>
<td>Development Planning and Policy</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

One of these:

<table>
<thead>
<tr>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>44:30</td>
<td>Introduction to Economic Geography</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Intermediate Courses**

At least two of these:

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>44:130</td>
<td>Location Strategy of Firms</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>44:132</td>
<td>Industrial Location</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>44:133</td>
<td>Introduction to Economics of Transportation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>44:135</td>
<td>Urban Geography</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Students are required to take at least one course each from group A and B.

**Group A**

44:134 Methods of Transportation Analysis 3 s.h.
44:137 Economic Theory of Location 3 s.h.

**Group B**

44:166 Contemporary Europe: Interaction and Change 3 s.h.
44:171 Geography of the U.S. and Canada 3 s.h.
44:175 Locational Conflict 3 s.h.

**International Development Studies**

The undergraduate program in international studies is designed for students interested in the processes of economic, social, and political development, particularly as they affect Third World countries. This concentration gives students a better understanding of regional and national development in international and cross-cultural perspective. Students who are interested in the problems of developing countries and who wish to examine competing theories of development intended to explain international and regional inequalities will find this concentration helpful.

Students concentrating on international development studies are required to complete the following sequence of courses.

**Introductory Courses**

<table>
<thead>
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<tbody>
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<td>44:1</td>
<td>Introduction to Human Geography</td>
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</tr>
<tr>
<td>44:3</td>
<td>Introduction to Earth Systems Science</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

At least one of these:

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<tbody>
<tr>
<td>44:15</td>
<td>Introduction to Political Geography</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>44:30</td>
<td>Introduction to Economic Geography</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Intermediate Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>44:101</td>
<td>Climatology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>44:102</td>
<td>Earth Surface Processes</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>44:103</td>
<td>Biogeography</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>44:121</td>
<td>Natural Resources Policy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>44:122</td>
<td>Environmental Conservation in the United States</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Advanced Courses**

At least two of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>44:125</td>
<td>Environmental Impact Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>44:126</td>
<td>Water in the Biosphere</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>44:127</td>
<td>Water Quality: Science, Technology, and Policy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>44:129</td>
<td>Water Resources Management</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Additional Methods Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>44:107</td>
<td>Maps and Mapping</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>44:108</td>
<td>Applications of Geographic Information Systems</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Under the direction of an adviser, students should select at least 12 semester hours of courses from one of the following clusters (or similar combination of courses).

**Biophysical Systems**

2100 Land Plants: An Evolutionary Survey 4 s.h.
2111 Plant Ecology 4 s.h.
2116 Field Ecology 4 s.h.
2119 Plant-Animal Interactions 4 s.h.
2134 Ecology 4 s.h.
1218 Introduction to Oceanography 2 s.h.
1210 Introduction to Remote Sensing 4 s.h.
1216 Quaternary Paleynology and Paleobotany 4 s.h.
1217 Sedimentology 4 s.h.
1216 Hydrogeology and Groundwater Quality 3 s.h.
1217 Glacial and Pleistocene Geology 3 s.h.
1217 Quaternary Environments 3 s.h.
1217 Engineering Geology 3 s.h.

**Environmental Engineering**

53:71 Principles of Hydraulics 3 s.h.
53:78 Principles of Hydrology 3 s.h.
53:150 Environmental Engineering: Natural Systems 3 s.h.
53:152 Environmental Chemistry 3 s.h.
53:153 Environmental Chemistry Laboratory 3 s.h.
53:154 Environmental Microbiology 3 s.h.
53:155 Environmental Engineering: Engineered Systems 3 s.h.
53:178 Hydrometeorology 3 s.h.

**Environmental Management**

6E:1 Principles of Macroeconomics 3-4 s.h.
6E:2 Principles of Macroeconomics 3-4 s.h.
6E:100 Economics for Business Decision Making 3 s.h.
6E:105 Macroeconomics 3 s.h.
6E:119 Economics of the Government Sector 3 s.h.
6E:133 Environmental and Natural Resource Economics 3 s.h.
6E:100 Administrative Management 3 s.h.
6E:161 Individual Behavior in Organizations 3 s.h.
6E:163 Organizational Design and Operations 3 s.h.
Cooperative Education Program

The Department of Geography is a participant in the University's Cooperative Education Program, which provides opportunities for both undergraduate and graduate students to secure cooperative training assignments related to their academic programs.

Courses for the Nonmajor

Students in the College of Liberal Arts as well as other areas of the University may find geography courses meaningful to their own programs of study. The beginning-level courses 44:11 Introduction to Human Geography, 44:19 Introduction to Social Geography, 44:19 Contemporary Environmental Issues, and 44:30 Introduction to Economic Geography are approved for the General Education Requirement in natural sciences. These courses serve as part of a liberal education. Other courses also may be attractive as individual electives. These include 44:15 Introduction to Political Geography, 44:35 World Cities, 44:126 Water in the Biosphere, 44:128 Drainage Basin: Form and Process, 44:132 Industrial Location, and 44:133 Introduction to Economics of Transportation.

Graduate Programs

The department's graduate programs prepare students to carry on creative and productive research in selected areas of geography involving the use and further elaboration of theory. They also prepare students for positions in research, teaching, or an area of applied geography. Success in achieving these goals has been demonstrated by the strong demand for University of Iowa graduates to fill positions on college and university faculties, in private research organizations, and in government.

The department offers specialized instruction in the teaching of geography at the college level for those pursuing academic careers. Opportunities are provided for all graduate students to gain practical teaching experience through service as departmental teaching assistants or graduate instructors.

Master of Arts

The B.A. or B.S. degree in geography is not a prerequisite for entry into the program, but students are expected to have an undergraduate background relevant to pursuing graduate work. A strong analytical background in any of the social or environmental sciences and an interest in exploring the regional and spatial perspectives characterizing modern geography are more important than the particular disciplinary orientation of the student's baccalaureate degree. Depending on the strength and suitability of their prior training, however, students may be required to take courses that are prerequisites for courses in their elected subprograms. Credit received for such courses cannot be applied toward the 30 semester hours required for the M.A.

Each of the M.A. subprograms is designed to be completed in four semesters. This means that the student typically will accumulate 40 to 48 semester hours of graduate credit in completing the M.A. Students are advised to use these additional hours to elect graduate courses in other subprograms in geography and/or in other University departments and programs, thereby tailoring their programs of study to their individual interests.

The department offers six M.A. subprograms: locational analysis, physical geography, political geography, regional development, transportation systems analysis, and water resources. These specialties are designed for students seeking positions in community planning, health planning, development planning in the Third World, environmental or water resources management, and transportation, as well as for those who intend to pursue the Ph.D.

Each subprogram cuts across some of the more traditional fields of geography and builds on the research specialties of the faculty. For example, topics of interest in urban geography are included in three subprograms—locational analysis, political geography, and regional development—while the traditional concerns of economic geography are included in locational analysis and regional development. The more quantitative perspectives of regional science are included in locational analysis and transportation system analysis. The subprogram in physical geography emphasizes interacting processes and integrates field studies with computer modeling. The water resources subprogram builds on foundations in environmental science and political economy. Although M.A. students pursue a program of study within one of the subprograms, they also must gain a basic proficiency in another. The M.A. emphasizes the acquisition of analytical skills and their application in research. Courses that provide necessary training in oral and written communication, computer programming and graphics, statistics, mathematics, and research methods are mandatory to the M.A. program. Students in the transportation subprogram may take additional electives that enable them to receive a transportation certificate in addition to their M.A.

General Requirements

The M.A. requires a minimum of 30 semester hours of graduate work, of which 15 semester hours must be in courses numbered 200 or above. In addition to fulfilling the course requirements in one of the department's six subprograms, students must:

- complete at least one course not in their own subprogram from the following introductory graduate courses: 44:121, 44:123, 44:125, 44:126, 44:128, 44:129, 44:134, 44:137, 44:175, 44:194, or 44:210;
enroll in the department’s general colloquium series (44:350 Research Seminar: Staff) during each semester in residence; satisfy the department’s B.S. requirements or their equivalents in mathematics, statistics, and computer programming; and complete, with a grade of B or better, at least one 3-semester-hour quantitative methods course from a list of courses approved by the faculty.

The M.A. may be earned with or without thesis, except in the physical geography and water resources subprograms, which require a thesis. A maximum of 6 semester hours of credit may be earned for thesis work.

Students who elect the M.A. without thesis must pass a written examination and, in most subprograms, an oral examination. For students electing the M.A. with thesis, the written examination can be waived and the thesis defense serves as the oral M.A. examination.

Subprogram Requirements

**LOCATIONAL ANALYSIS**

6N:211 Managerial Economics 3 s.h.
44:108 Applications of CIS 3 s.h.
44:113 Principles of Geographic Information Systems 3 s.h.
44:134 Methods of Transportation Analysis 3 s.h.
44:137 Economic Theory of Location 3 s.h.

Three of these:
44:216 Behavioral Analysis in Geography 3 s.h.
44:232 Advanced Industrial Geography 3 s.h.
44:285 Methods of Regional Analysis: Regional Science 3 s.h.
44:293 Advanced Location Theory 3 s.h.
44:308 Research Seminar: Quantitative Methods, Computer Methods, and Modeling 3 s.h.
44:330 Research Seminar: Location Theory 3 s.h.

**PHYSICAL GEOGRAPHY**

An M.A. thesis is required of all students in this subprogram.

44:113 Principles of Geographic Information Systems 3 s.h.
44:123 Landscape Ecology 3 s.h.
44:128 Drainage Basin: Form and Process 3 s.h.
44:328 Research Seminar: Physical Geography 3 s.h.
44:450 Thesis 3 s.h.

Two of these:
44:225 Water Resources Systems Analysis 3 s.h.
44:226 Advanced Biogeography/Landscape Ecology 3 s.h.
44:228 Advanced Earth Surface Processes 3 s.h.
44:230 Advanced Drainage Basin Analysis 3 s.h.

Two from one of the following groups:

2:11 Plant Ecology 4 s.h.
2:19 Plant-Animal Interactions 4 s.h.

12:128 **Quaternary** Palynology and Paleobotany 4 s.h.
12:173 **Quaternary** Environments 3 s.h.
or
12:132 Sedimentology 3 s.h.
12:172 Glacial and Pleistocene Geology 3 s.h.
53:170 Flow in Open Channels 3 s.h.
53:173 Mechanics of Sediment Transport 3 s.h.
or
53:150 Environmental Engineering: Natural Systems 3 s.h.
53:152 Environmental Chemistry 3 s.h.
53:154 Environmental Microbiology 3 s.h.
53:155 Environmental Engineering: Engineered Systems 3 s.h.
53:251 Environmental Systems Modeling 3 s.h.
or
Equivalent group of courses

**POLITICAL GEOGRAPHY**
6N:213 Managerial Economics (or other macroeconomics course at 100 level or above) 3 s.h.
44:210 Philosophy and Epistemology in Geography 3 s.h.
44:315 Research Seminar: Political Geography 3 s.h.

One of these:
44:273 Social Theory and Human Geography 3 s.h.
44:274 Seminar: Social Change 3 s.h.
44:337 Seminar: Urbanization 3 s.h.

Three of these:
44:175 Locational Conflict 3 s.h.
44:221 Nature-Society Theory 3 s.h.
or
44:222 Environmental Social Movements 3 s.h.
44:232 Advanced Industrial Geography 3 s.h.
44:262 Political Economy of Regional Development 3 s.h.
44:270 Jurisdictional Organization/Public Service Provision 3 s.h.

**WATER RESOURCES**
44:329 Research Seminar: Water Resources Research 2-4 s.h.
44:450 Thesis (required of all students in the subprogram) 2-4 s.h.

The following courses, with at least 9 semester hours earned at the 200-level:

One of these:
44:126 Water in the Biosphere 3 s.h.
44:128 Drainage Basin: Form and Process 3 s.h.
44:230 Advanced Drainage Basin Analysis 3 s.h.

Three of the following with at least one each from Group A and B:

**Group A**
44:121 Natural Resources Policy 3 s.h.
44:221 Nature-Society Theory 3 s.h.
44:222 Environmental Social Movements 3 s.h.

**Group B**
44:125 Environmental Impact Analysis 3 s.h.
44:127 or 44:227 Water Quality: Science, Technology, and Policy 3 s.h.
44:129 or 44:229 Water Resources Management 3 s.h.
44:225 Water Resources Systems Analysis 3 s.h.

An additional sequence of three courses in social theory and regional development, systems analysis, or biophysical processes, chosen under the direction of a faculty advisor is required. This sequence may include courses in other departments and may fill the out-of-subprogram requirement.

**Doctor of Philosophy**

The Doctor of Philosophy program is designed to prepare students for positions in college and university teaching and in advanced research. It provides programs of study leading to broad knowledge of a field of geography and its literature and special expertise in a specific subfield. The former usually represents the general area in which the Ph.D. holder seeks employment, whereas the latter represents his or her area of most active research involvement.

The Ph.D. is fundamentally a research degree and as such is constrained by the expertise of the faculty. At the Ph.D. level, the department is best known for its rigorous analytical orientation, particularly in the areas of locational analysis, spatial behavior, transportation, Third World regional development, urban political geography, physical geography, and water resources management and policy.

The Ph.D. is a four- to five-year, postbaccalaureate program, the first two years of
which are identical to the department’s M.A. program. Students can enter the program with advanced standing corresponding to their previous graduate training equivalent to that in the department’s M.A. program. Students entering the program directly from the B.S. or B.A. must fulfill all departmental requirements for the M.A. except for the M.A. examination. In addition, students whose ultimate objective is the Ph.D. are required to:

- complete at least 3 additional semester hours in graduate-level geography courses from those required or recommended for one of the department’s subprograms that is not the student’s general area of interest;
- complete at least one additional quantitative methods course (3 semester hours) that is at a level above that required for the B.S. and is chosen from a list of courses approved by the faculty (students in the Ph.D. program are advised on the M.A. and Ph.D. quantitative methods requirements—a total of 6 semester hours during their first year in residence);
- complete one additional research seminar under the direction of a faculty member who is not directing the research seminar satisfying the student’s M.A. requirement; and
- register for the department’s colloquium series, 44:350 Research Seminar: Staff, each semester that the student is in residence. Before students can be admitted formally to candidacy for the Ph.D., they must submit an original research paper to the faculty for its approval. Students completing the M.A. with a thesis can submit the M.A. thesis to fulfill this requirement. Students entering the program with an M.A. from another institution can submit theses or research papers completed elsewhere to fulfill the requirement. Students who initially enter the M.A. program with a terminal M.A. as their degree objective and who complete that program can enter the Ph.D. program by fulfilling the research paper requirement. By the end of the M.A. portion of the program (typically the fourth semester for the student entering the program directly from the B.S. or B.A.), the student should submit a written report that includes an assessment of progress to date, an outline of the area of geography in which he or she intends to specialize, and a proposed plan of study for the remainder of his or her Ph.D. program. This report is prepared in consultation with the student’s Ph.D. advisor and other members of the faculty in the student’s general area. The plan of study is amended, as necessary, throughout the remainder of the student’s program. The remainder of the Ph.D. program includes the completion of the student’s individual program of study designed to prepare him or her for a research career in a specific area of concentration. It consists of appropriate graduate courses, seminars, readings, and independent research in geography; courses in related disciplines; and courses that satisfy the requirement of the student’s program of study. Prior to taking the comprehensive examination, consisting of both written and oral components, the 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. adviser, consists of a critical review of research in the student’s area of concentration. As such, it is a culminating step in a student’s program of study as well as a statement of future research directions. The comprehensive examination covers both the student’s area of concentration and his or her more general field in the discipline. After obtaining the approval of a dissertation supervisor, the student must submit a dissertation proposal to his or her dissertation committee for its critical comments and approval. The student then must complete and defend the dissertation. Before receiving the Ph.D., students are expected to serve as both classroom instructors (or teaching assistants) and research assistants.

Admission

The department adheres to the general rules and regulations set forth in the Manual of Rules and Regulations of the Graduate College, and evaluates the applicant’s undergraduate grade-point average, especially of his or her junior and senior years; scores on the Graduate Record Examination (GRE) General Test; three letters of recommendation; and an essay in which the applicant sets forth the reasons for wanting to study geography at The University of Iowa. Ordinarily, applicants must have earned an undergraduate grade-point average of 3.00 or better to be admitted to either the M.A. or Ph.D. program in geography. Students from foreign countries or from undergraduate institutions that evaluate students on a basis other than grade-point average will be considered according to academic standing in their respective institutions.

Financial Aid

A number of graduate appointments as teaching or research assistants are available. Awards are based on merit. Students usually must have a combined score of 1100 on the GRE General Test in verbal and quantitative sections and a 3.00 undergraduate or graduate grade-point average to be appointed to an assistantship. Applications for graduate appointments should be received by February 15.

Facilities

The department houses a geographic information systems and spatial analysis laboratory equipped with a variety of workstations, digitizers, and plotters. These UNIX, DOS, and Macintosh workstations support a variety of GIS software packages, including ARC/INFO, ERDAS, IDRISI, MAP, MAPINFO, Transcad, and GIS Plus. The department possesses capabilities in an advanced GIS facility in the Center for Global and Regional Environmental Research. Departmental computers are linked to the University’s SYTEK broadband communication network, which provides access to graphics, data management, and analysis software on University IBM and VAX computer systems. Selected departmental systems have Ethernet Connections to facilitate data transfer. Students also have access to a University computing cluster that contains IBM PCs, Macintosh computers, terminals, several printers, and a plotter. It is located on the same floor as the department offices.

For studies in water resources and physical geography, the department has laboratories for analysis of vegetation, sediment, soil, and water quality; a field station in California; and a variety of field equipment ranging from electronic data loggers to boats.

The map collection in the University’s Main Library contains more than 115,500 maps, a total of 3,600 atlas and reference works, and about 100,000 aerial photographs, primarily of Iowa. The library is a depository for maps of the U.S. Army Topographic Command (formerly the Army Map Service).

The Geology Library contains approximately 70,000 maps, including both geologic maps and U.S. Geological Survey topographic maps. The Department of Geography has its own collection of topographic maps, maps of large urban centers, and aerial photographs for use by students in laboratory exercises.

Courses

Primarily for Undergraduates

44:000 Cooperative Education Training Assignment 0 s.h.

44:1 Introduction to Human Geography 4 s.h.

Application of geographical principles to contemporary social, economic, and political problems; urban growth; problems of the ghetto; diffusion of innovations; territoriality and perception. GER: social sciences.

44:3 Introduction to Earth Systems Science 4 s.h.

Elementary principles of physical geography: physics of weather and climate, hydrological systems, geomorphology, and geological forces; primate processes, and ecological processes and patterns; geography of physical environment, with principles applied to the human use system; environmental pollution and natural hazards. GER: natural sciences.

44:11 Introduction to Social Geography 3 s.h.

Spatial considerations of population growth and distribution; minorities within a population; poverty; housing; social organization and segmentation; social systems, including education, religion, recreation, medical, social services; diffusion of ideas and traits over space. GER: social sciences.

44:15 Introduction to Political Geography 3 s.h.

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, and electoral geography.

44:19 Contemporary Environmental Issues 3 s.h.

Population, economic, cultural, technology, ecological, and ethical issues associated with natural resource and environmental problems including population, global climate change, food production, tropical deforestation, soil erosion, and waste management. GER: social sciences.

44:30 Introduction to Economic Geography 3 s.h.

Location and spatial organization of the world’s major types of economies; agriculture, energy and materials manufacturing, transportation, trade and service centers. GER: social sciences.

44:35 World Cities 3 s.h.

Urbanization as a process; specific concepts and theories of urbanization through global patterns, regional urban systems, individual metropolitan areas. Offered spring semesters.

44:85 Introduction to Economic and Social Statistics 3 s.h.

Statistical methods applied to problems in economics, other social sciences; graphical methods, descriptive statistics, sampling and reference, regression analysis, simple forecasting methods. Same as 66:56.
44:94 International Development 3 s.h. Theories of international development, political economy, development policies, and planning. Implications of policies, conditions, experiences of selected Third World countries.

44:100 Readings for Undergraduates 3 s.h. Supervised readings in geography. Consent of instructor required.

For Undergraduates and Graduates

44:101 Climatology 3 s.h. Boundary layer processes that drive atmospheric dynamics; exchanges of energy and water at simple and complex surfaces; global climate change; theories, models, impacts of climate on society. Prerequisite: 44:43 or consent of instructor.

44:102 Earth Surface Processes 3 s.h. Basic geomorphic and environmental processes that shape the surface of the earth; emphasis on processes of weathering, mass movement such as creep, landslides, earth flow; erosion, transport, deposition by fluid agents such as wind, water, ice; methods used to study these physical processes. Prerequisite: 44:43 or a course in geology. Same as 12-102.

44:103 Biogeography 2-3 s.h. Distribution and abundance of plants and animals, spatial patterns and processes, and temporal dynamics of succession, response to climate change, and migrations applied to the study of vegetation and plant communities. Prerequisite: 44:43 or 2:1 or consent of instructor. Same as 2:1-103.

44:107 Maps and Mapping 2 s.h. Qualities of a good map; types of maps for particular uses; major types of cartographic presentations; available tools for constructing maps; procedures for the compilation of maps and diagrams; laboratory experiences in compiling maps.

44:108 Applications of Geographic Information Systems 3 s.h. Use of geographic information systems in human and physical geography. Open only to graduate students. Prerequisite: 44:85 and 44:108 or equivalent; or consent of instructor.

44:109 Computer Methods in Geographical Analysis 3 s.h. Use of computers as a tool in geographical analysis; spatial data collection and analysis, mapping programs, and simulation models.

44:110 Perspectives on Geography 3 s.h. Traditions of geographic research; common themes in specialty areas; contemporary views of geographic methodology.

44:113 Principles of Geographic Information Systems 3 s.h. Issues important to the establishment of geographic information systems: spatial data encoding, raster vector options, spatial and attribute resolution; geographic data models, linkages to spatial analysis procedures, display techniques for decision support, institutional setting. Prerequisite: 44:109.

44:121 Natural Resources Policy 3 s.h. Cultural, political, economic, ethical dimensions of natural resources policy: substantive and theoretical insights from the natural sciences, social sciences, humanities in building a conceptual framework for the analysis of current resource problems from a geographic perspective. U.S. natural resource problems and policy questions.

44:122 Environmental Conservation in the United States 3 s.h. Valuation of 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: 44:43 or 44:19 or consent of instructor.

44:123 Landscape Ecology 3 s.h. Effects of spatial pattern on spatial processes: ecology: characteristics of matrix, patch, corridor; fragmentation; deforestation, habitat loss, spatial flows of energy, matter, genetic information; relationship to human impact, global climate change. Prerequisites: 44:103 or a 100 level course in ecology, and 44:85.

44:124 Gender and the Environment 3 s.h. Relationships between gendered human activities and environmental problems developed and less developed countries; role of women’s activism in environmental movements; ecofeminist perspectives. Prerequisite: 44:19 or 44:121 or an introductory women’s studies course. Same as 101 - 124.

44:125 Environmental Impact Analysis 4 s.h. Environmental impact assessment methods; emphasis on cost-benefit analysis, overlay and graphic techniques, optimal resource use, system simulation; field trips to local environmental control facilities. Prerequisites: 44:19, and 285 or equivalent.

44:126 Water in the Biosphere 3 s.h. Biotic aspects of water resources production; geographical basis of biogeochemical processes in drainage basins; spatial aspects of stream ecology; regional characterization of wetland structure and process. Prerequisites: 44:101 or 44:102 or 44:103 or 2:111.

44:127 Water Quality: Science, Technology, and Policy 3 s.h. Geographical perspectives in the study and interpretation of chemicals in water; primary and secondary drinking water standards; local studies of drinking water and health; geographic and institutional considerations in designing water quality protection strategies. Prerequisite: 44:85 or consent of instructor.

44:128 Drainage Basin: Form and Process 3 s.h. Hydrological principles, stream channel processes, and fluvial geomorphology within the drainage basin system: spatial and temporal variations in water distribution, analyses of hydrological data, flow mechanisms, sediment transport, forecasting procedures, hydrography construction and modeling. Prerequisites: 44:94 and 44:102 or a 100 level geology or hydrology course.

44:129 Water Resources Management 3 s.h. Application of hydrological information to water resource management; aspects of water quantity and quality, groundwater availability, water use and treatment, resource development, political and administrative issues; basin management problems, pollution, agriculture, urbanization, floods, droughts. Prerequisites: 44:102 or 44:128 or equivalent, and 44:121 or 44:122 or equivalent.

44:130 Location Strategy of Firms 3 s.h. Theory and methods used by public and private sector firms to geographically organize their activities: market selection, site analysis, small-area demand forecasting and sales forecasting, network development, utility of industrial and agricultural regions; use of geographic information systems and spatial models; location allocation models; and spatial matching models; route-distance functions, attribute preference functions, and spatial competition. Prerequisites: 44:85 or 64:70.

44:131 Medical Geography: Health Services 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.

44:132 Industrial Location 3 s.h. Theory and analysis of manufacturing location, classical location theory, behavioral analysis of location-decision making, analysis of structural economic forces, location processes, regional impact of industrial change, regional industrial development policies, environmental impact of industrial production.

44:133 Introduction to Economics of Transportation 3 s.h. Overview of transportation markets: intercity, rural, urban-and-transit modes—railroads, highways, air, interurbans, waterways; discussion of regulation, finance, physical distribution issues. Same as 102: 133, 6E: 145.

44:134 Methods of Transportation Analysis 3 s.h. Conceptual basis for predicting effects of transportation policy measures on traffic flows and system performance, transportation measurements; introduction to travel demand modeling; introduction to system performance modeling, network analysis and optimization. Prerequisites: graduate standing, or 44:85 and a previous transportation course. Same as 102: 134.

44:135 Urban Geography 3 s.h. Central ideas of modern urban geography, their links to social theory, focus on interaction between social change, urban environment, evolution of urban systems, emergence of the metropolis, urban and social residential differentiation, local politics of urban property. Prerequisites: 44:1 or 44:162.

44:137 Economic Theory of Location 3 s.h. Behaviorally based location theories for social and economic activities traced from their classical origins to the contemporary literature. Prerequisites: 44:1, or a graduate level course in economics, or consent of instructor.

44:138 Health and Development 1-3 s.h. Policies institutions for planning, managing urban transport, production, pricing, distribution of travel and highway services; city case studies, urban freight issues. Prerequisites: 6E: 1 and 6E:2, or 44:133 or 44:134 or 102: 101. Same as 102: 143.

44:139 Undergraduate Seminar for Geography Majors 3 s.h. Participation in a term project and preparation of a documented report. Offered spring semesters. Open only to majors. Prerequisites: 44:85, 44:109, and satisfaction of computer programming requirement.

44:151 Senior Thesis 3 s.h. Original research. Open only to seniors. Consent of instructor required.


44:161 African Development 3 s.h. Problems of economic, political, spatial integration in Africa; processes and processes of development and nation building. GER: foreign civilization and culture, social sciences. Prerequisites: 44:94. Same as 10: 146, 141: 146.

44:162 Geography of Underdevelopment 3 s.h. Spatial implications of the economic and political institutions affecting contemporary Third World societies; political economy of development and underdevelopment strategies through reading major theoretical works and analyzing case studies. Prerequisites: 44:94 or graduate standing.

44:163 Geography of the Newly Industrializing Countries 3 s.h. Newly industrializing countries (NICs) in geographic and historical perspectives: U.S. manufacturing bases as a backbone of the NICs; industrialization, off-shore industrial production, women in development, industrialization, theories of international high technology industries the international division of labor, regional profiles taken from the Pacific Rim, Chile, Brazil, and the northern Mexican maquiladora industry. Prerequisites: 44:94 and 44:85.

44:164 Geography of the Middle East 3 s.h. Social, political, and economic geography of the Middle East, within countries among countries of the region, and between the region and the rest of the world. GER: foreign civilization and culture. Prerequisite: 44:94.

44:166 Contemporary Europe: Interaction and Change 3 s.h. Contemporary Europe, stressing societal problems and attempts to resolve them: interactions within and among European countries, and internal cultural, and economic development of the rest of the world. Prerequisites: 44: 15 or 44:30, and 44: 130.

44:170 Political Organization of Space 3 s.h. Geographical aspects of jurisdictional organization, provision of public services, location of public facilities, geography of elections, public policy.

44:171 Geography of the U.S. and Canada 3 s.h. Urban and regional perspectives on place, regions, regionalism in North American society. Prerequisites: 44:15 or 44:30, and 44: 130 or 44: 122 or consent of instructor.

44:172 Development Planning and Policy 3 s.h. Explication and method strategies of economic and social development: visions, goals, formulations, executions, results; policy analysis methods. Prerequisites: 44:54 and 44:85.

44:175 Locational Conflict 3 s.h. Behavioral and institutional bases of locational and community conflict public choice, social justice, radical perspectives, politico-economic strategies of resolution in housing urban infrastructure, public education, security and local community development; neighborhood activism. Prerequisites: 44:15 and 44:135.

44:180 Field Studies in Physical and Environmental Processes 3 s.h. Problem definition and research design in a field setting: sampling theory and procedures, collection of primary data using different sensor and recording methods, data analyses and interpretation of physical, chemical, and biological processes in geomorphic, climatic, biogeographic, and environmental research. Prerequisite: 12 semester hours of courses in geography or consent of instructor.
44:194 Geographic Perspectives on Development 3 s.h. 

44:200 Readings 3 s.h.

44:210 Philosophy and Epistemology in Geography 3 s.h.

44:216 Behavioral Analysis in Geography 3 s.h.

44:222 Environmental Social Movements 3 s.h.

44:225 Water Resources Systems Analysis 2-3 s.h.

44:226 Advanced Biogeography/Landscape Ecology 3 s.h.

44:227 Water Quality: Science, Technology, and Policy 3 s.h.

44:228 Advanced Earth Surface Processes 3 s.h.

44:229 Water Resources Management 2-3 s.h.

44:230 Advanced Drainage Basin Analysis 3 s.h.

44:232 Advanced Industrial Geography 3 s.h.

44:236 Travel Demand Modeling 3 s.h.

44:242 Mathematical Optimization 3 s.h.

44:246 Quantitative Methods, Computer Methods, and Modeling 2-3 s.h.

44:248 Advanced Urban Social Movement Theory 3 s.h.

44:250 Field Work 3 s.h.

44:262 Political Economy of Regional Development 3 s.h.

44:266 Advanced Location Theory 3 s.h.

44:267 Mathematical Programming 3 s.h.

44:270 Jurisdictional Organization/Public Service Provision 3 s.h.

44:275 Development Policy and Planning in the Third World 3 s.h.

44:280 Advanced Field Studies in Physics and Environmental Processes 3 s.h.

44:285 Methods of Regional Analysis: Regional Science 3 s.h.

44:293 Advanced Location Theory 3 s.h.

44:308 Research Seminar: Quantitative Methods, Computer Methods, and Modeling 2-3 s.h.

44:315 Research Seminar: Political Geography arr.


44:340 Research Seminar: Location Theory 3 s.h.

44:360 Research Seminar: Environmental Systems Analysis 3 s.h.

44:411 Research: Locational Analysis arr.

44:450 Thesis arr.

**For Graduates**

**44:394 Research Seminar: Regional Development 3 s.h.**

**44:441 Research: Environmental Systems Analysis**

**Chair:** Richard G. Baker

**Professors:** Richard G. Baker, Robert S. Carmichael, Lon D. Drake, Brian F. Gienster, Philip H. Heckel, Gilbert Klappur, George R. McCormick, Holmes A. Semken, Keene Swett

**Associate Professors:** Gary A. Bailey, George R. Hallberg, Darrel B. Hoff, Donald L. Koehl

**Graduate Assistant Professor:** James E. Faulds, Luis A. Gonzalez, Mark K. Reagan, You-Kuan Zhang

**Adjunct Assistants:** Ray Anderson, Michael Barkart, Gregory A. Ludvigson, Sanders Rhodes Rhode, Brian J. Witzke

**Curator:** paleontology repository: Julie Golden

**Curator, paleontology repository:** Julie Golden

**Graduate degrees:** B.A., B.S. in Geology; minor in Geology

**Graduate degrees:** M.S., Ph.D. in Geology

**Geology**

Geology is the basic study and practical application of scientific disciplines related to understanding the earth. Geological concerns include the earth’s origin, its present appearance and character internally and at the surface, its alteration with time, location of economic and energy resources, and how mankind is changing the earth for future generations. The Department of Geology has several subfields-mineralogy, petrology, stratigraphy, structural geology, paleontology, paleoecology, sedimentology, economic geology, geomorphology, glacial geology, environmental geology—as well as applied geophysics, geochemistry, paleobiology, engineering geology, and remote sensing.

Career opportunities are available to professional geologists in industry (especially related to environmental concerns), education, urban planning, state and federal geological surveys, and government resource and research organizations. The master’s degree is regarded by most hiring agencies as the working degree in geology. However, an undergraduate degree is fully satisfactory in certain teaching, federal, and industrial situations.

Many of the University of Iowa’s geology 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 other fields such as urban planning, environmental studies, engineering, archaeology, science education, or oceanography as advanced areas. Geology is good preparation for all of these.

Each year more than 700 students enroll in 123 earth history and resources and 12.8 Introduction to Environmental Geology, laboratory lecture courses designed to fulfill the College of Liberal Arts General Education Requirement in natural sciences.

For nonmajors, the department offers a lecture sequence featuring a general survey of geology and several advanced courses with few prerequisites—paleontology, geology of Iowa,
remote sensing, geomorphology, and oceanography.

Undergraduate Programs

Geology majors receive at least an academic year’s work in three allied scientific areas—physics, chemistry, and mathematics—and a semester of biological sciences in addition to a course in each major area of geology.

Students majoring in geology must meet the general requirements of the College of Liberal Arts. It is recommended that they satisfy the foreign language requirement with French, German, or Russian, and the social sciences requirement with approved courses in economics, geography, and/or anthropology.

The department offers the Bachelor of Science and the Bachelor of Arts. Both degree programs can be enriched by adding courses from environmental tracks. Options in the environmental tracks are informal; they are recommended paths of study for students seeking employment in the environmental sciences.

Bachelor of Science

The Bachelor of Science professional program in geology is designed primarily as preparation for graduate study and for employment in industry and government. The following courses are required.

* 12:4 Evolution and the History of Life 4 s.h.
  * 12:5 Introduction to Geology 4 s.h.
  12:41 Mineralogy 4 s.h.
  12:52 Elementary Petrology 4 s.h.
  12:92 Structural Geology 5 s.h.
  or 12:132 Sedimentology 3 s.h.
  or 12:161 Principles of Stratigraphy 3 s.h.
  or 12:166 Hydrogeology and Groundwater Quality 3 s.h.

(All four courses listed above may be taken for credit.)

* 12: 16 or 12:116 Field Trip (two sections) 4 s.h.
  Geology electives 12 s.h.
  Total 35 s.h.

* Students may substitute 12:109 Advanced Historical Geology: Iowa or 12:121 Principles of Paleontology for 12:4 Evolution and the History of Life, and 12:3 Earth History and Resources for 12:5 Introduction to Geology. The geology major requires at least 10 semester hours of college mathematics, including 22M:26 Calculus I or 22M:36 Engineering Calculus I. Computer science or statistics courses may be counted toward the 10-semester-hour requirement. Additional mathematics courses are strongly recommended.

Eight semester hours each of laboratory courses in physics and chemistry, and a laboratory course in a biological science also are required.

Bachelor of Arts

The B.A. degree in geology 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, interdisciplinary environmental programs, or earth science teaching (see the College of Education section of the Catalog).

Completing the minimum requirements for this degree may not adequately prepare students for entry-level professional jobs in geology. Students may elect to take courses listed in one or more environmental geology tracks in order to prepare themselves for careers in the environmental sciences.

In addition to courses required for the B.A., carefully scheduled “track” courses may satisfy CER requirements as well as geology elective requirements. All B.A. students must complete a minimum of 35 semester hours of departmental requirements, including the following required course work.

* 12:4 Evolution and the History of Life 4 s.h.
  * 12:5 Introduction to Geology 4 s.h.
  12:41 Mineralogy 4 s.h.
  12:52 Elementary Petrology 4 s.h.
  12:92 Structural Geology 5 s.h.
  or 12:132 Sedimentology 3 s.h.
  or 12:161 Principles of Stratigraphy 3 s.h.
  or 12:166 Hydrogeology and Groundwater Quality 3 s.h.

(All four courses listed above may be taken for credit.)

* 12: 16 or 12:116 Field Trip (two sections) 4 s.h.
  Geology electives 12 s.h.
  Total 35 s.h.

* Students may substitute 12:109 Advanced Historical Geology: Iowa or 12:121 Principles of Paleontology for 12:4 Evolution and the History of Life, and 12:3 Earth History and Resources for 12:5 Introduction to Geology. The B.A. in geology requires at least 10 semester hours of college-level mathematics, which may include computer science or statistics. Eight semester hours of chemistry are also required, and courses in other sciences and social sciences appropriate to the student’s objectives are recommended.

Environmental Tracks

Groups of environmentally oriented courses that are desirable for students who wish to pursue environmental science careers in the earth sciences are organized into environmental tracks. These tracks are informal and flexible, and they include recommended courses that go beyond the minimum requirements for either the B.S. or B.A. degrees. The course 12:8 Introduction to Environmental Geology and 44:19 Contemporary Environmental Issues are not listed in these tracks, but geology majors whose study has an environmental orientation should take them as well as all required courses or options.

Students may choose courses from one particular track, or they may take courses from several tracks, depending on their career objectives. It may not be possible for students to complete all courses in any particular track during their four-year degree programs because of time, prerequisites, or limited enrollments in some programs. Students should consult with their academic advisers, and in some cases with course instructors, prior to registering for environmental track courses.

Courses marked (*) may satisfy Liberal Arts GER requirements. Geology courses marked (**) may be used to satisfy a geology course requirement.

ENVIRONMENTAL GEOLOGY

* 12:1  Introduction to Botany 4 s.h.
  * 2: Introductory Animal Biology 4 s.h.
  * 2:10 Principles of Biology I 4 s.h.
  * 2:1  Principles of Biology II 4 s.h.
  2:11 Plant Ecology 4 s.h.
  2:134 Ecology 4 s.h.
  **12:121 Principles of Paleontology 3 s.h.
  12:122 Evolution of the Vertebrates 2 s.h.
  12:127 Paleobotany 4 s.h.
  12: Quaternary Paleontology and Paleobotany 4 s.h.
  12:173 Quaternary Environments 3 s.h.
  12:175 Paleocology of Quaternary Mammals 3 s.h.
  44:103 Biogeography 3 s.h.

ENVIRONMENTAL GEOCHEMISTRY

4:102 Elementary Quantitative Analysis 4 s.h.
  4:121 Organic Chemistry I 3 s.h.
  12:149 Elements of Geochemistry 3 s.h.
  **12: 166 Hydrogeology and Groundwater Quality 3 s.h.
  53:152 Environmental Chemistry 3 s.h.
  53:153 Environmental Chemistry Laboratory 3 s.h.
  53:155 Environmental Engineering: Engineered Systems 3 s.h.

ENGINEERING GEOLOGY

B.S. required courses in calculus and physics 18 s.h.
  12:92 Structural Geology 5 s.h.
  12:102 Earth Surface Processes 3 s.h.
  12:110 Introduction to Remote Sensing 4 s.h.
  12:161 Principles of Stratigraphy 3 s.h.
  **12: 166 Hydrogeology and Groundwater Quality 3 s.h.
  12:179 Engineering Geology 3 s.h.
  12:180 Environmental Geophysics 3 s.h.
  12:181 Exploration Geophysics 3 s.h.

ENVIRONMENTAL GEOGRAPHY

12:253 Geocomputing 1-3 s.h.
  225:101 Biostatistics 3 s.h.
  22 S:102 Introduction to Statistical Methods 3 s.h.
  228:148 Intermediate Statistical Methods 3 s.h.

HYDROGEOLOGY AND WATER RESOURCES

12:92 Structural Geology 5 s.h.
  12:102 Earth Surface Processes 3 s.h.
  12:110 Introduction to Remote Sensing 4 s.h.
  12:161 Principles of Stratigraphy 3 s.h.

14:119 Elements of Geochemistry 3 s.h.
**12: 166 Hydrogeology and Groundwater Quality 3 s.h.
44:121 Natural Resources Policy 3 s.h.
44: 122 Environmental Conservation in the U.S. 3 s.h.
44: 123 Landscape Ecology 3 s.h.
44: 125 Environmental Impact Analysis 4 s.h.
44: 128 Drainage Basin Form and Process 3 s.h.
44: 129 Water Resources Management 3 s.h.
Water law courses offered by the College of Law

ENERGY AND THE ENVIRONMENT

6E: 133Environmental and National Resource Economics 3 s.h.
12: 110 Introduction to Remote Sensing 4 s.h.
12: 180 Environmental Geophysics 3 s.h.
12: 181 Exploration Geophysics 3 s.h.
12: 186 Petroleum Geology 3 s.h.
44: 121 Natural Resources Policy 3 s.h.
44: 122 Environmental Conservation in the U.S. 3 s.h.
44: 125 Environmental Impact Analysis 4 s.h.
Environmental law courses offered by the College of Law

COMPUTER APPLICATIONS IN ENVIRONMENTAL GEOLOGY

B.S. required courses in calculus 8 s.h.
12: 149 Elements of Geochemistry 3 s.h.
12: 153 Geocomputing 1-3 s.h.
2C: 5 Problem Solving and Computing 3 s.h.
22C: 7 Introduction to Computing with Fortran 3 s.h.
*22C: 16 Introduction to Programming with Pascal 4 s.h.

Honors

A degree with honors in geology is offered. Students in the honors program must elect a senior thesis and maintain a 3.20 cumulative grade-point average in order to graduate with honors in geology.

Minor

A minor requires at least 15 semester hours of geology courses with a minimum grade-point average of 2.00. At least 12 of the 15 semester hours must be earned in advanced geology courses taken at The University of Iowa. All geology courses numbered 100 and above, except 12: 103 Physical Geology, may be taken as advanced courses. In addition, 12:41 Mineralogy, 12:52 Elementary Petrology, and 12:92 Structural Geology are considered advanced courses for the minor.

College-level courses in mathematics, physics, chemistry, and biological sciences usually are required as collateral work for geology students. Those seeking a minor in geology should be sufficiently prepared in the areas of supporting sciences before they take advanced courses in geology.

Recommended advanced courses in geology that deal with important areas of earth materials and earth processes are as follows:

- 12:41 Mineralogy 4 s.h.
- 12:52 Elementary Petrology 4 s.h.
- 12:92 Structural Geology 5 s.h.
- 12:121 Principles of Palentology 3 s.h.
- 12:132 Sedimentology 3 s.h.
- 12:161 Principles of Geophysics 3 s.h.
- 12:180 Environmental Geophysics 3 s.h.

Joint Programs

Joint programs can be arranged, usually with chemistry, physics, biological sciences, environmental engineering, and anthropology.

Original Research

A junior or senior who is ready to pursue original research for credit in geology may assist a faculty member or graduate student with a current research project, or may initiate a small-scale project involving a combination of field, laboratory, and library investigation. Independent study is encouraged. Undergraduate classes have produced term reports that subsequently were published.

Graduate Programs

Students planning to take graduate work in geology should have completed geology and supporting courses equivalent to those required for an undergraduate major in geology at The University of Iowa. Students with deficiencies may remedy them at the beginning of graduate study.

Beginning graduate students in geology must take 12:107 Geologic Orientation. All graduate students must perform teaching, research, or related appropriate services as part of the degree program.

Graduate students who begin their programs in August 1992 or later must deliver a 15-minute presentation about his or her thesis topic. The format of the presentation is decided individually by each student in consultation with his or her committee. Suggested modes of presentation include either oral or poster presentations at local, regional, national, or international meetings; presentation as part of a Friday seminar; and informal brown-bag lunch presentations. Students who began their study before August 1992 are encouraged to make these presentations voluntarily.

Prospective graduate students should consult "Rules and Regulations" in the Graduate College section of the Catalog for general admission and graduate study requirements.

Master of Science

The M.S. degree programs are designed to complete the student’s broad, fundamental background in geology and the supporting sciences. They prepare the student for a professional career in geology or for more advanced and specialized studies—although in certain situations and with faculty approval, the student may pursue an already specialized program at the master’s level.

Entering graduate students are assigned to a general graduate adviser. By the end of the first month of the second semester in residence, each student must select a research topic and a thesis committee. The department chair then approves a thesis adviser and two additional faculty members, who form the student’s advisory committee. The student is responsible for getting the committee’s approval for a suitable program of course work, and for satisfactory development of a research plan as outlined in a thesis proposal that is submitted for departmental approval. This proposal can, but does not have to be, in the form of a AAPG, GSA, Sigma Xi, or similar grant proposal.

Automatic continuation of financial aid beyond the first year is contingent on the student’s timely selection of adviser, thesis topic, and presentation of research proposal or program to his or her committee.

To qualify for admission to the final master’s examination, the candidate must have at least a 3.00 grade-point average on graduate courses that he or she is taking toward the 30-semester-hour minimum requirement for the degree with at least 24 semester hours in residence at The University of Iowa. Additionally, the grade-point average on all graduate geology courses should be at least 3.00. Not more than 8 semester hours of thesis and research may be counted toward the 30-semester-hour minimum required for the degree program.

M.S. with Thesis

Students are encouraged to select thesis topics involving a variety of geological subdiscipline and scientific skills. Research topics might include field work or mapping, laboratory experiments, analytical work, or some combination of these.

M.S. Without Thesis

In lieu of a thesis, the student must submit a manuscript that his or her committee deems acceptable for submission for publication. Students may submit a previously published manuscript. The manuscript must be formatted in the style of the journal to which it will be submitted. It must also be reposited in the Main Library. No college credit is granted for the manuscript.

The M.S. without thesis requires at least 38 semester hours of graduate course work, of which at least 8 semester hours must be earned in other departments of the University.

The faculty also may require that students submit a formal scientific report dealing with an appropriate subject or project. Credit may be granted for this report.

The final examination covers course work and work done in lieu of the thesis.

Master of Arts in Teaching (Earth Science)

This program enables students to combine certification to teach secondary school with participation in a specialized graduate curriculum. Awarded by the College of Education, the M.A.T. requires at least 20 semester hours of graduate study in professional education and at least 18 semester hours of graduate course work in earth science.
Doctor of Philosophy

The Ph.D. in geology requires at least 72 semester hours of graduate credit, including at least two full-time semesters in residence beyond the first 24 semester hours of graduate study.

The following are the minimum requirements. Ph.D. students must satisfy course requirements for the M.S. in geology at The University of Iowa, where appropriate, additional work in one area may be approved as satisfying requirements in another. They also must take an appropriate graduate course in another discipline. Courses cross-listed between geology and other departments generally are not considered to meet this requirement. Candidates must complete at least 24 semester hours of graduate credit beyond that applied toward the M.S. and exclusive of credits for dissertation research.

The comprehensive examination covers, in depth, all subdivisions of the candidate's major field and appropriate related areas as represented by the committee. It also assumes that the doctoral candidate is proficient in the basic elements of general geology, as presented by current elementary textbooks. A dissertation is required. It must conform to a format prescribed by the Graduate College, but it can consist of three papers submitted or accepted for publication.

Facilities

Resources and equipment available for research in the Department of Geology include mineralogy/petrology lab (X-ray diffractometers, powder cameras, wet chemistry lab, A.A. spectrophotometer, fluid-inclusion stages, microscopes); sedimentary geochemistry lab (wet chemistry, ion chromatography), sedimentology lab (thin-section lab, petrographic facilities, cathodoluminescope); paleontology facility (invertebrate, vertebrate, palynological), including a major repository; research equipment for palynology, micropaleontology, and exploration geophysics; photographic lab; geophysics (gravity meter, field and rock magnetometers, susceptibility meter); the Iowa Geological Survey Bureau (located in the same building as the department), with subsurface-core repository and remote sensing lab; in-house terminals for the University's Wex Computing Center (IBM 370, HP2000 computers); trailer-mounted soil probe; scanning electron microscope; microscope; and the geology departmental library, with 33,000 volumes and journals and 70,000 maps.

Cooperative Activities

The department has collaborative work with the Iowa Geological Survey Bureau, and geology students sometimes do projects for the survey.

The Departments of Geology, Geography, Anthropology, Chemistry, Environmental Engineering, and Biological Sciences cooperate in sharing services, expertise, joint instruction, and equipment. The geology department is an important participant in the Iowa Quaternary Studies group, an interdisciplinary program that promotes projects combining work in geology, geography, botany, biological sciences, anthropology, and statistics. Course work, degree programs, and facilities are shared among departments.

Field Trips

Field trips are an integral part of several courses in geology, with frequent weekend general-interest events. In the Iowa City region, the geology is characterized by a layer of glacial drift 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 glaciation are represented in Iowa, and field studies of landforms, exposures, and cores continue yield information on sedimentology, stratigraphy, soil formation, paleopedology, and fossil biotas from both glacial and interglacial deposits.

Spring break provides time for longer trips available to all geology students. In recent years, students have traveled to Death Valley, the Florida Keys, the southern Appalachians, New Mexico, and the Ozarks. Advanced classes visit Colorado, Ontario, Kansas, Oklahoma, and California.

Courses

Not all courses are offered every year.

Primarily for Undergraduates

12:00 Cooperative internship in Geology 0 s.h.

12:11 Lectures in Earth History and Resources 2 s.h.

12:12 Lectures in introduction to Environmental Geology 2 s.h.

12:23 Earth History and Resources 4 s.h.

12:24 Evolution and the History of Life 4 s.h.

12:25 Introduction to Geology 4 s.h.

12:26 lectures in Evolution and the History of Life 2 s.h.

12:36 Introduction to Geology 4 s.h.

12:41 Mineralogy 4 s.h.

12:52 Elementary Petrology 4 s.h.

12:92 Structural Geology 5 s.h.

For Undergraduates and Graduates

12:100 Geologic Training Assignment 1-3 s.h.

12:101 Physical Geology 2-3 s.h.

12:102 Earth surface Processes 3 s.h.

12:103 Physical Geology 2-3 s.h.

12:104 Principles and techniques of basic geologic mapping in Black Hills of South Dakota, Bighorn Mountains of Wyoming. Offered in June. Prerequisite: 12:52.

12:106 The WAY the Earth Works 3 s.h.

12:107 Geologic Orientation 1 s.h.

12:108 Introduction to Oceanography 2 s.h.

12:109 Advanced Historical Geology: Iowa 3 s.h.

12:1010 Introduction to Remote Sensing 4 s.h.

12:1020 Earth surface Processes 3 s.h.

12:1100 Geologic Training Assignment 1-3 s.h.

12:115 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. Prerequisites: 12:52 and 22M:5.

12:93 Geologic Field Methods 2 s.h.

12:1011 Environmental Geology 3 s.h.

12:1021 Geologic Mapping 3 s.h.

12:1031 Environmental Geology 3 s.h.

12:1041 Introduction to Geology 3 s.h.

12:1051 Geologic Mapping 3 s.h.

12:1061 Environmental Geology 3 s.h.

12:1071 Environmental Geology 3 s.h.

12:1081 Environmental Geology 3 s.h.

12:1091 Environmental Geology 3 s.h.

12:1012 Environmental Geology 3 s.h.

12:1022 Geologic Mapping 3 s.h.

12:1032 Environmental Geology 3 s.h.

12:1042 Introduction to Geology 3 s.h.

12:1052 Geologic Mapping 3 s.h.

12:1062 Environmental Geology 3 s.h.

12:1072 Environmental Geology 3 s.h.

12:1082 Environmental Geology 3 s.h.

12:1092 Environmental Geology 3 s.h.
12:13 Summer Field Course 6 s.h.
Descriptive geology of rock units, geologic structure in the Wasatch and Uinta Mountains, Park City, Utah. Offered summer sessions. Prerequisites: 12:41, 12:52, 12:92, and 12:93.

12:14 Energy and the Environment 3 s.h.
Geology of Petroleum/Energy Environments: responsible for formation of petroleum, coal, uranium; development of alternative fuels; environmental impact of exploration, production, use of fossil and alternative fuels. Prerequisite: college level earth science course or graduate standing or consent of instructor.

12:16 Field Trip 2 s.h.
Archeology or geology, except that carbonate area of Florida, Rio Grande Rift (New Mexico), Death Valley (California, Nevada), Appalachian Mountains (Virginia). Offered spring break. May be repeated. Consent of instructor required.

12:19 Directed Study arr.
May be repeated. Consent of instructor required.

12:20 Collection Care and Management 2 s.h.
Same as 24:120.

12:121 Principles of Paleontology 3 s.h.
Patterns of evolution, fossil record; systematic, biostatigraphy and morphometrics, analysis of evolutionary relationships; paleontology, paleoenvironments; interpretation; large scale boths and climatic change.

12:122 Evolution of the Vertebrates 2 s.h.
Vertebrate evolution; processes recorded in geologic record, taxonomic systematic, evolutionary concepts of selected taxa, especially dinosaurs. Junior standing required. Prerequisite: introductory geology or zoology.

12:123 Vertebrate Osteology 2 s.h.
Skeletal structure of vertebrates; emphasis on mammals, identification, interpretation of remains from paleontological, archaeological sites. Junior standing required. Prerequisite: introductory geology or zoology.

12:124 Invertebrate Paleontology 4 s.h.
Morphyology, taxonomy, ecology, significance of significant macroscopic invertebrates. Prerequisite: college zoology or consent of instructor.

12:125 Paleobotany 4 s.h.
Phylogenetic study of plants using fossil evidence; paleobotanical techniques, economic applications in coal, petroleum industries. Prerequisite: introductory botany or geology. Same as 2:120.

12:128 Palynology and Paleobotany 4 s.h.
Morphology of pollen, seeds, fungi other plant parts found as fossils their preservation, identification, use in biogeography, paleoclimatology, archaeology. Prerequisite: college level geology or Mary. Same as 2:121.

12:132 Sedimentology 3 s.h.
Physical, chemical, biochemical processes that generate sediments sedimentary rocks, including weathering, transportation, deposition and diagenetic processes. Offered fall semester. Prerequisite: physical and statistical geology and one year of college chemistry.

12:133 Carbonate Petrology 3 s.h.
Sedimentary characteristics of sandstones occurring in a variety of settings and depositional settings. Offered spring semester of odd years. Prerequisites petrology, optical microscopy, and stratigraphy or sedimentology.

12:135 Depositional Environments 2-3 s.h.
Modern patterns of deposition: emphasis on interpreting depositional environments of ancient sedimentary rocks and deciphering resulting stratigraphic patterns. Offered spring semester. Prerequisite: 12:121, 12:122, 12:161 or consent of instructor.

12:141 Optical Mineralogy/Petrography 4 s.h.
Theory, practice of studying minerals with a polarization microscope; principles of igneous, sedimentary, metamorphic rocks in 20 section. Offered fall semesters. Prerequisites: 4:7 or 4:13, 4:12, 52 and 22M9, 29 and 12:19 or 29:18.

12:143 X-Ray Crystallography 2 s.h.
Crystal structure properties, uses of clay minerals, source of systematics, theory, practice of X-ray powder methods, applications to minerals. Prerequisites: college physics and mineralogy.

12:149 Elements of Geochemistry 3 s.h.
Elementary biogeochemical aspects applied to geologic problems. Prerequisites: 4:7, 4:8 or 4:13, 4:14 and 12:52.

12:153 Geocomputing 1 s.h.
Computer applications in geology: desktop publishing data management numerical modeling, computer graphics software for data analysis. May or graduate standing required. Recommended: 2:230.

12:154 Advanced Geocomputing 2 s.h.
Design of programs with applications in geology, emphasis on interactive modeling, graphics. Geologic maps or graduate standing required. Prerequisite: FORTHAN or PASCAL or C or consent of instructor.

12:156 Scanning Electron Microscopy and X-ray Microanalysis 3 s.h.
Theory, operation, application of scanning electron microscopy and X-ray microanalysis for advanced students, staff, instructors. Same as 2:156, 52, 56, 60:156.

12:161 Principles of Stratigraphy 3 s.h.
Genesis of sedimentary rocks, geologic time, stratigraphic nomenclature, biostratigraphic and physical correlation methods, mass extinctions, sequence stratigraphy, basin analysis and modeling, stratigraphic field methods. Offered fall semester. Prerequisite: 12:42 or consent of instructor.

12:163 Transmission Electron Microscopy and X-ray Microanalysis 3 s.h.
Principles of electron microscopy, operation, applications of TEM, STEM, thin film Xray microanalyses, specimen preparation techniques, including metal, examination, minerals. Consent of instructor required. Same as 2:157.

12:166 Hydrogeology and Groundwater Quality 3 s.h.
Quantity of groundwater quality, flow, pumping tests, flow nets, water table, aquifer contaminant, mathematical modeling. Seniors or graduate standing required. Same as 2:103.

12:172 Glacial and Pleistocene Geology 3 s.h.
How glaciers behave, how periglacial materials and landscapes evolve. Prerequisite: physics, geology, physics, geography, or anthropology.

12:174 Quaternary Seminar 1 s.h.
Paleoclimatology, geology, geomorphology, paleoecology and paleoecology. Prerequisite: introductory geology or consent of instructor.

12:175 Quaternary Environments 3 s.h.
Archaeological, paleontological physical, chemical means of reconstructing or interpreting landscapes, results, interdisciplinary approach; emphasis on speaking, writing, Consent of instructor required.

12:176 Geochemical Modeling 3 s.h.
Principles of geochemical modeling, generation, differentiation of magmas in context of plate tectonic theory. Prerequisites: 12:52 and 12:141, or consent of instructor.

12:22 Microgeology 4 s.h.
Morphology, taxonomy, and evaluation of microfossils. Groups. Prerequisites: 12:121 or 12:161, and college zoology, or consent of instructor.

12:228 Advanced Earth Surface Processes 3 s.h.
Theoretical concepts, empirical studies of hydrologic, climatic, geomorphic processes in relation to the earth's surface: measurement, analysis, modeling, processes; quantification of the basin analysis, modeling, responses to climatic environment change. Graduate standing in physical geography or geology or consent of instructor required. Same as 24:228.

12:234 Sedimentary Seminar I 1 s.h.

12:240 Geomorphology seminar 2 s.h.

12:241 Groundwater Geochemistry 3 s.h.
Concepts of solubility equilibria, thermodynamics of aqueous solutions; properties of groundwaters; rock-water interaction, survey of evolution of groundwater in different geologic terrains; use of geochemical tracers in groundwater; laboratory, computation work use sampling techniques, field and laboratory measurements, thermodynamic and kinetic models, rock-water interactions. Consent of Instructor required.

12:244 Sedimentary Geochemistry 3 s.h.
Thermodynamics and volatility equilibria; kinetics of low temperature processes, stable isotopes; trace element incorporation, carbonatelastic processes, stable isotopes; use of geochemical tracers in groundwater; laboratory, computation work use sampling techniques, field and laboratory measurements, thermodynamic and kinetic models, rock-water interactions. Consent of instructor required.

12:251 Igneous Petrology 3 s.h.
Phase equilibria, isotopes and trace element geochronology: geochemical modeling, generation, differentiation of magmas in context of plate tectonic theory. Prerequisites: 12:52 and 12:141, or consent of instructor.

12:252 Isotope Geochemistry 3 s.h.
Radiogenic and stable isotopes systematically applied to geological and environmental problems. Prerequisite: 12:49 or consent of instructor.

12:254 Geochemical Thermodynamics and Kinetics 3 s.h.
Principles of chemical thermodynamics, kinetics applicable to high-temperature and low-temperature geochemical systems, equilibrium and irreversible thermodynamics, phase rule, chemical, thermodynamics, chemical potential, thermodynamics, ionic activities in aqueous systems, electrochemistry, electrical double layers, retrieval of thermodynamic data, evaluation of thermodynamic databases, nucleation, reaction rates, calculation of thermodynamic and kinetic properties of minerals at high temperatures. Prerequisites: 12:49 or consent of instructor.

12:255 Metamorphic Petrology 3 s.h.
Nature, origin of metamorphic rocks using thermodynamic, experimental data, geological considerations. Prerequisites: 12:52 and 12:141, or consent of instructor.

12:257 Metamorphic Petrology Seminar 1 s.h.

Primarily for Graduates

12:182 Principles of Economic Geology 3 s.h.
Formation, distribution, economic use of metallic, nonmetallic minerals, deposits and processes of deposit formation. Prerequisite: 12:52. Recommended: 12:141.

12:184 Groundwater Modelling 3 s.h.
Principles equations of ground-water flow and contaminant transport in aquifers; analytical solutions, numerical methods, stochastic approaches, applications of groundwater modelling software. Same as 53:104. Prerequisite: 22M26 or 22M36, and 12:165 or 12:53.

12:186 Petroleum Geology 3 s.h.
Geologic processes that affect petroleum generation, migration, trapping, accumulation; survey of geological, geophysical, geochemical exploration techniques; economic, political factors that influence petroleum exploration. Prerequisite: 12:52.

12:191 Geotectonics 3 s.h.
Origin of oceans, oceans, mountain belts; based on structural geophysical, geochemical, petrologic evidence. Prerequisite: 12:180. Recommended: one year of calculus.

12:196 Advanced Geotechnics 3 s.h.
Geotechnical engineering; biogeochemical modeling, formation, differentiation of magmas in context of plate tectonic theory. Prerequisites: 12:52 and 12:141, or consent of instructor.
12:261 Regional Stratigraphy 3 s.h. 
Contemporary concepts in light of new developments in global tectonics; detailed stratigraphic analyses of sedimentary basins, areas. Prerequisite: 12:161 or consent of instructor.

12:263 Biostatigraphy 3 s.h. 
Principles, methods of biostatigraphic correlation; emphasis on evaluation of current techniques. Prerequisites: 12:161 and 12:222, or equivalent.

12:266 (Land) Hydrogeology 3 s.h. 
Evaluation of existing landslides, design and operation of new facilities; emphasis on groundwater protection in diverse Midwestern hydrogeologic settings; case histories. Pre or corequisite: 12:161 or 53:103.

12:272 Advanced Scanning Electron Microscopy 3 s.h. 
Theoretical and practical aspects of high resolution scanning electron microscopy, advanced electron beam specimen interaction, image analysis, signal processing techniques in a wide variety of applications using state-of-the art equipment. Consent of instructor required. Prerequisite: 12:156. Same as 52:272.

12:279 Engineering Geology Field Problems 1.3 s.h. 
Environmental geology design problems; emphasis on field aspects, including mine reclamation, wetlands, river management, erosion control. Corequisite: 12:179.

12:280 Seminar Geophysics 1-2 s.h. 
High pressure geophysics, exploration geophysics, physical properties of rocks, computer processing of data.

12:281 Gravity and Magnetic Exploration 3 s.h. 
Basics, techniques, use of gravity and magnetic methods of geophysical prospecting; field work in data acquisition, and interpretation. Prerequisite: 12:181.

12:282 Seismic Exploration 3 s.h. 
Basics, techniques, applications of seismic method of geophysical prospecting; data acquisition, analysis and processing interpretation. Prerequisite: 12:181.

12:286 subsurface Geology 3 s.h. 
Techniques used to solve subsurface geological problems, including histology, sample analysis, well log analysis, seismic stratigraphy, applicability of techniques demonstrated with case studies, problem solving exercises. Offered fall semesters of odd years. Prerequisite: 12:161 or consent of instructor.

12:288 Paleomagnetism 3 s.h. 
Earth's magnetic field, rock magnetism, uses of remanent magnetization in geology, geophysics. Recommended: 12:92 and 12:180.

12:293 Advanced Structural Geology 4 s.h. 
Kinematic, dynamic analysis of deformed rocks; strain analysis, field investigations of highly deformed rocks. Prerequisites: 12:92 and one year of calculus.

12:296 Seminar: Structural Geology 1.2 s.h. 
Consent of instructor required.

12:300 Research: Summer Field and Laboratory May be repeated.

12:301 Research: General Geology May be repeated.

12:315 Research: Ground Water May be repeated.

12:320 Research: Paleontology May be repeated.

12:321 Research: Micropaleontology May be repeated.

12:330 Research: Sedimentology and sedimentary Petrology May be repeated.

12:340 Research: Mineralogy May be repeated.

12:350 Research: Petrology May be repeated.

12:360 Research: Stratigraphy May be repeated.

12:370 Research: Geomorphology and Reconstruct Geology May be repeated.

12:380 Research: Economic Geology May be repeated.

12:385 Research: Geophysics May be repeated.

12:390 Research: Structural Geology arr. 
May be repeated.

May be repeated.

GEORGE

Chair: Wolfgang Ert

Professors: Judith P. Aikin, Wolfgang Ert, John A. A. (ter Haar)

Professors emeriti: Edward Dvořáček, James P. Sandrock, Ingeborg H. Schröger, Erwin P. Tschimer

Undergraduate Program

The following course sequences, or their equivalents, are required for students who begin a major in German with no previous experience in the German language.

BASIC PROGRAM

13:11 Elementary German I 4 s.h.
13:12 Elementary German II 4 s.h.
13:21 Intermediate German I 4 s.h.
13:22 Intermediate German II 4 s.h.

The basic program also may be satisfied by various combinations of 13: 13, 13:14, 13:25, 13:26, and 13:27. See the German department undergraduate adviser for details.

Students majoring in German choose one of two major tracks: the humanities track or the applied German track. Students who plan to complete the undergraduate teaching major in German in conjunction with the College of Education (see the College of Education section of the Catalog) may choose either the humanities track or the applied German track.

HUMANITIES TRACK

The humanities track enables students to concentrate on German language, literature, and culture, both past and present. It is recommended for students who want to explore the world of German ideas and their influence through the ages.

The humanities track was revised in 1994. All students who declare this track beginning August 22, 1994, must complete the new requirements. Students who declared before that date may choose to complete either the old requirements (see the 1992-94 General Catalog) or the new requirements. Students who wish to graduate under the old requirements must complete the major and graduate by August 1998.

*13:101 Introduction to German Literature 3 s.h.

13:103 Composition and Conversation 3 s.h.

13:104 Composition and Conversation 3 s.h.

13:105 German Culture History 3 s.h.

13:110 Eighteenth-Century German Literature 3 s.h.

13:111 Nineteenth-Century German Literature 3 s.h.

13:112 Twentieth-Century German Literature 3 s.h.

13:16 Advanced Composition and Conversation 3 s.h.

13:198 Undergraduate Special Topics 3 s.h.

An elective from the courses offered within the department, or a course related to Germanic studies offered by another department (approval of major adviser required) 3 s.h.

*13:101 is prerequisite for all other literature courses.

APPLIED GERMAN TRACK

The applied track gives students practical skills and proficiency in German for business and government. It is especially useful when combined with a business-oriented curriculum. The College of Liberal Arts and the College of Business Administration offer a joint program leading to an International Business Certificate. For details, see the College of Business Administration section of the Catalog.

13:103 Composition and Conversation 3 s.h.

13:104 Composition and Conversation 3 s.h.

13:106 Principles and Techniques of Translation 3 s.h.

13:108 The German Media 3 s.h.

13:114 Business German 3 s.h.

13:115 Contemporary German Civilization 3 s.h.

13:116 Advanced Composition and Conversation 3 s.h.

13:198 Undergraduate Special Topics 3 s.h.

One German department course in literature or culture. An elective from the courses offered within the department, or a course related to Germanic studies offered by another department (approval of major adviser required) 3 s.h.

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.

Elementary and Secondary Teaching Licensure in German

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 College of Education, Division of Curriculum and Instruction, for further information.

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.

Honors

Honors in German is open to exceptional students who are members of the University Honors Program and have completed three years of college-level German, or the equivalent, with a grade-point average of at least 3.50 in upper-division German courses.

Participating students register for the following courses.

13:190 Honors Program in German 3 s.h.
13:191 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

A minor in German requires 15 semester hours of course work in college-level German with a minimum grade-point average of 2.00. Twelve of these semester hours must be in advanced courses (13:100 and above) at The University of Iowa. All courses numbered 100 and above count toward the minor except 13:118, 13:123, and 13:183.

Graduate Programs

Master of Arts

The department offers the Master of Arts both with and without thesis. The M.A. without thesis is considered a terminal degree.

Students must complete a minimum of 33 semester hours of qualifying course work to complete the M.A. degree.

M.A. students may elect a concentration in either Germanic linguistics, including applied linguistics, or German literature. Those who have not completed major courses or their equivalents in the department’s undergraduate program must take those courses along with the courses required for the M.A. Some candidates may qualify for graduate credit for such work.

With the graduate adviser’s approval, students may take some of the required 33 semester hours outside the department in related subjects, such as philosophy, history, linguistics, or other languages.

Students who elect to pursue the M.A. with thesis must submit a prospectus before the end of the semester in which they pass the M.A. examination, and they must complete the thesis no later than eight months after they take the M.A. examination.

Usually students may receive 2 semester hours of credit for satisfactory completion of the thesis. The semester hours are in addition to the 33 semester hours required for the M.A. The thesis topic may be either linguistic or literary, and it is subject to approval by the faculty.

Candidates must present an oral defense of the thesis. If the thesis is deemed acceptable, the faculty will consider the candidate’s application for formal admission to the Ph.D. program.

Doctor of Philosophy

The Ph.D. is awarded upon satisfactory completion of a minimum of 72 semester hours of graduate credit and fulfillment of other requirements of the Department of German and the Graduate College (see the Graduate College section of the Catalog). Students may elect a concentration in either Germanic linguistics, including applied linguistics, or German literature.

Credit received toward the M.A. usually is applied to the Ph.D. Students may earn up to 12 additional semester hours of credit for satisfactory completion of the Ph.D. dissertation.

Graduate courses in related subjects outside the department may be counted toward the degree with the approval of the graduate adviser.

Graduate Degree Language Tools

Master of Arts

Before taking the M.A. exam, candidates must demonstrate a 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.

Competence may be demonstrated either by submitting proof of having taken the required course work with a grade-point average of 3.00 or higher, or by passing an exam at the fourth-semester college level as determined by the appropriate language department.

Doctor of Philosophy

Candidates must demonstrate a reading knowledge of two languages determined by the adviser to be pertinent to the candidate’s research interests.

Competence may be demonstrated by the methods described under “Master of Arts.”

Financial Aid

Teaching assistantships, research assistantships, and partial tuition scholarships are available for qualified graduate students. The department awards the Wilson and the Funkhouser prizes to students of distinction.

study Abroad

The Department of German participates in the Regents Summer Program in Austria. Sponsored by the three State Board of Regents universities, this program is open to students in all disciplines.

A three-week session is conducted at St. Radegund, near Graz, Austria. Instruction in both language and culture is provided at appropriate levels. A second four-week session is held in Vienna, where faculty of the International University at the University of Vienna conduct morning classes daily, again at several levels. An independent travel period is scheduled during the program.

To participate, students must be admitted to one of the three State Board of Regents universities for the summer session. Applicants should have a good basic knowledge of German-usually two years of college level or the equivalent. Students with less than two years may be accepted with the approval of the campus coordinator.

The study abroad program is intended primarily for undergraduates, but graduate students may also apply. All students are expected to speak only German while participating in the program. Grants are available for qualified applicants.

Students register for 13:109 Regents Program Abroad in Austria. Contact the Department of German for more information.

Special 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 computer-assisted instruction program.

An extensive collection of works and periodicals in the University Libraries facilitates research in all major areas of German literature and Germanic linguistics and at all levels of study.

The Foreign Language House is an on-campus housing option for undergraduate and graduate students.

Courses

Primarily for Undergraduates

13:00 Cooperative Education Internship 0 s.h.
13:11 Elementary German I 3-4 s.h.
Understanding and speaking “everyday German”; reading and writing skills; acquaintance with the German-speaking world through discussion, readings, videos. GER: foreign language.
13:12 Elementary German II 3-4 s.h.
Continuation of 13:11. GER: foreign language. Prerequisite: 13:11 or equivalent
13:13 Intensive Elementary German 6 s.h.
A year in one semester. Open only to undergraduates. GER: foreign language.
13:14 First-Year German Review 4 s.h.
Accelerated course in preparation for third semester German. GER: foreign language. Prerequisite: two or more years of high school German.
13:21 Intermediate German 1 4 s.h.
Proficiency in spoken and written German; German-speaking cultures of central Europe, their historical background; emphasis on refinement of reading skills. GER: foreign language. Prerequisites: 13:12, 13:13, and 13:14; or equivalent.

13:22 Intermediate German II 4 s.h.

13:25 Intensive Intermediate German 6 s.h.
A year in one semester. Open only to undergraduates. GER: foreign language. Prerequisites: 13:12, 13:13, 13:14; or equivalent.

13:26 Accelerated German Reading 1 6 s.h.
First of a two course sequence; thorough foundation in German grammar and vocabulary, intensive approach to reading. Open only to undergraduates. GER: foreign language. Prerequisite: 13:26 or equivalent.

13:27 Accelerated German Reading II 6 s.h.
Continuation of 13:26; vocabulary building and extensive reading of Prosaistischen texts. Open only to undergraduates. GER: foreign language. Prerequisite: 13:26 or equivalent.

For Undergraduates and Graduates

13-100 Individual German arr.
Open only to German majors and minors or to others with consent of instructor.

13-101 Introduction to German Literature 3 s.h.
Literary works from various genres; taught in German. Prerequisite: 13:22 or equivalent.

13-103 Composition and Conversation I 3 s.h.
Active command of German in reading, speaking, writing. Prerequisite: 13:22 or equivalent.

13-104 Composition and Conversation II 3 s.h.
Prerequisite: 13:103 or equivalent.

13-105 German Cultural History 3 s.h.
Emphasis on development of art, philosophy, literature. GER: humanities. Prerequisite: 13:22 or equivalent.

13-106 Principles and Techniques of Translation 3 s.h.
Theory, methods, techniques for translating technical, scientific, journalistic, literary texts; emphasis on German to English translation. Offered spring semesters of even years. Prerequisite: a third year, college-level German course or equivalent.

13-108 The German Media 3 s.h.
Reading and writing skills: comprehension, reading speed, vocabulary building, scanning and skimming, parsing complex constructions through media accounts of current events. Offered fall semesters of odd years. Prerequisite: 13:22 or equivalent.

13-109 Regents Program Abroad in Austria arr.
See “Study Abroad” in the Catalog.

13-110 Eighteenth-Century German Literature 3 s.h.
Representative works from various genres in their literary, historical, social background; taught in German. Prerequisite: 13:101.

13-111 Nineteenth-Century German Literature 3 s.h.
Representative works from various genres in their literary, historical, social background; taught in German. Prerequisite: 13:101 or equivalent.

13-112 Twentieth-Century German Literature 3 s.h.
Representative works from various genres in their literary, historical, social background; taught in German. Prerequisite: 13:101 or equivalent.

13-114 Business German 3 s.h.
World of German business, role of German speaking countries in world trade; emphasis on German business protocol, correspondence. Offered fall semesters of even years. Prerequisite: two years of college-level German or equivalent.

13-115 Contemporary German Civilization 3 s.h.
Government and political structure, economy, mass media, education, social and cultural life of Germany, Austria, Switzerland from the end of World War II to the present. Offered spring semesters of odd years. GER: foreign language and culture. Prerequisite: a 2.00 year, college-level German course or equivalent.

13-116 Advanced Composition and Conversation 3 s.h.
Speaking and writing. Open only to undergraduates in German or to others with consent of instructor. May be repeated. Prerequisites: 13:103 and 13:104; or equivalent.

13-117 Accelerated Advanced German Reading 1 4 s.h.
Open only to graduate students. GER: foreign language. Prerequisite: 13:26 or equivalent.

13-118 Advanced Composition and Conversation 3 s.h.
Speaking and writing. Open only to graduate students. GER: foreign language. Prerequisite: 13:101 or equivalent.

13-120 Methods: Second Year Foreign Language 3 s.h.

13-123 Topics in Foreign Language 3 s.h.
Topics in a variety of foreign languages. Development of technological based instruction; computer authoring languages, interactive media, language laboratory methods and management. Same as 9:108, 35:119.

13-130 Internship Abroad arr.
Work experience related to student’s major field of study; position must require significant use of German language in a German speaking country; must be arranged in collaboration with Office of Cooperative Education. Corequisite: 13:100.

13-137 Twentieth-Century German Fiction 3 s.h.
Major writers from turn of the century to postwar Germany. Seminar standing in German required.

13-183 The Faust Tradition and Goethe’s Faust 3 s.h.
Development of Faust theme in world literature, beginning with the historical Faust, the Faustbuch, Marlowe’s Dr. Faustus; critical analysis of Goethe’s Faust, last act of Faust I, modern Faust criticism; requires no knowledge of German. GER: humanities.

13-190 Honors Program in German 3 s.h.
Individual work in German literature and culture. Prerequisites: three years of college level German or equivalent and 3.50 grade-point average in German.

13-191 Honors Research and Thesis 3 s.h.
Open only to honors students. Consent of instructor required. Prerequisite: 13:190.

13-198 Undergraduate Special Topics 3 s.h.
Open only to undergraduates. Maybe repeated. Consent of instructor required.

Language Courses for Graduate Nonmajors

13-131 Intensive Elementary German 4 s.h.
Open only to graduate students.

13-125 Intensive Intermediate German 4 s.h.
Open only to graduate students.

13-126 Accelerated German Reading 1 4 s.h.
Open only to graduate students. Prerequisite: 13:126 or equivalent.

13-127 Accelerated German Reading 11 4 s.h.
Open only to graduate students. Prerequisite: 13:126 or equivalent.

For Graduates

13-200 Advanced Studies arr.
Special problems of German literature and linguistics. Open only to graduate students in German.

13-220 The German Novel 3 s.h.
May be repeated.

13-221 Principles of Teaching and Learning Foreign Languages 3 s.h.
Theoretical foundations of teaching and learning a foreign language; emphasis on practical applications of pedagogy to a language classroom. Same as 9:234.

13-222 German Rhetoric and Style 3 s.h.
Advanced writing and speaking. Structure and texture of German academic discourse.

13-223 German Poetry 3 s.h.
May be repeated.

13-224 The German Drama 3 s.h.
May be repeated.

13-227 German Novels 3 s.h.

13-241 History of the German Language 3 s.h.
Same as 105:231.

13-242 Structure of Modern German 3 s.h.
Morphology and syntax; linguistic concepts such as gender and case; terms, mode, aspect, functional sentence structure; word formation; relationship between gender and sex; how cognitive and social characteristics of language users are related to or represented in morphology and syntax of a language; taught in German.

13-243 Middle High German 3 s.h.
Emphasis on linguistics. Same as 103:252.

13-244 Middle High German Literature 3 s.h.

13-247 Gothic 3 s.h.
Structure of Gothic; close reading and translation of Gothic novels; relationship of Middle European Gothic to Germanic languages.

13-249 History of the Scandinavian Languages 3 s.h.
Linguistic texts in Danish, Swedish, Norwegian; extensive readings. Same as 103:232.

13-251 Early German Literature 3 s.h.
From earliest documents to Middle High German period.

13-271 German Literature of the Baroque 3 s.h.

13-278 The Age of Enlightenment and the Early Period of Storm and Stress 3 s.h.

13-283 The Age of Goethe 3 s.h.
Storm and Stress (Goethe, Schiller, Klinger Lenz, and the Weimar classicism) I & II. May be repeated.

13-285 Goethe 3 s.h.

13-291 German Romanticism 3 s.h.

13-295 German Literature from Naturalism to Expressionism 3 s.h.

13-298 Special Topics in German Literature arr.
Open only to graduate majors in German. May be repeated.

13-300 Master’s Thesis arr.

13-350 Pre-Comprehensive Registration 0 s.h.

13-371 Seminar in Early German Literature 3 s.h.
May be repeated.

13-381 Seminar in German Literature of the Eighteenth Century 3 s.h.
May be repeated.

13-391 Seminar in German Literature of the Nineteenth Century 3 s.h.
May be repeated.

13-396 Seminar in German Literature of the Twentieth Century 3 s.h.
May be repeated.

13-398 German Poetry of the Twentieth Century 3 s.h.

13-399 Theory of Literature 3 s.h.

13-400 Ph.D. Dissertation arr.

GLOBAL STUDIES

Chair: James McCue (Religion)
Committee members: Stephen Arum (Office of International Education and Services), Rex Honey (Geography), William Klink (Physics), Gerald Nordquist (Economics), Rebecca Roberts (Geography), David Schoenbaum (History), Gerald Sorokin (Political Science), Burns Weston (Law)

Undergraduate degree: B.A. in Global Studies; undergraduate minor and certificate in Global Studies

The Global Studies Program provides undergraduate students with a multidisciplinary study of major contemporary, interrelated global issues: war, peace, and security; development, health, and human resources; environment and natural resources; and cross-cultural understanding.

The program provides a suitable background for a variety of careers. Depending on how it is shaped by individual students, it can provide a
broad, integrated base for more specialized or advanced work in a variety of academic disciplines, or for the study of law. It also provides a suitable background for work in international business and with international and governmental agencies. Several former students have found positions with international consulting firms, Washington, D.C.-based advocacy offices, and organizations such as the World Bank.

Global Studies is a constituent program of the Center for International and Comparative Studies (CICS).

Programs

The Bachelor of Arts in global studies is designed solely for students in the University Honors Program while tie certificate and minor are intended for all students interested in complementing their study with courses that develop global perspectives and emphasize global issues.

Bachelor of Arts

The global studies major is a broadly conceived program that provides a great deal of flexibility yet has a definite structure. To be eligible, students must be members of the University Honors Program. To fulfill the requirements of the major, students take a core curriculum of courses, develop a familiarity with one major world area, develop usable skills in a language of that area, study in some depth one of three areas of topical concentration, and complete a senior project. The course requirements total 54 semester hours.

All students take the following honors core curriculum of 27 semester hours.

GROUP A: GLOBAL STUDIES

47: 1 Global interdependence and Human Survival 3 s.h.
47: 180 Global Studies Seminar 3 s.h.

GROUP B: DISCIPLINARY STUDIES OF THE GLOBAL SYSTEM

Four of these:
6E: 125 International Economics 3 s.h.
16A: 152 United States in World Affairs 1900-1975 3 s.h.
or
30: 162 American Foreign Policies 3 s.h.
30:60 Introduction to International Relations 3 s.h.
30:170 The Politics of International Economics 3 s.h.
44:15 Introduction to Political Geography 3 s.h.
47: 195 Introduction to Public International Law 3 s.h.

GROUP C: INTRODUCTION TO TOPICAL CONCENTRATIONS

Students must take one course in each of the following three areas.
War, Peace, and Security
16:143 War and Society 3 s.h.
30:160 International Politics 3 s.h.

(Students who declared a certificate in global studies and completed 30:60 Introduction to International Relations before August 1994 may use that class.)

Development, Health, and Human Resources
30:42 Introduction to the Politics of Developing Areas 3 s.h.
44:94 International Development 3 s.h.
113:151 Sociology of the Third World 3 s.h.

Environment and Natural Resources
12:8 Introduction to Environmental Geology 3 s.h.
44: 19 Contemporary Environmental Issues 3 s.h.

WORLD AREA

Students take 12 semester hours of courses that focus on a major world area other than their home area.

Areas for which there are sufficient course offerings at The University of Iowa are listed below. Students who wish to study a particular area for which courses are not available in sufficient number may take the courses at another institution and transfer them, with the approval of the program chair.

Africa
Asia: China, Japan, India
Latin America
Middle East
Russia and Eastern Europe
Western Europe: France, Germany, Great Britain, Western Europe as a unit

For a listing of courses in these areas, contact the Global Studies Program office.

FOREIGN LANGUAGE

Each student is required to demonstrate an ability to use a foreign language that is widely used in the world area studied. The details of this requirement are worked out on an individual basis. In no case is the requirement less than four semesters of college-level study, and it commonly requires more work. Because of the additional time required for Chinese, Japanese, or Russian, students who elect these languages may count some semester hours of language study (6 for Chinese and Japanese and 3 for Russian) as partial fulfillment of the world area requirement.

TOPICAL CONCENTRATION

Each student develops a topical concentration (12 semester hours) focused on one of the following.
War, peace, and security
Development, health, and human resources
Environment and natural resources
For a current list of courses that may be used to complete the topical concentration, contact the Global Studies Program office.

SENIOR HONORS PROJECT

Each student completes an honors project, usually during the senior year. Students register for 3 semester hours of research on the project.

Certificate Program

The Certificate Program in Global Studies is designed to provide an international and global orientation for students in a variety of majors. Students in such diverse fields as engineering, business, anthropology, journalism, history, economics, and political science have completed the certificate program. Requirements total 27 semester hours.

Students complete all requirements for their departmental major as well as the requirements of the certificate program. Courses applied toward the certificate also may be used to satisfy the General Education Requirements or the requirements for a major or a minor. Students who complete the requirements are awarded a certificate in global studies when they receive their bachelor's degree, and completion of the program is noted on their transcript. Holders of Iowa baccalaureate degrees may return to complete the requirements for a certificate.

A student may not be awarded both a minor and a certificate in global studies. Students interested in pursuing the certificate in global studies should contact the program chair to ensure that they receive appropriate advising and current course information.

Requirements

Students in the certificate program must take courses in the basic area, in each of four emphasis areas, and in a foreign language. A minimum grade-point average of 2.00 is required in all course work applied toward the certificate.

BASIC AREA

Both of these:
47:1 Global Interdependence and Human Survival 3 s.h.
47: 180 Global Studies Seminar 3 s.h.

One of these:
6E: 125 International Economics 3 s.h.
16A:152 United States in World Affairs 1900-1975 3 s.h.
30:60 Introduction to International Relations 3 s.h.
30:162 American Foreign Policies 3 s.h.
30:170 The Politics of International Economics 3 s.h.
44:15 Introduction to Political Geography 3 s.h.
47: 195 Introduction to Public International Law 3 s.h.

EMPHASIS AREAS

Students take one course listed in each of the following four areas. They also choose one of the areas as their topical emphasis and take two additional courses in that area. The Global Studies Program office can provide a list of additional courses that may be counted toward an emphasis area.

War, Peace, and Security
This component deals with the use of armed force for pursuit of political ends on a continuum ranging from potential global nuclear war to individual acts of terrorism. The approaches consider cause, effect, limitation,
and resolution of violence in the contemporary world.

16:143 War and Society 3 s.h.
or
30:160 International Politics 3 s.h.

(Students who declared a major in global studies and completed 30:60 Introduction to International Relations before August 1994 may use that class.)

Development, Health, and Human Resources

This component deals with the problems of developing societies within the framework of a competitive global economy.

30:42 Introduction to the Politics of Developing Areas 3 s.h.
or
44:94 International Development 3 s.h.
or
113:151 Sociology of the Third World 3 s.h.

Environment and Natural Resources

This component is concerned with the use, availability, and disposal of global resources. Of special concern are environmental problems that arise from the transformation of these resources by humans using modern technology.

12:8 Introduction to Environmental Geology 3 s.h.
or
44:19 Contemporary Environmental Issues 3 s.h.

Cross-Cultural Understanding

Global issues require that people be educated to understand that perceptions, values, and beliefs vary among societies; that these differing values complicate the process of people communicating about and arriving at possible solutions; and that without careful examination, it is risky to accept as absolutes the perceptions, values, and beliefs of any one society or culture.

The goals of this component are to highlight cross-cultural differences as a major contemporary global issue; to address some of the sources, dimensions, and policy implications of these value differences; to foster the cross-cultural sensitivity necessary for dealing with global issues; and to encourage students to clarify their own values as they bear on the analysis of global problems. Students who choose to take three courses in this area may select courses that bear on the history, culture, and politics of a single world region.

Students may wish to take one of the following news colloquia in combination with other regional courses: 39:150 Contemporary Asia News Colloquium (same as 16W:181), 130:120 Contemporary Latin American News Colloquium, 141:10 African News Colloquium. Students who take just one course in this area should take 113:3 Introduction to the Study of Culture and Society (3-4 s.h.).

FOREIGN LANGUAGE

All certificate program students are required to complete four semesters (or equivalent) of a foreign language and are encouraged to go beyond this minimal requirement.

Minor

The requirements for the global studies minor are the same as those for the certificate, except that courses taken to satisfy the student’s major do not count toward the minor. Students interested in pursuing a minor in Global Studies should contact the program chair to ensure that they receive appropriate advising and current course information.

Study Abroad

Global Studies students are encouraged to spend a semester or a year studying abroad. When planning their time abroad, students should consult with the global studies program chair to discuss whether course work completed at an institution in another country will count toward the major, minor, or certificate program at Iowa.

Stanley Scholarships

Students are encouraged to apply for a Stanley Undergraduate Scholarship for International Research/Fieldwork through the Center for International and Comparative Studies. The scholarships are awarded to outstanding University of Iowa undergraduates who, in close consultation with a faculty member, propose a well-conceived small-scale research or fieldwork project on an international topic.

Special Programs

The Global Studies Program often collaborates with the International and Comparative Law Program or other units on campus to bring scholars and professionals to campus. The visitors take part in conferences and seminars and address the University community on current global issues. They often address the Iowa City Foreign Relations Council as well.

Courses

47:195 Introduction to Public International Law 3 s.h.
Principles of law that determine rights and duties of nations in their dealings with each other; contemporary international problems and controversies. Junior, senior, or graduate standing required. Recommended: background in international relations. Same as 91:195.

GREEK

See “Classics.”

HISTORY

Chair: Jeffrey L. Cox

Professors emeriti: William O. Adair, Edsel T. Blyden, Ralph E. Giesey, Sidney Mead, Stow Persons, Alan B. Spitzer

Associate professors: Mitchell G. Ash, Kenneth I. C. Mehl James L. Giblin, Steven L. Hoch, Rebecca Rogers, Allen Steinberg

Assistant professors: Sarah Farmer, Colin Gordon, Kathleen Higgins, Susan Lawrence, Leslie Schwalmb, Penny Von Eschen

Undergraduate degree: B.A. in History; minor in History

Graduate degrees: M.A., Ph.D. in 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 liberal education, the department trains professional historians and teachers of history; serves those who require knowledge of a period or aspect of history as background for their own specialized interests in other fields; and participates in several interdisciplinary programs, such as American studies, African-American world studies, Asian studies, Latin American studies, and women’s studies.

Undergraduate Program

Baccalaureate graduates in history work in a variety of positions in business, public service, or 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 will illuminate and expand the meaning of history courses as well as introduce undergraduates to different bodies of information and approaches to understanding how societies and cultures work. For example, students majoring in history are encouraged to fulfill the College of Liberal Arts General Education Requirement in foreign language by selecting a language that fits their interests in history. Majors also are encouraged to improve their writing skills.

Requirements for the major in history were changed in 1994. All students who declare the major, minor, or graduate standing required. Recommended: background in international relations. Same as 91:195.
declare a history major before August 22, 1994, may choose to complete the old or the new requirements. Students who choose the old requirements must complete them and graduate by August 1999.

The general major is for students with a general interest in history. The new program requirements are as follows:

Students must earn a minimum of 30 semester hours in history courses and present a portfolio of written work. The portfolio, which should consist of at least three papers the student has written while enrolled in history classes, is submitted to the student’s adviser in the semester before graduation. Honors students who successfully complete an honors essay are not required to submit a portfolio (see “Honors” in this section of the Catalog).

College Level Equivalency Program (CLEP) 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 15 hours, including the colloquium, must be taken at The University of Iowa.

Undergraduate courses are divided into four areas: American history (prefix 16A), European history (16 E), non-western world history (16W), and courses that have no area designation (16). The major requires at least one course each from the American, European, and non-western world history lists.

REVIEWED COURSES

Colloquium

One of the following (3 semester hours):

16:51 Colloquium for History Majors

16A:51 Colloquium for History Majors (American)

16E:51 Colloquium for History Majors (European)

16W:51 Colloquium for History Majors (World)

Freshmen who enter the University as history majors take the colloquium during their second semester on campus; students who declare history after entering the University take the colloquium in the semester following their declaration. Every colloquium includes assigned papers; students must include in their history portfolio at least one paper from their colloquium.

Other Required Courses

Total of 6-9 semester hours, depending on colloquium credit:

At least 3 semester hours of American history
At least 3 semester hours of European history
At least 3 semester hours of non-western world history

History Electives

The major requires a total of 18-21 semester hours, depending on colloquium credit. History electives can be chosen from all courses within the department except those numbered below 16:51, which cannot be counted toward the history major. No more than 15 semester hours of American history (16A) may be included in the major.

Teacher Licensure

Students majoring in history who wish to qualify for a teaching license must choose an area of concentration in history and meet the requirements listed under “American History Concentration” or “World History Concentration” below. They also must complete professional courses in the College of Education required for teacher licensure. Students should consult an advisor in social studies education (see the College of Education section of the Catalog).

AMERICAN HISTORY CONCENTRATION

Courses in U.S. history (16A, including 16A:51 Colloquium for History Majors) 30 s.h.

Students must select 15 semester hours of course work in each of two related areas chosen from economics, geography, world history (non-U.S.), political science, and sociology.

Students also must meet a special requirement in early European history by taking a 100-level course covering a period prior to 1750. This course also may be counted toward the related-area requirement in world history if that is one of the two areas chosen.

Courses in economics, geography, political science, or sociology that have been taken to satisfy the General Education Requirement in social sciences may be applied to the required hours in related areas, but no more than one such course may be applied to any one related area.

WORLD HISTORY CONCENTRATION

Courses in non-U.S. history (16W or 16E, including 16W:51 or 16E:51 Colloquium for History Majors) 30 s.h.

Students must select 15 semester hours of course work in each of two related areas chosen from economics, geography, American history, political science, and sociology. Students also must meet a special requirement in early European history by taking a 100-level course covering a period prior to 1750.

Courses in economics, geography, political science, or sociology that have been taken to satisfy the General Education Requirement in social sciences may be applied to the required hours in related areas, but no more than one such course may be applied to any one related area.

Honors

The requirements for entry into the history department’s honors program are the same as those for entry into the University Honors Program: a 3.20 grade-point average. 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 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 semester hours of Honors Thesis in each of two semesters (16:91-92 Honors Thesis). The 6 semester hours count toward the total number of hours needed for the history major.

Minor

Any student who completes at least 15 semester hours in history with a grade-point average of 2.00 may earn a minor. Twelve of the 15 semester hours must be in advanced courses taken at The University of Iowa. For the minor, all courses numbered above 16:71 are regarded as advanced.

Graduate Programs

The graduate programs in history prepare students for occupations such as high school or college teaching, publishing, commercial research, 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 Program” 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, available from the departmental 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 department offers two M.A. programs. The first is for students who plan to work toward the Ph.D. degree. It requires a minimum of 30 semester hours of credit, including the completion of a research essay. The candidate must earn at least 24 semester hours of credit in the history department, 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. Twelve semester hours must be in the area of the student’s essay topic, and at least six semester hours must be 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 in length. It usually begins as a term paper for the seminar in the major division and is completed the following semester under the guidance of the supervisor, when the student is enrolled in 16:296 Individual Study: Graduate. 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.

The second M.A. program is designed for students who do not intend to pursue the doctorate in history. The basic course requirements are much the same as those for the Ph.D.-track M.A. They are: 30 semester hours overall; 24 in history; 12 in one major
division, including at least one readings or seminar course. The two plans differ mainly in respect to concentration in fields: the Ph.D. track emphasizes the development of research capabilities culminating in the essay; the alternate plan stresses breadth of learning. Students in the alternate plan must take at least 6 semester hours in each of the other two divisions in history, or 6 semester hours in one other division in history and 6 semester hours in a related department. Included in these 12 semester hours must be at least one readings or seminar course in history.

After completing these requirements, or during the semester in which they are to be completed, the M.A. candidate must take an oral and written comprehensive examination in the major division.

**Doctor of Philosophy**

Students who earn the M.A. with research essay 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 general requirements for admission to the Graduate College (see the Graduate College section of the Catalog) and must submit a specimen of their writing, such as a seminar paper or an M.A. thesis. They must take a research seminar during their first two semesters in residence at Iowa.

The candidate must earn at least 72 semester hours of credit, including credit for work done toward the master’s degree. The 72 semester hours must include at least eight 4-semester-hour, 200-level history courses, apart from thesis credit. At least five of these eight courses must be completed before the student takes the comprehensive examination. Research seminars taken at the M.A. level may be counted toward this requirement. The candidate also must take a graduate course in the philosophy of history, historiography, or methods of historical research.

The department has no common language requirement for the Ph. D., but the supervising faculty member may require the candidate to demonstrate a reading knowledge of one or more foreign languages and proficiency in the use of other study tools. The candidate 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
- European, modern
- Russia and the former Soviet Union
- United States
- Latin America
- China
- Japan
- India
- Africa

Another field may be constructed by the student, subject to approval by the comprehensive exam committee.

The third field must be a division outside the candidate’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 will focus on issues and problems arising from the examination papers.

The candidate must submit to a 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 of 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, usually lasting two hours.

**Admission**

Applicants for admission to the graduate program in history must meet the general requirements for admission to the Graduate College and must submit academic transcripts and Graduate Record Examination (GRE) General Test scores.

In addition, students 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-to-two page personal statement of the applicant’s purpose in taking graduate work. All applicants must submit these materials by January 10.

**Special Facilities**

The University’s libraries are unusually strong 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 Iowa State Historical Society in Iowa City and the Herbert Hoover Presidential Library in West Branch possess additional valuable research materials.

**Courses**

Courses numbered 16:1 through 16:30 are ordinarily taken to satisfy the General Education Requirement in historical perspectives. They cannot be taken pass/neutral, even when they are taken as electives. Majors should take 16:51, 16A:51, 16 E:51, or 16W:51 in the first semester after declaring the major. Other courses numbered below 200 are open to freshmen who have already satisfied the General Education Requirement in historical perspectives. Courses numbered 200 and above are offered as occasion demands.

**For Undergraduates**

- 16:000 Cooperative Education Internship 0 s.h.
- 16:1 Western Civilization to 1792 3 s.h.
- GER: foreign civilization and culture, historical perspectives.
- 16:2 Western Civilization since 1792 3 s.h.
- GER: foreign civilization and culture, historical perspectives.
- 16:5 Civilizations of Asia: Premodern China and Japan 3 s.h.
- GER: foreign civilization and culture, historical perspectives.
- Same as 39:55.
- 16:6 Civilizations of Asia: Modern China and Japan 3 s.h.
- GER: foreign civilization and culture, historical perspectives.
- Same as 39:56.
- 16:7 Civilizations of Asia: South Asia 3 s.h.
- GER: foreign civilization and culture, historical perspectives.
- Same as 39:57.
- 16:10 Issues in Human History Foundations of Science from Copernicus to Einstein 3 s.h.
- GER: historical perspectives.
- 16:11 Issues in Human History: The Vietnam War in Historical Perspective 3 s.h.
- GER: historical perspectives.
- 16:12 Issues in Human History: Communities and Society in History 3 s.h.
- GER: historical perspectives.
- 16:13 Issues in Human History: The Political Left in Modern History 3 s.h.
- GER: historical perspectives.
- 16:14 Issues in Human History Europe’s Expansion Overseas 3 s.h.
- GER: historical perspectives.
- 16:15 Issues in Human History: Women in Historical Perspective 3 s.h.
- GER: historical perspectives.
- 16:16 Issues in Human History: The Cold War 3 s.h.
- GER: historical perspectives.
- 16:17 Issues in Human History: Twentieth-Century Crisis 3 s.h.
- GER: historical perspectives.
- 16:18 Issues in Human History Modern Imperialism 3 s.h.
- GER: historical perspectives.
- 16:19 Issues in Human History Modernization 3 s.h.
- GER: historical perspectives.
- 16:20 Issues in Human History: Medieval Society 3 s.h.
- GER: historical perspectives.
- 16:21 Issues in Human History: Decolonization 3 s.h.
- GER: historical perspectives.
- 16:30 Science and Medicine in World Perspective 3-4 s.h.
- GER: foreign civilization and culture, historical perspectives.
- 16:51 Colloquium for History Majors 3 s.h.
- History major or consent of instructor required.
- 16A:51 Colloquium for History Majors (American) 3 s.h.
- 16E:51 Colloquium for History Majors (European) 3 s.h.
- 16W:51 Colloquium for History Majors (World) 3 s.h.
- 16:90 Independent Study: Undergraduate May be repeated.
- 16:91 Honors Thesis 3 s.h.
- Individual research, writing under supervision of faculty member; occasional group sessions with other Honors Thesis students.
- 16:92 Honors Thesis 3 s.h.
- Individual research, writing under supervision of faculty member; occasional group sessions with other Honors Thesis students.
- 16:99 Historical Background of Contemporary Issues
16:211 Seminar: Medieval Intellectual History
16:212 Readings: Medieval Latin Paleography
16:214 Readings: Medieval Universities
16:215 Seminar: Monastic History
16:216 Readings: Feudal Society
16:217 Seminar: Medieval Muslim and Jewish Philosophy
16:218 Medieval Latin Paleography
16:219 History Writing: Theory and Interpretation
16:220 Seminar: Early Modern Europe
16:221 Readings: Early Modern France-Social and Intellectual History
16:222 Seminar: Early Modern France
16:223 Readings: Early Modern European Women’s History
16:224 Seminar: Early Modern European Women’s History
16:226 Readings: Early Modern England
1450-1570
16:228 Seminar: Law and Society: England 1500-1800
16:229 Readings in the History of Social Theory
16:230 Readings: Topics in Cultural History
16:232 Readings: Modem French History
16:234 Readings: Modem European Agrarian History
16:235 Seminar: Modem Europe
16:236 Readings: Modem European History
16:237 Readings: Modem Middle East
16:238 Readings: Modem Germany
16:239 Seminar: Modem Britain
16:240 Readings: Modem Britain
16:241 Readings: History of Psychology
16:242 Readings: British Imperialism
16:243 Seminar: Theory and Practice of Social Research in South Asia
16:244 Introduction to Research in Afro-American Culture
Same as 129:211, 40:210.
16:245 Readings: African-American Histography
Same as 129:245.
16:246 Seminar: African-American History
16:247 Seminar: History of science
16:248 Readings: History of science
16:250 Readings: History of Medicine and Health
16:251 Seminar: History of Medicine and Health
3-4 s.h.
16:253 Seminar: Japanese History
16:255 Seminar: Russian or Soviet History
16:256 Readings: Russian History
16:257 Readings: Soviet History
16:258 Readings: Women in European History
16:259 Seminar: Women in European History
16:260 Readings: Class Formation in American History
16:261 Seminar: American Colonial History
16:262 Readings: American Colonial History
16:263 Seminar: Nineteenth-Century American Society
16:264 Readings: Culture and Conflict in Modern America
16:265 Seminar: American Social History
16:266 Readings: The Gilded Age and the Progressive Era
16:267 Seminar: Contemporary United States
16:268 Readings: The Contemporary United States
16:269 Readings of the American South: Gender and Race in American History
Same as 45:269.
16:270 Readings in American Women’s History
Same as 121:270.
16:271 Seminar: American Frontier
16:272 Readings: The American Frontier
16:273 Readings in American Social History
16:274 Readings in the History of American society
16:275 Seminar: American Religious Thought
Same as 32:213.
16:276 Seminar: Puritanism
Same as 32:214.
16:277 Seminar: American Foreign Relations
16:278 Readings: American Foreign Relations
16:279 Seminar: Cultural and Intellectual History
16:280 Readings: Intellectual History
16:281 Feminist Legal Harm Seminar: History and Theory
Same as 91:630.
16:282 Feminist Theory: Historians’ Perspectives
Same as 131:285.
16:284 Seminar: History of American Women
Same as 131:284.
16:285 Readings: Women in Latin American History
16:286 Readings: African Slavery in the Atlantic World
16:287 Readings: Latin American History
Same as 35:247.
16:289 Seminar: Latin American History
16:290 Seminar: Post Comprehensive
Historical fields, methodologies, emphasis on presentation, criticism of research materials. Open only to students who have passed the Ph.D. comprehensive examinations.
16:291 Seminar: Modern Chinese History
Same as 39:254.
16:292 Readings in Chinese History
Same as 39:258.
16:294 Readings: Japanese History
Same as 39J:257.
16:295 Readings in the History of India
Socioeconomic history of ancient, modern India. Same as 39:295.
16:296 Individual Study: Graduate
16:297 Thesis
16:298 Philosophy of History
3 s.h.
16:299 Toward an Historicism of Alterity
3 s.h.
Theoretical perspectives on how alterity or otherness, is assigned or derives historical value. Theories of consciousness, semiotics, chakras experience mainly race, sex.

HOSPITAL AND HEALTH ADMINISTRATION

See “College of Medicine.”

INTERDEPARTMENTAL STUDIES

Coordinator: Patricia Addis
Faculty advisory committee: Lorraine Dorfman (Social Work), Thomas Lutz (English), Rebecca Roberts (Geography)
Undergraduate degree: B.A. in Interdepartmental Studies

Degree Program

The Bachelor of Arts in the Interdepartmental Studies Program (ISP) is designed to give students alternatives in planning academic programs outside traditional majors. Since this is a major that includes advanced level course work from a variety of departments, students are responsible for planning their own area of intellectual focus with the assistance of the interdepartmental studies adviser.

Students in interdepartmental studies develop creative emphases that draw upon several departments and integrate varied approaches to a particular topic. A few examples of interdepartmental programs are aging studies, environmental studies, women’s studies, technical writing, family studies, and urban studies. Programs that are covered by existing departmental majors are not appropriate for the ISP major. In all cases, careful and timely planning is essential.

Plan of Study

Students are required to submit a plan of study before declaring an interdepartmental studies major. Students should consult promptly with the interdepartmental studies adviser to discuss an appropriate individualized program for their academic goals. The adviser can explain the plan of study review process. The earlier a plan of study is submitted, the more effective the student’s program will be.

Because the ISP major by definition allows for individualized academic planning, students are encouraged to apply for the program prior to or during the junior year.

GUIDELINES

Each plan of study submitted for approval must provide the following information:

description of academic goals for the bachelor’s degree, with a clear statement of the area of intellectual focus and the reasons for preferring the ISP to any departmental program;

a list of advanced-level course work already completed and a description of its relevance to the proposed plan of study; and
an outline of advanced-level course work planned for all remaining semesters, noting how the courses relate to each other, to personal interests, and to the central focus of the plan of study.

Each plan of study is approved by a committee that may include the coordinator, the faculty advisory committee, and the ISP adviser. Reviews are held several times each semester.

If the committee does not grant approval, the plan of study may be returned to the student for revisions and resubmission at the next committee meeting. In some cases, the student may be referred to a more appropriate departmental major.

Students are required to take the courses approved in the plan of study. A limited number of substitutions may be allowed, but only if they are clearly consistent with the area of intellectual focus in the approved plan of study and only if they are approved in advance by the ISP adviser. Unauthorized substitutions may be designated as elective course work.

Significant changes in the focus of a student’s plan of study require the submission and approval of a revised plan of study. The student’s academic adviser determines whether changes warrant a revised plan.

Forms and guidelines for preparing the plan of study are available from the interdepartmental studies adviser in the Liberal Arts Office of Academic Programs. A list of review committee meeting times is available each semester.

### Interdepartmental Studies Requirements

Students must earn a total of at least 124 semester hours of credit to graduate with a B.A. in interdepartmental studies. They must complete a minimum of 30 semester hours after entering the program, 15 of which must be in advanced-level course work included in the plan of study. Hours taken during the semester in which the plan of study is approved are not counted as part of the final 30 semester hours.

#### Grade-Point Average

Students must achieve a grade-point average of at least 2.00 in all college work attempted, all college work undertaken at The University of Iowa, and all advanced courses attempted.

#### General Educational Requirements

Students must complete the College of Liberal Arts General Education Requirements, including four semesters of college-level foreign language or the equivalent. (See the College of Liberal Arts introductory section for specific information.)

#### Advanced Course Work

Students must complete at The University of Iowa at least 36 semester hours of advanced course work approved as the formal plan of study. No more than 18 semester hours of advanced course work from any one department may be counted toward this requirement. (However, students who earn more than 18 semester hours in advanced course work from one department may count these as elective hours and apply them toward the 124 semester hours needed for graduation.)

Courses taken to satisfy the General Education Requirements may not be counted toward completion of the advanced course work requirement.

Advanced courses typically are those numbered 100 and above. With approval of the Office of Academic Programs, courses numbered below 100 but taught at an advanced level may also be used to satisfy this requirement. See “Advanced Courses Numbered below 100” in this section of the Catalog.

The pass/nonpass grading option is not available for the 36 semester hours of advanced course work required for the degree, but it may be used for advanced course work taken as elective credit beyond the 36 semester hours.

Some study abroad advanced course work is considered residential work for the purposes of ISP requirements and college residence requirements. Students should check in advance with the 1.5P academic adviser or the ISP coordinator.

Advanced courses offered through University of Iowa Guided Correspondence Study count toward the advanced course work requirement, but the College of Liberal Arts residence requirement must be met by other UI course work.

#### Restrictions

No more than 40 semester hours of credit in one academic department may count toward the 124 semester hours required for graduation. This includes both upper- and lower-level course work, and both UI and transfer course work.

Students completing a B.A. in Interdepartmental Studies may earn no more than 30 semester hours of credit toward the 124 required for graduation from courses taken in all other colleges of the University (e.g., business administration, engineering). Undergraduate courses offered by the College of Education are an exception to this rule.

All other College of Liberal Arts policies regarding residence, pass/nonpass, satisfactory/fail, and academic standards apply to ISP students.

#### Related Considerations

All courses numbered with the prefix 7 (College of Education) are considered to be in one department. All courses numbered with the prefix 6 (College of Business Administration) except 6E (economics is also considered a department in the College of Liberal Arts) are considered to be in one department.

The following courses are accepted as part of the 36 semester hours of advanced course work required under the ISP rules. Some of the courses have prerequisites or require special permission signatures. Students must earn a grade-point average of 2.00 or higher in these courses and in those numbered 100 and above.

Advanced courses numbered below 100 that were taken before spring semester 1988 are not considered advanced-level course work.
HISTORY
16:99 Historical Background of Contemporary Issues 3 s.h.

MATHEMATICS
22M:27 Introduction to Linear Algebra 4 s.h.
22M:28 Calculus III 4 s.h.
AU courses numbered 22M:50 or higher, except 22M:81

PHYSICS AND ASTRONOMY
29:29 Physics III 4 s.h.

SPORT, HEALTH, LEISURE AND PHYSICAL STUDIES
28:76 Psychosocial Dimensions of Sport 3 s.h.

STATISTICS AND ACTUARIAL SCIENCE
22S:39 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.

THEATRE ARTS
49:21 Basic Acting I 3 s.h.
49:43 Elements of Design 3 s.h.
49:60 Play Script Analysis 3 s.h.
49:62 Basic Play-Writing 3 s.h.
49:72 Shakespeare 3 s.h.
49:94 Oral Interpretation of Literature 3 s.h.

Honors
ISP students qualify for membership in the University Honors Program by maintaining a cumulative grade-point average of at least 3.20. Graduating with honors usually includes the successful completion of the honors requirements in a particular department. A list of departmental requirements is available from the University Honors Program or from the ISP coordinator.

ISP students should initiate inquiries about graduating with honors by contacting the coordinator. Students are encouraged to inquire early in their junior year to allow time for foundation course work. The executive director of the University Honors Program can offer suggestions for contacting a supervising faculty member or committee from one or several appropriate departments. Because the ISP exists outside traditional departmental structures, a special form for approval of an honors project must be filed with the ISP coordinator, the executive director of the honors program, and the student’s ISP adviser.

Double Major
Students in Interdepartmental Studies may earn a second major. No more than 6 semester hours of course work may be applied toward both majors. The focus represented by each major should be distinct and separate.

Minor
The Interdepartmental Studies Program does not offer a minor. Interdepartmental studies students may earn minors in other programs, departments, or colleges. The same course may not be used to meet the requirements of both the major in Interdepartmental Studies and the minor.

Career Considerations
Since the B.A. in interdepartmental studies affords opportunities outside the traditional degree pattern, students must create programs of study that meet their individual educational and career objectives. Those who plan to seek employment immediately following graduation should familiarize themselves with the educational background and qualifications required by employers and should include appropriate courses in their programs of study.

Students preparing for advanced study should become familiar with the admissions requirements of graduate or professional schools in which they are interested. The earlier students decide on pursuing graduate or professional study, the easier it is for them to complete any necessary prerequisites.

Courses
145:000 Cooperative Education Internship 0 s.h.

IOWA LAKESIDE LABORATORY

Director: Arnold van der Valk
Professors: Richard Baker (Geology, The University of Iowa), George G. Brown (Zoology, Iowa State University), Charles Drewes (Zoology, Iowa State University), Anne Kimber (Botany, Iowa State University), Clay Pierce (Animal Ecology, Iowa State University), Edwin Powell (Zoology, Iowa State University), Daryl Smith (Biology, University of Northern Iowa), Lois H. Tiffany (Botany, Iowa State University)

Visiting professors: Barbara Abrahorn (Biology, Hampton University, Virginia), Dennis Anderson (Biological Sciences, Humboldt State University, California), Neil Bernstein (Biology, Mount Mercy College, Iowa), Kenneth Lang (Biological Sciences, Humboldt State University, California), Michael J. Lamont (Munice Center for Medical Education, Ball State University, Indiana), Eugene Stover (Great Lakes and Aquatic Sciences, University of Michigan)

The Iowa Lakeside Laboratory is a biological field station comprising approximately 140 acres of grassland and gallery forest along the west shore of West Okoboji Lake in northwest Iowa.

The laboratory was established in 1909 under the leadership of Thomas H. Macbride, whose eminence as a University of Iowa botanist and zoologist from 1878 to 1914 was recognized by his appointment as University president from 1914 to 1916. The lab site was the first area set aside for the conservation and study of the rich flora and fauna of the northern Iowa lake and prairie regions.

Since 1947, The University of Iowa has cooperated with Iowa State University and the University of Northern Iowa in the lab program. Representatives of the three schools make up an advisory board, which determines the scientific and educational policies of the lab.

The Iowa Lakeside Laboratory offers course work in two five-week terms during the summer session. Enrollment is limited to one course per term, for 5 semester hours of credit.

The laboratory gives graduate and advanced undergraduate students the opportunity to study plant and animal life in its natural setting. The courses have a strong discussion/field work/investigative orientation that supplements the formal lecture and laboratory course work on the three campuses.

Students working for advanced degrees find excellent opportunities to develop thesis projects at the lab.

Teaching and research facilities include several laboratories, a library, and a lecture hall. Living accommodations include cottages, dormitories, and a large mess hall.

Financial Aid
The University of Iowa provides Thomas H. Macbride Scholarships in Natural Science to qualified graduate students attending the lab. The scholarships cover Iowa Lakeside Laboratory tuition costs. Scholarship applications close April 1.

Registration
Enrollment in one of the State Board of Regents universities is required. Current or former students of The University of Iowa, the University of Northern Iowa, and Iowa State University may enroll in those institutions with the registration form in the Lakeside Laboratory bulletin. Students from other institutions must apply for admission to one of the Regents universities; each has a provisional admission policy for students who wish to register for summer work only. The admission and registration forms can be submitted at the same time.

Early registration is advisable. Students are urged to submit applications before May 1 for the following summer session.

Courses
Consent of instructor is required for all courses. Enrollment for most is limited to eight students. Classes meet all day, five days a week. Courses vary from year to year (see current Iowa Lakeside Laboratory bulletin); the following are representative.

L:101 Flora of the Iowa Lakes Region 2 s.h.
L:102 Field Botany 5 s.h.
L:111 Field Natural History 5 s.h.
L:115 Aquatic Ecology 5 s.h.
L:121 Plant Taxonomy 1 s.h.
L:122 Field Natural History 5 s.h.
L:125 Aquatic Ecology 5 s.h.
L:126 Plant Taxonomy 1 s.h.

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**Undergraduate Program**

The Iowa undergraduate program prepares students for careers in journalism and mass communication by providing professional training as part of a strong liberal arts education. The program integrates the development of professional skills with theoretical consideration of the role of the media in society. Journalistic writing is the primary focus of the professional program, with visual communication, broadly defined, another important focus.

 Majors prepare for careers as journalists for newspapers, magazines, radio, and television and in a variety of areas such as public relations, publication design, photodrakulism, cable television, and media research.

The program builds on the University’s commitment to a liberal arts education. Majors are required to take both professional and academic courses in the school and must complete extensive academic work outside of the school. Students earn the B.A. or B.S. degree.

The school is accredited by the Accrediting Council on Education in Journalism and Mass Communications.

**Selective Admission**

To preserve the quality of its programs, the School of Journalism and Mass Communication has a selective admission program. Thus, students with declared interest in journalism are classified as prejournalism majors until they are admitted to major status.

To apply for admission to the program as majors, students must have taken or be taking two premajor courses, 19:90 Social Scientific Foundations of Communication and 19:91 Cultural and Historical Foundations of Communication, as well as all required rhetoric courses. Students may apply for admission to major status during the semester in which they will have completed these requirements and at least 45 semester hours. Students in the University Honors Program may apply for admission to major status in the semester during which they will complete the premajor requirements and 30 semester hours. A few outstanding students are invited to be majors on enrollment in the University.

Applications and deadline information are available in the School of Journalism and Mass Communication office.

The primary criterion for admission to major status is overall academic performance. Other factors considered are performance in the required premajor courses and other journalism courses, a statement of interest submitted by the student, and writing ability. The number of students accepted each semester depends on the number of students already in the program and available resources. Since the selective admission policy was instituted, all qualified applicants with overall and journalism grade-point averages above 3.00 have been admitted. Applications have been reviewed in light of the goal of admitting the most qualified students to the program.

**Curriculum**

Majors must complete a minimum of 30 and a maximum of 34 semester hours of journalism courses with a grade of C- or better in each course and 24 semester hours in a second area of concentration. All majors must complete 19:115 Journalistic Reporting and Writing and one advanced reporting and writing course (19:120-19:125). Students also must complete either an additional advanced reporting and writing course or a media workshop (19:120-19:139). Every major must complete 19:149 Legal and Ethical Issues in Communication and one additional conceptual course numbered 19:150 to 19:169. Majors take additional electives according to professional and theoretical interests.

Because of the flexibility inherent in the undergraduate program, each new major should develop an individual plan of study in consultation with a faculty adviser.

**Required Courses**

Minimum of 30, maximum of 34 semester hours

**Premajor Foundation**

19:90 Social Scientific Foundations of Communication 3 s.h.
19:91 Cultural and Historical Foundations of Communication 3 s.h.

**Journalism Laboratory**

19:15 Journalistic Reporting and Writing 4 s.h.
One advanced reporting and writing course (19:120-19:125) 4 s.h.
A second advanced reporting and writing course (19:120-19:125) 4 s.h.
One media workshop (19:130-19:139) 3 s.h.

**Concept**

19:149 Legal and Ethical Issues in Communication 3 s.h.
A conceptual course numbered 19:150 to 19:169 3 s.h.

**Bectives**

Chosen from undergraduate courses 6 s.h.

**Additional Electives**

An additional 3- or 4-semester hour course, for the maximum 34 semester hours (optional)
Second Area of Concentration

In addition to completing the College of Liberal Arts General Education Requirements, every journalism major must complete a second area of concentration outside of journalism and mass communication. Study in the second area permits students to acquire a substantial body of knowledge, learn how another discipline views the world, or develop a companion set of skills to those in journalism and mass communication.

This concentration requirement may be fulfilled by completing a second major or by choosing 24 semester hours of related courses in one or more departments. Students who do not complete second majors must complete at least 15 of the 24 required semester hours in advanced courses. Advanced courses are those numbered 100 or higher, or those numbered below 100 which are considered to be advanced. A list of advanced courses numbered below 100 is published with the degree requirements for the Interdepartmental Studies Program in the General Catalog. Course work in the second area must be arranged in consultation with an adviser; each student must have his or her adviser’s written approval of the second area before graduation.

Bachelor of Arts

A student seeking a B.A. in journalism and mass communication must complete the journalism major requirements (30 semester hours), and must fulfill the school’s second area of concentration requirement in one of two ways:

- obtain a full B.A. major in another department; or
- complete a 24-semester-hour concentration of related courses in one or more departments that offer B.A. degrees.

Bachelor of Science

A student seeking a B.S. in journalism and mass communication must complete the journalism major requirements (30 semester hours), and must fulfill the school’s second area of concentration requirement in one of two ways:

- complete a B.S. major in a natural, mathematical, or social science; or
- complete the following two requirements:
  - A 24-semester-hour concentration of related courses in the social sciences (economics, geography, political science, psychology, or sociology) and/or the natural and mathematical sciences; and
  - All the special math, research methods, statistics, computer science, and/or cognate science requirements necessary for the B.S. degree in the department in which the majority of second-area work is done.

Honors

Majors with outstanding academic records who already participate in the University Honors Program may earn the honors degree in journalism and mass communication. The program gives students the opportunity to complete individual work under the guidance of a faculty member.

A major with an overall grade-point average of 3.20 or higher should contact the honors adviser in the School of Journalism and Mass Communication to review possible interest areas and topics the student might pursue in an honors project. The student also should identify a faculty member with whom he or she will develop an honors project. The student may arrange honors readings with a particular faculty member or take existing courses in the area of interest. Honors projects may be completed in the form of a thesis or a professional project. Information about the honors degree in journalism is available in the school’s main office.

The school’s maximum limit of 34 semester hours of journalism courses maybe waived for students who complete honors degrees in journalism, on the recommendation of the honors adviser. Honors students must maintain a 3.20 grade-point average to graduate with an honors degree.

Minor

To meet the requirements for a minor, students must complete at least 15 semester hours in journalism and mass communication with a grade-point average of 2.00; 12 of the 15 semester hours must be taken in advanced courses at The University of Iowa. Advanced courses are those numbered 19:100 or higher, or those numbered below 19:100 which are considered to be advanced. One of the following courses is strongly recommended.

- 19:90 Social Scientific Foundations of Communication 3 s.h.
- 19:91 Cultural and Historical Foundations of Communication 3 s.h.

The minor is not intended to be sufficient professional preparation for a career in journalism or mass communication. It should be regarded as an introduction to the field.

Courses for the minor may not be taken pass/nonpass.

Transfer Students

All transfer students with a declared interest in journalism are classified as premajors. They may apply for major status during the semester in which they have completed at least 45 semester hours including those earned from The University of Iowa and other institutions, their major or take existing courses in the area of interest. Honors projects may be completed in the form of a thesis or a professional project. Information about the honors degree in journalism is available in the school’s main office.

The school’s maximum limit of 34 semester hours of journalism courses maybe waived for students who complete honors degrees in journalism, on the recommendation of the honors adviser. Honors students must maintain a 3.20 grade-point average to graduate with an honors degree.

Second area of concentration requirements. Any transfer credit intended to meet School of Journalism and Mass Communication requirements must be discussed with a journalism faculty adviser and approved by the head of undergraduate studies after the student is admitted to the school.

Graduate Programs

Master of Arts

The School of Journalism and Mass Communication offers a Master of Arts program with two separate emphases: professional journalism, and communication and mass communication. Applicants should indicate the emphasis for which they seek admission. Each emphasis requires 30 semester hours of approved course work and successful completion of a master’s project or thesis. The specific requirements of each emphasis are listed below.

Professional Program in Journalism

This program is for individuals who wish to improve their technical and analytical skills and to broaden their understanding of the role and function of mass communication in contemporary society, but do not plan to engage in Ph.D. work.

It serves the student who has a background in a field other than journalism and has just completed an undergraduate degree in another field or has worked in a career unrelated to journalism (see “Group 1 Requirements”). It also serves the student who has worked in some area of mass communication (see “Group 2 Requirements”).

The program is not designed or intended for individuals who have just completed undergraduate programs in journalism and have no subsequent work experience in mass communication.

GROUP 1 REQUIREMENTS

- 19:115 Journalistic Reporting and Writing (does not count toward degree) (4 s.h.)
- 19:220 Master’s Seminar 3 s.h.

Two advanced reporting and writing courses (19:230-19:235) 6 s.h.

A third advanced reporting and writing course 3 s.h.

One media workshop (19:240-19:249) 15 s.h.

Electives 3 s.h.

Electives require consent of the adviser and may be selected from either School of Journalism and Mass Communication courses or courses offered by other departments.

GROUP 2 REQUIREMENTS

- 19:220 Master’s Seminar 3 s.h.
- 19:299 Master’s Research (thesis) 3 s.h.

Journalism and mass communication electives 9 s.h.

Other electives 15 s.h.
Electives require consent of the adviser. The 15 semester hours of “other electives” may be selected from either School of Journalism and Mass Communication courses or courses offered by other departments.

Every student in the professional program must complete a professional project (19:299) under the supervision of a committee of three members of the graduate faculty.

There is considerable flexibility within the professional journalism program. The model programs are intended as general information for new and prospective students. The actual program of study for any student is planned in close consultation with the adviser.

Communication and Mass Communication Emphasis

This emphasis offers a specialization in the study of communication phenomena with special emphasis on theory and methodology. Qualified individuals may petition the graduate admissions committee of the School of Journalism and Mass Communication for admission to the Ph.D. program after successful completion of their M.A. work. The following courses are required.

- 19:220 Master’s Seminar (two semesters) 2 s.h.
- 19:221 Approaches to the Study of Communication: Issues and Concepts 3 s.h.

One of the following methods courses: 3 s.h.

- 19:260 Communication Research: Historical Approach 3 s.h.
- 19:261 Communication Research: Behavioral Approaches 3 s.h.
- 19:262 Communication Research: Phenomenological Approaches 3 s.h.
- 19:263 Communication Research: Legal Approaches 3 s.h.

Electives in journalism and mass communication and in other departments 19 s.h.

19:299 Master’s Research (thesis) 3 s.h.

Every student in the communication and mass communication emphasis must complete an M.A. thesis (19:299) under the supervision of a committee of three members of the graduate faculty.

All students are expected to take course work outside the School of Journalism and Mass Communication; the nature and extent of the work is determined by the student and the faculty adviser.

Doctor of Philosophy

The Ph.D. program emphasizes interdisciplinary inquiry into mass communication phenomena within cultural and historical perspectives. Approaches include philosophical, evaluative, and critical inquiry. The program’s substantive nature is defined by the scholarly interests of its faculty, who turn most frequently to investigations of historical, legal, economic, cultural, social, and cross-cultural aspects of communication, both verbal and visual.

The Ph.D. program is highly individualized. Drawing on the School of Journalism and Mass Communication as well as other academic units, each student develops a specific course of study that reflects his or her academic background, experience, professional goals, and intellectual preferences. Applicants should be interested in the opportunity to join a small group of students working to understand mass communication in its cultural contexts. A more complete description of the graduate program is available from the School of Journalism and Mass Communication. Students should ask for the Graduate Studies Handbook.

Facilities

The School of Journalism and Mass Communication is housed in the three-story Communications Center. The school has special laboratories for photography, typography, audio, video, electronic newswriting, and desktop publishing. Many students use the newsroom and other facilities of the University’s award-winning student newspaper, The Daily Iowan, which is housed in the Communications Center. Special facilities in the building include the Leslie G. Moeller Seminar Room, the Merritt Speidel Presentation Room, the Fred M. Pownall Seminar Room, and the Les Benz Lounge for students and faculty.

The school has its own resource center, the Kenneth and Muriel Greene Resource Center, and provides accommodations for offices of the Iowa High School Press Association and the Quill and Scroll Society, an international honor society for high school journalists. A display gallery is available for student and faculty photography and other projects.

Iowa Center for Communication Study

The center encourages and facilitates student and faculty research in the field of communication. Among its publications are The Journal of Communication Inquiry (edited by graduate students), and The Iowa Guide: Scholarly Journals in Mass Communication and Related Fields.

Financial Aid

More than $70,000 in scholarships is available to undergraduate and graduate journalism majors each year. Information and applications for journalism scholarships are available from the school each fall. Research and teaching assistantships are available for graduate students, with preference given to doctoral students. The school also has a program of modest financial support for undergraduate and graduate student research projects.

Courses

Primarily for Undergraduates

All courses listed as 100-level or higher (except 19:157 Third World Development Support) require junior standing, major status, or consent of instructor.

- 19:000 Journalism and Mass Communication Cooperative Education Internship 0 s.h.
- 19:35 Introduction to Media 3 s.h.

Job Placement

The school’s placement coordinator helps students seeking career guidance and employment opportunities. The school posts notices of professional jobs open to journalism students and graduates. It cooperates with the University’s Career Development and Cooperative Education Center and the Business and Liberal Arts Placement Office in providing career guidance and placement services as well as workshops and programs on job-seeking skills.

Special Activities

The school engages in a variety of activities for the enrichment of students, faculty, and the entire campus. Many speakers visit campus each year as part of John F. Murray Lectureships, the Leslie G. Moeller Lectureship Series, and an extensive visiting professional-in-residence program. Campus organizations for students include Kappa Tau Alpha (KTA, a national society honoring scholarship in journalism), National Association of Black Journalists (NABJ), Public Relations Student Society of America (PRSSA), and the Society of Professional Journalists (SPJ).

The 161
19:101 Methods; Secondary School Journalism 3 s.h.
Methods and materials for teaching high school journalism: preparation policies, such as planning, production schedules, techniques for advising student publications. Offered fall
semesters. Same as 78: 113.

19:102 Workshop for secondary School Journalism Teachers 1-2 s.h.
Workshop on journalism/mass media curriculum, audiovisual production, photographic, publication design, journalistic writing techniques, advising student publications. Same as 78: 130.

19:115 Journalistic Reporting and Writing 4 s.h.
Fundamentals of journalistic reporting and writing: from basic to complex, sophisticated news writing, emphasis on reporting techniques, enterprise, beat coverage. Required for majors.

19:120 Specialized Reporting and Writing 4 s.h.
Topics may include public affairs, law, science, business, medicine, intercultural affairs, education, lifestyles, computer-assisted reporting. May be repeated. Prerequisite: 19: 115 or consent of instructor.

19:121 Depth Reporting and Writing 4 s.h.
Enterprise reporting; emphasis on researching as researcher, organizer, writer of complex stories in a variety of contexts. May be repeated. Prerequisite: 19:115 or consent of instructor.

19:122 Magazine Reporting and Writing 4 s.h.
Finding ideas, researching, interviewing; problems of organizing and style; identification of audiences and markets. Prerequisite: 19: 115 or consent of instructor.

19:123 Broadcast Journalism Reporting and Writing 4 s.h.
Principles: gathering, writing, editing, reporting the news; techniques and concepts as a foundation for understanding, successfully editing delivering broadcast news. Prerequisite: 19:115 or consent of instructor.

19:124 Persuasive Writing 4 s.h.
Principles, practices of persuasive writing in editorial, op-ed pieces, magazine essays, reviews, public relations. Prerequisite: 19: 115 or consent of instructor.

19:125 Pre-press 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. Prerequisite: 19:115 or consent of instructor.

19:130 Media Workshop 4 s.h.
Analysis and solution of problems with communication strategies and/or media products; public relations, newsletter production, media research. May be repeated. Prerequisite: 19:115 or consent of instructor.

19:131 Publication Design Workshop 4 s.h.
Problems of design, layout: tools, techniques, functional and aesthetic considerations, creative design projects. Prerequisite: 19:115 or consent of instructor.

19:132 Photographic Journalism Workshop 4 s.h.
Techniques: basic craft, location shooting, editing photographs; group critiques of assignments. Prerequisite: 19:115 or consent of instructor.

19:133 Typographic Workshop 4 s.h.
Typography and typographic design: letterform terminology, differentiation, use in design. Prerequisite: 19:115 or consent of instructor.

19:134 Broadcast Journalism Workshop 4 s.h.
Electronic news gathering (ENG): conceptualization, shooting, editing basic news packages. Prerequisite: 19:1.5 or consent of instructor.

19:135 Public Relations Practice Workshop 4 s.h.
Development, presentation of public relations campaigns for client organizations; application of communication theory, research techniques to analysis and solution of public relations problems through objectives-based strategic planning. Prerequisite: 19:115 or consent of instructor.

19:136 Editing Workshop 4 s.h.
Theory, principles, process in editing and packaging material for various forms of publication: basics of editing-copy editing, headline writing, illustration, layout, pencil and computer editing, desktop publishing. Prerequisite: 19:115 or consent of instructor.

19:137 Book Design workshop 4 s.h.
Specialized practices and problems of book design; computerized typesetting and layout technology; applied technical and creative projects. Prerequisite: 19:115 or consent of instructor.

19:138 Communication Workshop 3 s.h.
Journalism and mass communication skills, topics may include photographic composition, photography, editing, broadcasting. May be repeated. Prerequisite: 19:115 or consent of instructor.

19:149 Legal and Ethical Issues in Communication 3 s.h.
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. Required for majors. Usually offered fall semesters.

19:150 Visual Communication 3 s.h.
History of twentieth-century visual communication from a cultural prospective; development of visual form, composition, spatial representation, color; in depth study of selected artists, designers, and photographers.

19:151 Communication Research Methods 3 s.h.
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. Prerequisite: 19:90 or consent of instructor.

19:152 History of Mass Communication in the United States 3 s.h.
Development in context of U.S. history. Prerequisite: 19:91 or consent of instructor.

19:153 Popular Culture and Mass Communication 3 s.h.
Relationships between popular media fare and cultural realities; media formulas and communication practices in American culture.

19:154 Economic and Technological Issues in Media 3 s.h.
Economic condition of American mass media; relationship between technology, and economics, impact on media content; current issues in U.S. communication policy.

19:155 Mass Media and Society 3 s.h.
Audience characteristics of mass media, effects of mass media on audiences; relationship to public opinion, crime and violence, political, economic, cultural issues.

19:156 Comparative communication systems 3 s.h.
Media systems, international communication; principles and practices of media communication under different political and cultural conditions; emphasis on contemporary problems.

19:157 Third World Development Support 3 s.h.
Patterns, processes of Third World development; Implications of regional growth and spatial diffusion; critical analysis of communication strategies in support of development projects. GER: foreign civilization and culture. Same as 44: 157.

19:158 News-Editorial Problems 2-3 s.h.
Duties, responsibilities of mass media in contemporary society.

19:159 Electoral Politics and the Mass Media 3 s.h.
Relationship between political campaigns and mass media; critical evaluation of nature, role, function of media coverage of politics.

19:161 Law and the American Media 3 s.h.
First Amendment theory, topics in communication law. Prerequisite: 19:149 or consent of instructor.

19:162 Communication and Public Relations 3 s.h.
Public relations problems in organizational systems; emphasis on communication theory and research in development of a problem solving perspective.

19:163 History of Books and Printing 3 s.h.
Invention and spread of printing technology; social and cultural impact in the West; books and other printed mass communications media, such as newspapers and magazines.

19:164 Images and Society 3 s.h.
Cultural history of images in twentieth century; emphasis on social production and uses of photography, film, television.

19:165 African-Americans and Mass Communication 3 s.h.
African-American experience in music, radio, television, film, print media; mediated messages about African-American culture; images in contemporary media development, practice in the United States.

19:167 Gender and Mass Media 3 s.h.
Representation of women, men in mass media; pornography, censorship, gender and the communications work force; women as producers of alternative media.

19:169 Topics in Mass Communication 3 s.h.
May be repeated.

19:170 Current Issues in Mass Communication 1-2 s.h.

19:180 Special Projects in Mass Communication am.
Research, readings to fit needs, interests of students. Maybe repeated. Consent of instructor required.

19:181 Readings in Communication and Mass Communication 1-3 s.h.
Focus on a problem or issue. May be repeated. Consent of instructor required.

19:190 Honors Readings 1-3 s.h.
Topic in journalism or mass communication, chosen by student. Open only to honors students. Consent of instructor required.

19:191 Honors Project 3 s.h.
Independent research for candidates completing honors projects. Consent of instructor required.

Primarily for Graduates

19:205 Visual Communication 3 s.h.
History of twentieth-century visual communication from cultural perspective; development of visual form, composition, spatial representation, color; in depth study of selected artists, designers, photographers.

19:207 Communication Research Methods 3 s.h.
Fundamentals of scientific inquiry in study of communication and mass communication behavior; emphasis on learning the language, concepts, procedures, application of behavioral research methods; field and experimental approaches.

19:208 History of Mass Communication in the United States 3 s.h.
Development in context of U.S. history.

19:209 Popular Culture and Mass Communication 3 s.h.
Relationships between popular media fare and cultural realities; media formulas, communication practices in American culture.

19:206 Comparative Communication Systems 3 s.h.
Media systems, international communication; principles and practices of media communication under different political and cultural conditions; emphasis on contemporary problems.

19:207 Third World Development Support 3 s.h.
Patterns, processes of Third World development; implications of regional growth and spatial diffusion; critical analysis of communication strategies in support of development projects.

19:208 News-Editorial Problems 2-3 s.h.
Duties, responsibilities of mass media in contemporary society.

19:209 Electoral Politics and the Mass Media 3 s.h.
Symbolic relationship between political campaigns and mass media, roles of media campaign coverage; issue versus image orientations of campaign coverage and advertising; how these affect citizen perceptions, decision making.

19:210 Current Issues in Mass Communication 1-2 s.h.

19:211 Law and the American Media for Graduate Students 3 s.h.
First Amendment theory, topics in communication law.

19:212 Communication and Public Relations 3 s.h.
Public relations problems in organizations systems; emphasis on communication theory and research in development of a problem solving perspective.

19:213 History of Books and Printing 3 s.h.
Invention and spread of printing technology; social and cultural impact in the West; books and other printed mass communications media, such as newspapers and magazines.

19:214 Images and Society 3 s.h.
Cultural history of images in twentieth century; emphasis on social production and uses of photography, film, television.
19:215 African-Americans and Mass Communication 3 s.h.
African American experience in music, radio, television, film, print media; mediated messages about African American culture; images in contemporary media development, practice in the United States.

19:217 Gender and Mass Media 3 s.h.
Representation of women, men in mass media; pornography, censorship; gender and the communication work force; women as producers of alternative media.

19:219 Topics in Mass Communication 3 s.h.

19:220 Master’s Seminar 1-3 s.h.
Separate sections for students in M.A. professional and thesis programs; professional students investigate journalism as a mode of inquiry, conceptual approaches, professional and journalistic problems; thesis program section meets with Ph.D. seminar 19:320.

19:221 Approaches to the Study of Communication: Issues and Concepts 3 s.h.
Introduction to major communication and mass communication concepts; their use and development.

19:230 Specialist Reporting and Writing 3 s.h.
Advanced reporting and writing; taught in sections; topics vary and may include: public affairs, law, science, business, medicine, intercultural affairs, lifestyle, computer assisted reporting. Prerequisite: 19:115 or consent of instructor.

19:231 Depth Reporting and Writing 3 s.h.
Enterprise reporting; emphasis on reporter as researcher, organizer, writer of complex stories in a variety of contexts. Prerequisite: 19:115 or consent of instructor.

19:232 Magazine Reporting and Writing 3 s.h.
Finding ideas, researching, interviewing, problems of organization and style; identification of audiences, markets. Prerequisite: 19:115 or consent of instructor.

19:233 Broadcast Journalism Reporting and Writing 3 s.h.
Principles; gathering, writing, editing, reporting the news; techniques and procedures for understanding successfully writing, delivering broadcast news. Prerequisite: 19:115 or consent of instructor.

19:234 Persuasive Writing 3 s.h.
Principles, practices of persuasive writing in editorials, op-ed pieces, magazine essays, reviews, public relations. Prerequisite: 19:115 or consent of instructor.

19:235 Free-lance Reporting and Writing 3 s.h.
Approaches to writing and marketing articles to magazines, newspapers, other publications; developing a foundation for understanding successfully writing, delivering broadcast news. Prerequisite: 19:115 or consent of instructor.

19:240 Media Workshop 3 s.h.
Analysis and solution of problems with communication strategies and/or media products; public relations, newsletter production. Prerequisite: 19:115 or consent of instructor.

19:241 Publication Design Workshop 3 s.h.
Problems of design: layout, fonts, techniques, functional role in aesthetic considerations; creative design projects. Prerequisite: 19:115 or consent of instructor.

19:242 Photographic Journalism 3 s.h.
Techniques; black craft, location shooting, editing photographs, combining words and images for variety of purposes; group critiques of assignments. Prerequisite: 19:115 or consent of instructor.

19:243 Typographic Workshop 3 s.h.
Typography and typographical design; intertextual issues; differentiation, use in design; laboratory work and creative projects. Prerequisite: 19:115 or consent of instructor.

19:244 Broadcast Journalism Workshop 3 s.h.
Electronic news gathering (ENG); conceptualization, shooting, combining words and images in contemporary media development, practice in the United States.

19:245 Public Relations Practice Workshop 3 s.h.
Development, presentation of public relations campaigns for client organizations; application of communication theory research techniques to analysis and solution of public relations problems through objectives-based strategic planning. Prerequisite: 19:115 or consent of instructor.

19:246 Editing Workshop 3 s.h.
Theory, principles, process in editing and packaging material for various forms of publication; basics of editing—copy editing, headlines, illustration, layout; pencil and computer editing, desktop publishing. Prerequisite: 19:115 or consent of instructor.

19:247 Book Design Workshop 3 s.h.
Specialized practices and problems of book design; computerized typesetting and layout technology; applied design and creative projects. Prerequisite: 19:115 or consent of instructor.

19:249 Advanced Media Workshop 3 s.h.
Journalism and mass communication skills; topics may include: photojournalism, documentary photography, editing, broadcasting. Prerequisite: 19:115 or consent of instructor.

19:250 Seminar in Visual Communication 3 s.h.
Conceptual, theoretical approaches for analyzing photographic media in relation to research on historical and cultural aspects of visual communication. Consent of instructor required.

19:251 History of the Book 3 s.h.
Technological, social, cultural dimensions; major texts. Same as 8:203, 21:223.

19:252 Social Meanings of News 3 s.h.
How concept of news has been studied in occupational, organizational, social contexts.

19:253 Economics, Technology, and American Mass Media 3 s.h.
Economic condition of American mass media; role in society; focus on how economics and technology affect that role; newspapers, radio, television, cable television, telecommunications.

19:254 Communication and Change 3 s.h.
Theory, research, methodological problems of studying change; diffusion of innovations and media and change, reform, organizations, evolutionary and revolutionary organizations.

19:255 Problems in International Communication 3 s.h.
Topics may include communication systems in national development; international and cross cultural communication structure and theory; images, values, mass persuasion; laws, agreements; information channels, content, flow, effects; censorship, language, literacy.

19:256 Gender and Mass Communication 3 s.h.
Feminist analysis of gender and language: images of women in mass media; employment of women and minorities by media; media created for women and men; affirmative action in broadcast regulation.

19:257 Communication and Social Theory 3 s.h.
Social theorists who emphasize communication processes in their analyses of social interaction, society.

19:258 Mass Communications in Modern Society 2-4 s.h.
Concept of mass communications; rights and responsibilities of parties involved; public opinion; interaction of mass media and society; government, politics, world affairs, mass communications; mass media as institutions, systems, social change.

19:259 Theory of Popular Culture 3 s.h.
Major theoretical approaches; representative studies.

19:260 Communication Research: Historical Approach 3 s.h.
Readings, research.

19:261 Communication Research: Behavioral Approaches 3 s.h.
Planning, conducting, analyzing, interpreting surveys, content analysis experiments.

19:262 Communication Research: Phenomenological Approaches 3 s.h.
How people construct and carry out communication; symbols, interactionism, ethnography, textual methods, participant observation, ethnographic interviewing, field observation as methods for studying how people interpret and construct their worlds.

19:263 Communication Research: Legal Approaches 3 s.h.
Introduction to legal research methods and materials for studying communications law. Consent of instructor required.

19:264 History of Mass Communication 3 s.h.
Conceptualization, completion of a mass communication history research project or proposal.

19:271 Mass Communication Law 3 s.h.
Conception, completion of a mass communication law research project or proposal.

19:272 Mass Communication Seminar 3 s.h.
Readings, research.

19:280 Master’s Tutorial 1-3 s.h.
Topics in communication and mass communication inquiry. Consent of instructor required.

19:281 Master’s Practicum 3 s.h.
Research, readings, projects to fit needs, interests of students. Consent of instructor required.

19:299 Master’s Research 3 s.h.
Independent research for projects, theses. Consent of sponsoring faculty member, director of graduate studies, instructor required.

19:320 Ph.D. Seminar 1 s.h.
Forum on theoretical or methodological problems in mass communication. Consent of instructor required.

19:330 Literature of Communication 3 s.h.
Significant works in communication and mass communication theory.

19:340 Seminar in Organizational Communication Theory 3 s.h.
Major theoretical approaches to study of organizations, focus on communication as basic process in human organizing, planning, acting. Same as 36:635.

19:341 Mass Communication and Cultural Theory 3 s.h.
Basic theoretical approaches to mass communication; emphasis on role of cultural traditions in shaping mass media; attention to contemporary British, continental scholarship.

19:342 Mass Communication and Society 2-4 s.h.
Political economy, social factors that influence content and character of mass media; ethics, rights, responsibilities of mass communication media; place of mass media in social change, social planning.

19:343 International Communication 3 s.h.
International and cross cultural communication.

19:380 Ph.D. Tutorial 3 s.h.
Consent of instructor required.

19:381 Ph.D. Research Practicum 3 s.h.
Conceptualization and execution of research projects. Consent of instructor required.

19:399 Dissertation 3-9 s.h.

See “Classics.”

Latin American Studies Program ● Liberal Arts 163

Chair: Charles Hale
Professors: Thomas Charlin (Anthropology), Rau Serr (Mathematics), Nora England (Anthropology), Roger Frank (Spanish and Portuguese), Oscar Hahn (Spanish and Portuguese), Charles Hale (History) Associate professors: Florence Balbó (Anthropology), Enrique Carrasco (Law), Michael Chibnik (Anthropology), George DeMeco (Spanish and Portuguese), Maria Duarte (Spanish and Portuguese), Nora González (Spanish and Portuguese), Philip Klein (Spanish and Portuguese), Adriana Mendero-Rodenas (Spanish and Portuguese), Douglas Midgett (Anthropology), Mario Santicci (Spanish and Portuguese), Diópy Vélez (Spanish and Portuguese), Irene Wernert (Spanish and Portuguese) Assistant professors: Laura Graham (Anthropology), Ralph Cintron (Rhetoric), Kathleen Higgins (History), Kathleen Newman (Spanish and Portuguese), M. Mercedes Nito-Murcia (Spanish and Portuguese), Enedina Vázquez (Education)

Undergraduate degree: certificate, minor in Latin American Studies

The Latin American Studies Program (i.e., ASP) is an interdisciplinary program that focuses on the history, politics, social organization, economy, geography, art, and literature of Central and South America, Mexico, the Caribbean, and of...
Latinos in the U.S. It 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.

Students enrolled in the program may earn a minor or certificate in Latin American studies. All students plan their programs in close cooperation with Latin American studies advisers.

The Latin American Studies Program (LASP) is a constituent program of the Center for International and Comparative Studies.

Programs

Certificate

Students pursuing the certificate in Latin American Studies must earn at least 27 semester hours of credit with a minimum grade-point average of 2.00 in courses selected from the list of approved LASP courses that follows. These courses should include 130:176 Latin American Studies Seminar and at least 6 semester hours in each of at least three of the following departments: anthropology, history, political science, and Spanish and Portuguese. It is recommended that students include 130:120 Contemporary Latin American News Colloquium (2 semester hours). LASP-approved courses that apply toward the student’s major also may be applied toward the LASP certificate. Students must also complete four semesters, or the equivalent, of instruction in Spanish or Portuguese.

Courses applied toward the LASP certificate also may be used to satisfy the General Education Requirements or the requirements for a major or a minor. The certificate is awarded only upon completion of a bachelor’s degree. Holders of Iowa baccalaureate degrees may return to The University of Iowa sponsored study abroad programs or direct enrollment at local universities. University of Iowa sponsored study abroad programs include a summer program with Universidad de Guanajuato in Mexico and a health and nutrition program in Pontificia Universidad Católica Madre y Maestra in the Dominican Republic.

Through the International Student Exchange Program (ISEP), University of Iowa students may enroll in member institutions in Argentina, Brazil, Colombia, Costa Rica, the Dominican Republic, Honduras, Mexico, and Uruguay. Students also may study in Chile through the University Study Abroad Consortium.

Courses taken through study abroad programs may be counted toward requirements for the certificate and the minor, subject to prior approval by the Latin American studies adviser or the LASP chair.

Course Work

In addition to the courses listed below, courses concerned in part with Latin America sometimes may be used as electives to satisfy the requirements for the certificate or the minor. Students should consult the Latin American studies adviser. For course descriptions, see the appropriate departmental sections of the Catalog.

LATIN AMERICAN STUDIES
130:105 Independent Study 3 s.h.
130:115 Topics in Latin American Studies 3 s.h.
130:120 Contemporary Latin American News Colloquium (recommended for certificate and minor students) 2 s.h.
130:176 Latin American Studies Seminar (required for certificate, recommended for minors) 3 s.h.

APPROVED LASP COURSES

Anthropology
113:109 Literature and Anthropology (area-related) 3 s.h.
113:114 Lowland South American Indians 3 s.h.
113:117 The Maya 3 s.h.
113:118 Social Anthropology of the Caribbean 3 s.h.
113:131 Latin American Economy and Society 3 s.h.
113:148 Special Topics in Anthropology (when topic is Latin America) 3 s.h.

Study Abroad

It is highly recommended, though not required, that students have an in-depth Latin American cultural experience, usually through a study abroad program, before completing their undergraduate requirements.

In cooperation with the Study Abroad Center of the University’s Office of International Education and Services (OIES), LASP faculty facilitate student participation in programs in a dozen different Latin American countries. Such programs range from intensive language study to group programs with a special focus, programs involving fieldwork or internships, or direct enrollment at local universities. University of Iowa sponsored study abroad programs include a summer program with Universidad de Guanajuato in Mexico and a health and nutrition program in Pontificia Universidad Católica Madre y Maestra in the Dominican Republic.

Through the International Student Exchange Program (ISEP), University of Iowa students may enroll in member institutions in Argentina, Brazil, Colombia, Costa Rica, the Dominican Republic, Honduras, Mexico, and Uruguay. Students also may study in Chile through the University Study Abroad Consortium.

Courses taken through study abroad programs may be counted toward requirements for the certificate and the minor, subject to prior approval by the Latin American studies adviser or the LASP chair.

Course Work

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LATIN AMERICAN STUDIES
130:105 Independent Study 3 s.h.
130:115 Topics in Latin American Studies 3 s.h.
130:120 Contemporary Latin American News Colloquium (recommended for certificate and minor students) 2 s.h.
130:176 Latin American Studies Seminar (required for certificate, recommended for minors) 3 s.h.

APPROVED LASP COURSES

Anthropology
113:109 Literature and Anthropology (area-related) 3 s.h.
113:114 Lowland South American Indians 3 s.h.
113:117 The Maya 3 s.h.
113:118 Social Anthropology of the Caribbean 3 s.h.
113:131 Latin American Economy and Society 3 s.h.
113:148 Special Topics in Anthropology (when topic is Latin America) 3 s.h.
113:151 Sociology of the Third World 3 s.h.
113:163 Archaeology of Mesoamerica 3 s.h.
113:166 The Aztecs, Their Predecessors, and Their Contemporaries 3 s.h.
113:191 Structure of Mayan Languages 3 s.h.
113:197 Special Topics in Archaeology: Archaeology of Aztec State Development arr.

Art

III: 105 Art of Pre-Columbian America 3 s.h.

History

16W:110 Topics in Latin American History 3 s.h.
16W:111 Colonial Latin America 3 s.h.
16W:112 Introduction to Modern Latin America 3 s.h.
16W:113 The Mexican Revolution 3 s.h.
16W:116 Women in Latin America 3 s.h.
16W:117 History of Brazil 3 s.h.

Political Science

30:144 Latin American Government 3 s.h.
30:145 Major States of Latin America 3 s.h.

Portuguese

38:105 Brazilian Literature I 3 s.h.
38:106 Brazilian Literature II 3 s.h.
38:112 Topics in Luso-Brazilian Literature 3 s.h.
38:114 Culture and Civilization of the Portuguese-Speaking World 3 s.h.

Spanish

35:116 Technical Communication 3 s.h.
35:118 Business Spanish 3 s.h.
35:123 Screening Latin America 3 s.h.
35:130 Spanish American Civilization 3 s.h.
35:131 Contemporary Spanish American Fiction 3 s.h.
35:132 Spanish American Poetry I 3 s.h.
35:133 Spanish American Drama 3 s.h.
35:134 Spanish American Short Story 3 s.h.
35:135 Contemporary Latin American Novel and Short Story 3 s.h.
35:138 Survey of Twentieth-Century Puerto Rican Literature 3 s.h.
35:139 Spanish American Poetry II 3 s.h.
35:140 Mass Communication in Spanish America 3 s.h.
35:145 Latin America Cinema 3 s.h.
35:169 Spanish American Literature of Fantasy 3 s.h.
35:173 Latin American Women Writers 3 s.h.
35:175 Cultural Identity in Caribbean Literature 3 s.h.
35:178 Culture and Language in the Andes 3 s.h.
35:179 Testimonial Literature in Latin America 3 s.h.
35:185 Colonial Spanish American Literature 3 s.h.
35:187 Topics in Colonial Spanish American Literature 3 s.h.

Other

7E: 195 Multicultural/Bilingual Concepts and Educational Systems 3 s.h.
35:20 Contemporary Latin American Narrative (may not be used toward certificate) 3 s.h.
36C:93 Intercultural Communication (final paper must focus on Latin America) 3 s.h.
36F:111 Cinema and Culture (when topic is Latin American) 3 s.h.
47:100 Problems in Global Studies: Global Economics of Sustainable Development (final paper must focus on Latin America) 3 s.h.

Scholarships
Students are encouraged to apply for a Stanley Undergraduate Scholarship for International Research/Fieldwork through the Center for International and Comparative Studies (CICS). 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, CICS staff, and the LASP chair.

Special Programs
Organizations, Foreign Language House
LASP students who wish to participate in cultural exchange activities and Latin American student groups on campus have several organizations to choose from, including the Chicano/Hispanic Association for Legal Education, the Latin American Student Association (ADELA), Latinos Unidos, Los Curanderos, and the Venezuelan Association. Students who would like to live in a multicultural environment should contact the University housing office about placement in the Foreign Language House.

Visitors, 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, round table discussions, and lectures. Scholars, activists, musicians, professionals, and others visit the campus to participate in a variety of activities. Recent visiting speakers and guest performers have included Cuban poet, historian, and philosopher Roberto Fernandez-Retamar; Lorenzo Fuentes; Chilean art historian and philosopher Roberto Fernandez-Retamar; Cecilia Ubilla; and Elvia Riveras-Perez.

Courses

**Programs in Letters**

Director: K.K. Merker
Programs in Letters is an administrative unit including several University of Iowa activities in language and literature: the Center for the Book, the International Writing Program, the Midwest Modern Language Association, and the Translation Workshop.

**Center for the Book**
The Center for the Book promotes a comprehensive, interdisciplinary program for scholarly research and study of the book and for creative practice of the arts and technologies of the book. The center is home to a unique configuration of creative workshops offering an environment for artistic collaboration. An academic and scholarly program, a complement to the workshops, focuses on the various histories of the book, its role in culture, and contemporary theoretical approaches to its study.

See also “Iowa Center for the Arts” in the Special Resources at Iowa section of the Catalog.

**International Writing Program**
See “Iowa Center for the Arts” in the Special Resources at Iowa section of the Catalog.

**Translation Workshop**
See “Master of Fine Arts in Translation” under “Comparative Literature” in this section of the Catalog.

**Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
<th>Prerequisites</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>108:28</td>
<td>Graphic Design I</td>
<td>2 s.h.</td>
<td>Basic principles, techniques, applications of graphic design, typography, composition, visual perception, creative and problem-solving aspects of graphic design. Consent of instructor required.</td>
<td>Same as 1D:28.</td>
</tr>
<tr>
<td>108:100</td>
<td>Special Project for Undergraduates</td>
<td>3 s.h.</td>
<td>Arr.</td>
<td>Independent study.</td>
</tr>
<tr>
<td>108:110</td>
<td>Papermaking</td>
<td>3 s.h.</td>
<td>History, technique of making paper by hand in Asian and Western styles; evolution of methods, tools and equipment, fiber selection and preparation, pulp coloring and sizing, basic paper chemistry. Same as 1X:110.</td>
<td></td>
</tr>
<tr>
<td>108:120</td>
<td>Advanced Papermaking</td>
<td>3 s.h.</td>
<td>Traditional Eastern, Western sheet forming techniques; emphasis on fiber selection and preparation, paper testing, watermarking, sizing. May be repeated. Consent of instructor required.</td>
<td>Prerequisite: 108:1 10. Same as IX:120.</td>
</tr>
<tr>
<td>108:125</td>
<td>Typography</td>
<td>3 s.h.</td>
<td>Principles and history; designing with type; functional, aesthetic dimensions of typography. Consent of instructor required.</td>
<td>Prerequisites: 1A:4 and 1D:28 (108:28). Same as 1D:125.</td>
</tr>
<tr>
<td>108:130</td>
<td>Paper-works</td>
<td>3 s.h.</td>
<td>Techniques, approaches using pulp/paper as art medium; emphasis on type selection, preparation, coloring, 2D/3D techniques for image or object formation. May be repeated. Consent of instructor required.</td>
<td>Prerequisite: 108:1 10. Same as IX:130.</td>
</tr>
<tr>
<td>108:134</td>
<td>Silkscreen</td>
<td>3 s.h.</td>
<td>Photographic, non-photographic stencil-making techniques for production of limited edition silkscreen prints.</td>
<td>Prerequisite: 1A:3 or 1A:4 or equivalent. Recommended: 1L:134. Same as II:134.</td>
</tr>
<tr>
<td>108:135</td>
<td>Off-Press Workshop</td>
<td>3 s.h.</td>
<td>Graphic arts techniques for production of posters, broadsides, visual books in small editions on a high speed offset press.</td>
<td>Prerequisite: I:1.34 or I:1.103 or consent of instructor. Same as II:135.</td>
</tr>
<tr>
<td>108:140</td>
<td>Calligraphy I</td>
<td>3 s.h.</td>
<td>Western-style letterforms produced with brush or broad edge pen, organization of page format. Same as IV:140.</td>
<td></td>
</tr>
<tr>
<td>108:141</td>
<td>Calligraphy II</td>
<td>3 s.h.</td>
<td>Adaptation of historical Western-style letterforms to contemporary format, brush, broad edge pen. May be repeated. Consent of instructor required.</td>
<td>Prerequisite: 108:140 or equivalent. Same as IV:141.</td>
</tr>
<tr>
<td>108:142</td>
<td>The Medieval Manuscript Book</td>
<td>3 s.h.</td>
<td>Relation of text, decoration, facsimile art to different genres of medieval books (e.g., gospels, bibles, romances).</td>
<td>Prerequisite: I:15.5 or I:146 or consent of instructor. Same as IV:142.</td>
</tr>
<tr>
<td>108:147</td>
<td>Literary Publishing</td>
<td>3 s.h.</td>
<td>Course coordinated with production of The Iowa Review, special projects related to editorial work of the magazine. Consent of instructor required. Same as VIII:147.</td>
<td></td>
</tr>
<tr>
<td>108:150</td>
<td>Bookbinding: Non-adhesive Binding</td>
<td>3 s.h.</td>
<td>Production of seven types of non-adhesive book structures; history, terminology of bookbinding. May be repeated. Consent of instructor required. Same as IV:150.</td>
<td></td>
</tr>
<tr>
<td>108:151</td>
<td>Bookbinding: Case Binding</td>
<td>3 s.h.</td>
<td>Variations in the Casebound structure; book enclosures. May be repeated. Consent of instructor required. Same as IV:151.</td>
<td></td>
</tr>
<tr>
<td>108:152</td>
<td>Bookbinding: Advanced structures</td>
<td>3 s.h.</td>
<td>Sewing styles, spine shaping and spine endbanding, covering techniques; special projects may be substituted with consent of the instructor.</td>
<td>Prerequisite: 108:150 or 108:151 or consent of instructor. Same as IV:152.</td>
</tr>
<tr>
<td>108:153</td>
<td>Studies in Bookbinding</td>
<td>3 s.h.</td>
<td>Representative topics include paper decoration, pop-up books, history of binding structures. Consent of instructor required. Same as IV:153.</td>
<td></td>
</tr>
<tr>
<td>108:154</td>
<td>Bookbinding: Non-Traditional Structures</td>
<td>3 s.h.</td>
<td>Unconventional binding structures; emphasis on innovative techniques. Same as IV:154.</td>
<td></td>
</tr>
<tr>
<td>108:210</td>
<td>Individual instruction in Papermaking/Paperworks</td>
<td>Sr.</td>
<td>Information and training in academic disciplines; scientific methods, other means of knowledge construction, reading literature; reference tools used to control literature for a variety of audiences; emphasis on humanities, social sciences, or sciences.</td>
<td>Prerequisite: 21:151. Same as 21:24O.</td>
</tr>
</tbody>
</table>
family, geographic location, or other personal circumstances prevent them from attending college as full-time, on-campus students. The program has no residence requirement.

Students may complete the degree without attending a course on campus. Credit applicable toward the degree may be earned through several types of courses, including Saturday and evening courses, correspondence courses, off-campus courses at sites throughout Iowa, televised courses, and on-campus courses during the day. Courses from any of the three Regents universities may be applied toward the degree, as may appropriate courses from other accredited institutions.

At The University of Iowa, the B.L.S. is awarded by the College of Liberal Arts and administered by the Division of Continuing Education. Since the B.L.S. is a general undergraduate degree with no traditional major, B.L.S. students may not earn minors. However, the requirements are sufficiently flexible to allow students, with the assistance of a B.L.S. adviser, to structure a program that meets their individual needs and objectives. Many B.L.S. candidates plan programs designed to help them advance in their chosen career, begin a new career, or prepare for graduate or professional study. Students who have a specific career goal or advanced degree program in mind should familiarize themselves with required educational background and prerequisite course work and should include appropriate courses in their B.L.S. degree program.

Admission

Students wishing to graduate with a B.L.S. degree must apply formally for admission to the program. Interested students should consult a B.L.S. adviser before applying. To be eligible for admission to the program, students must have earned either

- an Associate in Arts (A.A.) degree from an Iowa area community college that participates in the Iowa Community College/Regents Articulation Agreement, with a minimum grade-point average of 2.00; or
- at least 62 semester hours of collegiate work acceptable for credit toward graduation, with a grade-point average of 2.25 or better. (Students admitted to The University of Iowa must have a grade-point average of at least 2.00 to qualify for admission to the B.L.S. program.)

Requirements

Of the 124 semester hours of credit required for the degree, 45 must be completed in courses offered by the Iowa Regents universities, including 30 that must be earned from The University of Iowa after admission to the B.L.S. program. At least 45 semester hours must be earned at four-year colleges; these hours must be defined as upper-level at the institution where the credits were earned. At The University of Iowa, upper-level courses are numbered 100 and above. However, at the initiation of sponsoring departments and with approval of the College of Liberal Arts Office of Academic Programs, courses numbered below 100 but taught at an advanced level may be used to satisfy the 45-semester-hour upper-level requirement. Approved courses are listed in the Interdepartmental Studies section of the Catalog.

B.L.S. candidates are required to complete all the General Education Requirements except physical education (see the College of Liberal Arts introductory section of the Catalog). Students who enrolled at The University of Iowa before fall semester 1990 and who will graduate by August 1997 with a B.L.S. degree are exempt from the foreign language requirement.

Since there are no traditional majors available through the B.L.S. program, candidates must earn at least 12 semester hours of credit—including six semester hours approved for upper-level credit—in each of three of the following areas:

- Humanities (e.g., literature, history, philosophy, religion)
- Communication and arts (e.g., journalism, speech, drama, art, music)
- Natural sciences and mathematics (e.g., geology, biological sciences, statistics, computer science)
- Social sciences (e.g., geography, psychology, economics, political science, anthropology)
- Professional fields (e.g., business, education, nursing, social work, library science)

Credits applied to the General Education Requirements may not be used to meet the distribution area requirements, but they may be counted toward the 45 semester hours of upper-level course work required, if applicable.

Graduation requires a minimum grade-point average of 2.00 in all course work applied toward the degree, all course work completed after admission to the program, and all upper-level course work.

All other College of Liberal Arts policies regarding pass/nonpass and satisfactory/fail grading, academic standards, and so forth, apply to B.L.S. students.

Further information about the B.L.S. program is available from the Center for Credit Programs.

Courses

BLS:000 Cooperative Education Internship 0 s.h.

Graduate Program

The program, accredited by the American Library Association, leads to a Master of Arts degree in library and information science. It requires 36 semester hours of graduate credit with a minimum grade-point average of 2.50, and completion of a comprehensive examination.

Students who successfully complete the degree gain a thorough understanding of:

- the historical evolution of library and information science as well as current and future trends in the field;
- professional, ethical, and philosophical issues, including intellectual freedom, privacy of information, and information literacy;
- the information cycle, from production to usage, and the roles of its participants-authors, librarians and information professionals, publishers, and brokers;
- theories, principles, and procedures for promoting effective selection, acquisition, organization, storage, retrieval, evaluation, dissemination, and use of a variety of information carriers (e.g., text, sound, image, video), in electronic and non-electronic formats;
- current management theory and practice necessary to manage personnel effectively, to plan information services, and to identify needs, set goals, analyze problems, implement
programs, and evaluate results in both
traditional and innovative settings;
- current and cutting-edge technological
  concerns regarding design, evaluation,
implementation, and management of hardware,
software, telecommunication networks, and
information systems;
The discipline’s research base including
historical highlights as well as current research
and the synergism between library and
information science and other disciplines, such
as computer science, linguistics, psychology, and
communications;
- the close relationship between the discipline’s
research base and practice of the profession, and
the application of established research
principles, results, and methods to current
problems;
- social, economic, and intellectual factors
influencing the contexts that underlie users’
information needs and appropriate strategies to
satisfy those needs.
Graduates hold positions in public, school,
academic, and special libraries and information
centers, serving in roles such as administrator,
information consultant, subject specialist,
network coordinator, cataloger, children’s
librarian, school library media specialist, or
conservator.

Basic Plan of Study
The program consists of a core of required
courses basic to all areas of librarianship, and
electives. The student’s plan of study should be
developed carefully in relation to career
objectives. All courses to be applied to the
36-semester-hour program must be approved by
the adviser.

Required Core Courses
Required of all M.A. candidates (total of 18
semester hours):
- 21:151 Reference 3 s.h.
- 21:152 Description and Organization
  of Materials 1 3 s.h.
- 21:153 Foundations and Collection
  Development 3 s.h.
- 21:201 Management of Libraries and
  Information Centers 3 s.h.
- 21:246 Information Science and
  Technology 3 s.h.
- 21:249 Research Methods 3 s.h.

Electives
Total of 18 semester hours
For suggested electives, see “Public
Librarianship,” “Academic Librarianship,”
“Special Librarianship,” “Information Science”
and “School Library Media Centers” in this
section of the Catalog.

Elective courses in other University departments
must be shown to be an integral part of the
student’s preparation for library and information
science. Up to 9 semester hours of graduate
credit earned outside the department may be
applied toward the degree, subject to the
approval of the student’s adviser and the
director of the school. Some specializations may
permit exceptions to the 9-semester-hour limit.

Thesis Option
The purpose of the thesis option is twofold: to
expand research competence and to provide one
means of independent study to a student with
extensive preparation in library and information
science.

Transfer Credit
Up to 9 semester hours of graduate credit in
library and information science or related areas
may be accepted in transfer from another
institutions, subject to the approval of the
student’s adviser and the director of the school.
Approval is given on a course-by-course basis
and is determined by evaluating the course’s
content, currency, and applicability to the
student’s program.

Completion Time
The degree program can be completed in one
calendar year (two semesters and a summer),
but most students take an extra semester or
two to fulfill the requirements or to have access
to certain courses. In particular, students who
have time-consuming responsibilities, such as
family duties or half-time or greater
employment, may find it difficult to carry the
maximum course load. The maximum load for
graduate students is 15 semester hours during
regular semesters and 8 semester hours during
summer sessions.

The degree program also can be completed in
five summer sessions, but school media
endorsement requires certain courses that are
available only during fall and spring semesters.

Public Librarianship
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 often are
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.

Special Librarianship
Special librarianship includes careers in libraries
and information centers serving both profit and
non-profit organizations—for example,
businesses and industries, law firms, museums,
historical societies. The ability to design services
suitable to the parent organization, the
possession of such skills and competencies as
indexing, abstracting, online searching, systems
analysis, and organizing knowledge, and a
background of substantial subject expertise are
custormarily required in special library work.
Information brokers and entrepreneurs are also
special librarians.

PLAN OF STUDY
Required core courses 18 s.h.
Suggested electives 18 s.h.

7H: 171 The Community College
(required for Iowa endorsement for
work in community colleges) 2-3 s.h.
- 21:232 The College and University
  Library 3 s.h.
- 21:240 Bibliography 3 s.h.
- 21:247 Information Storage and
  Retrieval 3 s.h.
- 21:248 Library Automation 3 s.h.
- 21:250 Systems Analysis and Database
  Design 3 s.h.
- 21:251 Advanced Reference
  3 s.h.
- 21:252 Description and Organization of
  Materials 11 3 s.h.
- 21:253 Technical and Serial Services
  Management 3 s.h.
- 21:255 Government Publications
  3 s.h.
- 21:282 Practicum in Libraries
  2-3 s.h.

Plan of Study
Required core courses 18 s.h.
Suggested electives 18 s.h.

Special Librarianship
Information Science

Information science, a rapidly growing multidisciplinary professional area, has been influenced by the growth in information sources, the rapid development of electronic technologies, and the need to store, retrieve, and disseminate information through the use of these technologies. Its focus is on developing skills in organizing and using information, determining and anticipating the information needs of a particular clientele, and the retrieval and delivery of information.

In addition to libraries and information centers, many organizations in the for-profit sector are finding that information is a valuable commodity in today’s competitive world; they are employing information management personnel. An information science specialization can lead to nontraditional careers.

PLAN OF STUDY

Required core courses 18 s.h.
Elective courses 18 s.h.
Two or three of these:
21:247 Information Storage and Retrieval 3 s.h.
21:248 Library Automation 3 s.h.
21:250 Systems Analysis and Database Design 3 s.h.
Two or three recommended courses in other departments (a list is available upon request) 6-9 s.h.
The balance selected from these:
21:230 Special Libraries 3 s.h.
21:240 Bibliography 3 s.h.
21:251 Advanced Reference 3 s.h.
21:253 Technical and Serial Services Management 3 s.h.
21:264 Medical Librarianship and Bibliography 3 s.h.
21:265 Law Librarianship, Bibliography, and Research Techniques 3 s.h.
21:282 Practicum in Libraries 2-3 s.h.
21:293 Independent Study 1-3 s.h.

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 media specialist includes activities such as providing instruction to students in the use of media, consulting with teachers about the use of media in the instructional program, producing new materials, offering reading guidance, and providing reference service.

To qualify as school media specialists in Iowa, graduates must hold a valid teaching license and an appropriate media endorsement. The plan of study in the following section describes a program that is designed to prepare students for endorsement as Iowa school media specialists K-12.

STATE ENDORSEMENT FOR SCHOOL MEDIA SPECIALISTS

Students who complete the program below fulfill state requirements for endorsement as school media specialists K-12. To be admitted to the media endorsement program, a student must hold or be eligible for a teaching license. This program requires completion of 38-39 semester hours. Students completing the media endorsement program fulfill the requirements for the M.A. in library and information science as well. The plan of study is as follows.

7W: 120 Introduction to Instructional Design and Technology 3 s.h.
7W: 135 Computer Applications for Instruction 3 s.h.
21: 151 Reference 3 s.h.
21: 152 Description and Organization of Materials 3 s.h.
21: 153 Foundations and Collection Development 3 s.h.
21: 201 Management of Libraries and Information Centers 3 s.h.
21: 233 School Library Media Center Administration 3 s.h.
21: 244 Library Materials for Children 3 s.h.
21: 245 Library Materials for Adolescents 3 s.h.
21: 262 School Library Media Center Practicum 3 s.h.
7P: 220 Educational Research Methodology 3 s.h.
or
21: 249 Research Methods 3 s.h.
21: 246 Information Science and Technology 3 s.h.
or
21: 248 Library Automation 3 s.h.
7W: 105 Design and Production of Media for Instruction 2 s.h.
or
21: 222 Multimedia and Interactive Technologies 3 s.h.

Students who complete 29 of the above semester hours in a designated sequence are eligible for single-level endorsement, that is, elementary school media specialist (K-6) or secondary school media specialist (7-12). The single-level endorsement does not require a master’s degree.

Iowa Community College Certification

The school offers a state-approved program for librarian/learning resource specialist in an area vocational school or community college.

Students receive this endorsement upon completion of the M.A. with the program listed under “Academic Librarianship” in this section of the Catalog and 7H: 171 The Community College.

Joint Degree Programs

Joint degree programs between the School of Library and Information Science and other University units have as their primary goal the integration of the two areas of study, allowing the student to contribute to one discipline the insights and experience gained in the other.

The school has established formal programs with the Colleges of Law and Business Administration. A student enrolled in a joint program works with an adviser in the School of Library and Information Science to ensure the benefits of integration.

Objectives of a joint program must be consistent with the goals stated above, and since they vary from student to student, they are a matter of advising. For instance, a student who seeks a career in a law or business library requires a different sequence of courses from one attempting to study the legal basis of librarianship or the management of the library as a complex organization. Yet another student may choose to seek the benefits a joint program could offer in records management and management information systems.

To enroll in a joint program, students must apply to and be accepted by the School of Library and Information Science and the other unit chosen. Up to 6 semester hours of such study may be applied toward the M.A. in library and information science and up to 9 semester hours toward the M.B.A. or 12 semester hours to the J.D. In addition to these formal joint programs, arrangements can be made for joint programs between departments on an ad hoc basis.

In no case may a student receive two degrees with fewer than 60 semester hours of graduate work, and joint programs usually require substantially more than this.

Undergraduate Study

Although there is no undergraduate major in library science, juniors and seniors may enroll in the introductory library science courses (100 level). No courses numbered 100 or above may be taken by freshmen or sophomores. No courses numbered 200 or above may be taken by undergraduates.

Facilities and Resources

The School of Library and Information Science is located conveniently in the south wing of the University’s Main Library, providing facilities for the varied instructional and research activities of the school.

Computer Facilities

Students are encouraged to gain practical experience with computer technology and to develop competence in library technology across the curriculum. In various courses, students learn to do online searching, database management, library automation, instructional materials development, and statistical operations. They also develop skills in searching remote catalogs and databases, downloading software and data, and using electronic mail, bulletin boards, and subscriber lists.

A technology laboratory provides access to a variety of software, CD-ROM databases, online services, and bibliographic utilities. A representative selection of microcomputer platforms and other devices is available. Students also have easy access to a wide variety of local and international networks.
Cataloging Lab

The school maintains a reference collection of cataloging tools used in description and organization courses. The collection also is available to students who need the materials for research or for other course work. In addition to traditional print cataloging resources, the laboratory offers access to bibliographic utilities and the latest in automated cataloging technology.

Statewide Reference Service

The school serves as one unit of a statewide electronic network of libraries. In cooperation with the State Library of Iowa, students provide back-up reference service to libraries throughout the state, using newly acquired skills to perform bibliographic verification and to answer reference questions. The service helps students reinforce and integrate classroom instruction and gain reference experience.

University Libraries

All of the resources of the University Libraries are available to students and faculty of the school. The system contains more than three million volumes in the Main Library and 11 departmental libraries.

The online catalog and information system, OASIS, contains records for more than 65 million volumes in the Main Library, houses the Learning Resources Center of the College of Education and Weeg Computing Center. The resource center consists of the Video Lab, Computer Resource Lab, Audiovisual Production Lab, and Curriculum Resources Lab. The Curriculum Resources Lab 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.

Weeg Computing Center 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. Each graduate student is provided with a small funded account by the Graduate College.

Faculty Advising

Each graduate student is assigned an adviser upon admission. Students are encouraged to discuss career objectives and problems with other faculty members as well. The relatively small size of the school allows faculty members to get to know students individually and to take an interest in their professional development. All courses to be applied toward the 36-semester-hour program must be approved by the adviser.

Student Activities

Students have a variety of activities available to aid in their academic and professional development. Conferences, short courses, workshops, seminars, field trips, and teleconference calls provide frequent exposure to contemporary developments in library and information science, as well as an opportunity to meet with practicing librarians from across the state and nation.

The Library and Information Science Student Organization (LISSO) is composed of all students accepted into the M.A. program. The Executive Committee of LISSO (ECL) serves as a liaison between students and faculty/administration in matters of common concern, and as a planning group for student seminars and other activities. ECL sends a representative to faculty meetings. There is also an active student chapter of the Special Libraries Association.

Placement

The school provides active placement assistance to its graduates through bulletin board announcements, seminars on resume 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.

Iowa graduates find positions in all types of libraries. The placement distribution for the past three years was: academic libraries, 32 percent; public libraries, 31 percent; special libraries, 21 percent; and school libraries, 16 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.

Financial Aid

The School of Library and Information Science awards partial-tuition scholarships as well as one-quarter-time graduate assistantships. To be considered for a departmental grant, an
applicant must have at least a 3.00 undergraduate grade-point average and combined verbal/quantitative scores of 1100 on the GRE General Test. Those who do not meet these requirements when entering the program may apply after completing 12 semester hours of graduate work with a 3.00 grade-point average. Prospective students are urged to apply for these awards before March 1. For information on student loans, work-study eligibility, or other financial assistance, contact the Office of Student Financial Aid.

Students interested in part-time employment should contact the libraries in the Iowa City area. Positions usually are available in the University Libraries.

Courses

21:000 Cooperative Education Internship
0 s.h.

21:126 Literature and Storytelling for Children
3 s.h.
Recent material techniques for sharing stories with young people: comparison and evaluation of variant texts in folklore, audiovisual versions; selecting stories for audiences of different ages; planning story programs; performance techniques. Same as 78:126.

21:151 Reference
3 s.h.
Landmark bibliographic and reference works common to most libraries: bibliographies, encyclopedias, biographical works, book catalog, indexes and guides to periodical literature, yearbooks, handbooks; experience in verification for interlibrary loan. Junior standing and consent of instructor required.

21:152 Description and Organization of Materials
3 s.h.
How library and museum materials are described in catalogs and are organized for effective retrieval: AACR2, cataloging manuals, Dewey and library of Congress classification; Sears and LC subject headings; cataloging aids and services, including OCLC. Junior standing and consent of instructor required. Same as 24:146.

21:153 Foundations and Collector Development
3 s.h.
Introduction to library and information professions; philosophic issues and principles as well as the methods and tools used to develop and manage collections of library materials, resources. Junior standing and consent of instructor required.

21:201 Management of Libraries and Information Centers
3 s.h.
Principles of organizational design, employee motivation, communication, personnel management, planning, fiscal management, evaluation.

21:222 Multimedia and Interactive Technologies
3 s.h.
Presentation of information, using multimedia and interactive techniques in the library environment; learning theory, technology policy, social issues relating to technologies.

21:223 History of the Book
3 s.h.
Technological, social, cultural dimensions of the printed book through major texts in the field. Same as 19:251, 8:203.

21:230 Special Libraries
3 s.h.
Management, organizational structures, selection, clear services in special libraries; sites visits to a variety of special libraries, information centers; projects that apply theoretical principles. Prerequisites: 21:151, 21:152, 21:153, and 21:201; or consent of instructor.

21:231 The Public Library
3 s.h.
Nature, scope of today's public library services; analyzing use needs of community residents, choosing roles of the library to meet these needs, developing a comprehensive plan to provide services and resources consistent with these roles. Prerequisites: 21:151, 21:152, 21:153, and 21:201; or consent of instructor.

21:232 The College and University Library
3 s.h.
Objectives, function, organization, services of academic libraries of several kinds and sizes; standards, principles, problems, trends. Prerequisites: 21:151, and 21:201; or consent of instructor.

21:233 School Library Media Center Administration
3 s.h.
Organization, administration of library media programs; development of philosophy, analysis of functions, program planning and evaluation; emphasis on curricular and instructional roles of media specialist; survey of library media specialist pre and corequisites: 21:151, 153 and 21:201.

21:240 Bibliography
3 s.h.
Information retrieval in academic disciplines; scientific indexing, 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: 21:151. Same as 108:240.

21:241 Library Materials for Adults
3 s.h.
Quality and popular materials for adults; evaluation and selection of fiction, nonfiction in audiovisual and print formats; tools, techniques for matching material to needs of adults.

21:244 Library Materials for Children
3 s.h.
Materials intended for preadolescent children; evaluation and selection of fiction, nonfiction in audiovisual and print formats; tools, techniques for matching material to needs of adolescents.

21:245 Library Materials for Adolescents
3 s.h.
Materials intended for adolescents; evaluation and selection of fiction, nonfiction in audiovisual and print formats; tools, techniques for matching material to needs of adolescents.

21:246 Information Science and Technology
3 s.h.
Scientific and technological context of processes producing information: creation, storage, dissemination, transformation, usage; emphasis on models, methods, technologies, policies influencing these processes.

21:247 Information Storage and Retrieval
3 s.h.
Theory, techniques procedures used to create, maintain, evaluate, access electronic databases. Prerequisite: 21:246.

21:248 Library Automation
3 s.h.
Options for automating library operations; introduction to systems analysis for library automation systems; trends, hands on experience and demonstrations of specific systems. Prerequisite: 21:246.

21:249 Research Methods
3 s.h.
Concepts, techniques of research in library and information sciences; emphasis on conducting and analyzing research projects.

21:250 Systems Analysis and Database Design
3 s.h.
Methodologies for investigating problems, selecting and implementing solutions; theories, models for database design, implementation. Prerequisite: 21:246.

21:251 Advanced Reference
3 s.h.
Concepts in reference service: philosophy, communication, bibliographic instruction, evaluation; students staff statewide reference service; emphasis on sources in law, business, statistics. Prerequisite: 21:151.

21:252 Description and Organization of Materials
3 s.h.
Special problems in description of materials; authority work; file structures, serials, other nonmonographic materials; library of Congress, other nomenclature; classification, reclassification, other administrative issues; international bibliographic criteria; online cataloging experience. Prerequisite: 21:252.

21:253 Technical and Serial Services Management
3 s.h.
Management, strategies in provision of bibliographic and physical access to materials in libraries, information centers; site research, extensive consideration of serials. Prerequisite: 21:252.

21:255 Government Publications
3 s.h.
Emphasis on federal documents as an informational resource; state, local, foreign, international materials; special concerns of organizing and administering document collections. Prerequisite: 21:151.

21:262 School Library Media Center Practicum
3 s.h.
Supervised field experience in a library media center at an elementary, secondary school level. Open only to students who hold standard teaching certification. Prerequisite: 21:233.

21:264 Medical Librarianship and Bibliography
3 s.h.
Types of medical libraries, characteristics of medical literature, selection, organization of library materials; evaluation use of reference and bibliographic tools; current awareness services. Prerequisites: 21:213 and 21:201; or consent of instructor.

21:265 Law Librarianship
3 s.h.
Types of law libraries; characteristics of legal literature; selection, organization of legal materials; use of reference, bibliographic aids; research techniques via clinical approach. Prerequisites: 21:151 and 21:201; or consent of instructor.

21:272 Current Topics in Librarianship
3 s.h.
Contemporary issues, problems.

21:278 Workshop in Library Science
3 s.h.
Short-term intensive study of selected topic or problem.

21:282 Practicum in Libraries
2-3 s.h.
Supervised field experience in selected libraries and information centers. Consent of instructor. Required Prerequisite: 21:201, 12 semester hours in library and information science.

21:293 Independent Study
1-3 s.h.
Formal contract between student, faculty member. Consent of instructor and formal proposal required.

21:2W Thesis
6 s.h.
Consent of director. Required Prerequisite: 21:249.

LINGUISTICS

Chair: William Davies
Professors: Nora C. Englund, Catherine O. Ringen, Jerzy Rubach, Robert S. Wachal
Associate professors: William D. Davies, Alice L. Davison
Assistant professors: Robert A. Chanteky, Christopher Culy, J. Mark Kaplan

Undergraduate degree: B.A. in Linguistics; minor in Linguistics

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

Linguistics is the scientific study of human language. Linguists study languages to produce accurate and complete descriptions of them and to obtain information about the nature and internal organization of language in general. They examine word structure (morphology), speech sounds (phonetics), sound systems (phonology), sentence structure (syntax), and meaning (semantics).

Linguists also investigate how children and adults acquire language; how languages change; how damage to the brain affects language abilities; and how language varies according to region, social class, race, and gender.

Linguistics is not limited to scientific research for its own sake. 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 Americans or intelligence and achievement tests that avoid discrimination against subjects who are not middle-class white Americans. Linguists also work in law, in the computer industry, and in foreign language translation.

undergraduate Program

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 doctorate; or they should take a second major. Appropriate companion fields include foreign languages, English, anthropology, social pathology, psychology, mathematics, computer science, philosophy, and elementary and secondary education.

Bachelor of Arts

The B.A. in linguistics prepares students to do basic language analysis in syntax-semantics (sentence patterns and their relation to
The major in linguistics requires 24 semester hours of course work. Majors must take an introductory linguistics course (103:100); courses in phonetics (103:110), phonology (103:111), and syntax (103:112); and a course in language history. The last requirement can be satisfied by taking a course in the history of some language or language family (e.g., classical Greek, Latin, Sanskrit, Old English). Remaining electives are chosen with the undergraduate adviser.

Honors
Members of the University Honors Program (3.2 grade-point average) may graduate with honors. The thesis must be approved by the student’s adviser or chosen from a department list. Students who write a thesis should take at least 30 semester hours of course work; those who choose the nonthesis option must take at least 36 semester hours. All students must have a minimum of 30 semester hours of graduate credit to receive the degree, regardless of prior preparation.

Doctor of Philosophy
The highly selective Ph.D. 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 core requirement includes two upper-level syntax courses, two upper-level phonology courses, and at least two seminars, for a total of 18 semester hours. An approved specialty area of 18 semester hours also is required, and students must achieve proficiency in a foreign language, as specified by department regulations.

Comprehensive examinations cover phonological theory, syntactic theory, theory of language change (historical linguistics and sociolinguistics), and the specialty area. An oral defense of the dissertation and three years of residence also are required. In addition, all candidates are required to gain supervised experience in teaching and research.

Admission
To be considered for admission to the graduate program in linguistics, prospective students 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 also must submit TOEFL scores. Applications for admission should be submitted as early as possible for the following academic year.

Financial Aid
Fellowships, teaching assistantships, and research assistantships are available to qualified graduate students. Applications are due no later than March 15, but earlier submission is strongly encouraged. The University of Iowa Fellowships are available for exceptionally well-qualified applicants. Those interested in being nominated for a University of Iowa Fellowship should submit all application materials by January 15. 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 support courses, the Iowa Intensive English Program (IIEP), and the Teaching Assistant Preparation in English Program (TAPE). These programs meet the needs of students whose native language is not English. The ESL credit support courses 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 prepares students to teach in American classrooms.

ESL Credit Support Courses
These courses bridge the gap between full-time language instruction and full-time academic work, serving students whose TOEFL scores range from 530 to 599. ESL courses are offered to increase proficiency in five skill areas: reading, writing, speaking, pronunciation, and grammar. Each course grants three semester hours of credit, which count toward graduation. Courses are taught by ESL professional staff members and by teaching assistants pursuing advanced degrees in linguistics. Courses taken to meet the College of Liberal Arts English proficiency requirement may not be taken P/N. ESL courses may not be taken S/U.

Iowa Intensive English Program (IIEP)
The HEP primarily serves students who have conditional admission or who have not yet been admitted to the University and whose TOEFL scores are below 530. 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, pronunciation, and speaking are taught each day at all levels—beginning, intermediate, and advanced.

Each student receives twenty 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. Students admitted to the IIEP receive a certificate of eligibility (Form 1-20), which enables them to obtain a student visa at the nearest U.S. consulate. Application materials are available from the ESL Programs Office.

Teaching Assistant Preparation in English (TAPE)
The TAPE program is designed for graduate students whose first language is not English, who need additional work on English communication and classroom presentation techniques, and who will hold teaching assistantships while at The University of Iowa. Only students who need the program and who
have a sufficient competence in English to profit from it are eligible. TAPE courses are open to graduate students who have had the TA certification evaluation and to others if space is available. Instruction is by full-time professional ESL instructors.

**Faeilities**

The Department of Linguistics has limited acoustic equipment consisting of a sound spectrograph, a studio-type tape recorder, and an audiometric chamber. A remote terminal and personal computers are also available to students.

The departmental reading room provides a common meeting place for faculty and students.

Students have considerable influence on departmental affairs and enjoy a high degree of individual instruction.

**Courses**

**Primarily for Undergraduates**

103:00 Cooperative Education Internship 0 s.h.

103:11 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. GER: social sciences.

103:13 Language and Formal Reasoning 3 s.h.
Natural language semantics, with emphasis on formal study of linguistic meaning through logical analysis; meaning in linguistics, logical analysis of predication and quantification, argumentation. GER: quantitative or formal reasoning.

103:15 Elementary Swahili I 4 s.h.
Development of speaking, listening, reading, and writing skills. GER: foreign language. Same as 129:15, 141:15.

103:16 Elementary Swahili II 4 s.h.
Continuation of 103:15. GER: foreign language. Prerequisite: 103:15 or equivalent. Same as 129:16, 141:16.

103:17 Intermediate Swahili I 4 s.h.
GER: foreign language. Prerequisite: 103:16 or equivalent. Same as 129:17, 141:17.

103:18 Intermediate Swahili II 4 s.h.
Continuation of 103:17. GER: foreign language. Prerequisite: 103:17 or equivalent. Same as 129:18, 141:18.

103:25 Elementary Yoruba I 4 s.h.
Development of speaking, listening, reading, and writing skills. GER: foreign language. Same as 129:25, 141:25.

103:26 Elementary Yoruba II 4 s.h.
Continuation of 103:25. GER: foreign language. Prerequisite: 103:25 or equivalent. Same as 129:26, 141:26.

103:27 Intermediate Yoruba I 4 s.h.
Further development of speaking, listening, reading, and writing skills; systematic review and expansion of grammar. GER: foreign language. Prerequisite: 103:26 or equivalent. Same as 129:27, 141:27.

103:28 Intermediate Yoruba II 4 s.h.
GER: foreign language. Prerequisite: 103:27 or equivalent Same as 129:28, 141:28.

103:98 Topics in Linguistics 3 s.h.
Undergraduate Seminar. Consent of instructor required. Maybe repeated.

103:99 Special Project Independent research.

**For Undergraduates and Graduates**

103:100 Introduction to Linguistics 3 s.h.
Variety of topics in general linguistics. Same as RL: 100.

103:104 Varieties of English: Present and Past 3 s.h.
Telecourse broadsides of “The Story of English” examine English as spoken in this country and around the world, origins of English, histories of its different varieties. In cooperation with Iowa Public Television. Same as RL: 104.

103:107 Practicum in Teaching English as a Second Language 3 s.h.
Practical experience under supervision. Consent of instructor required. Prerequisite: 103:145.

103:110 Articulatory and Acoustic Phonetics 3 s.h.
Introduction to articulatory and acoustic phonetics; intensive practice in phonetic transcription.

103:111 Syntactic Analysis 3 s.h.
Introduction to syntax; basic syntactic concepts applied to English and other languages.

103:120 Historical and Comparative Linguistics 3 s.h.
Principles of linguistic change; comparative method and genetic classification of languages; internal reconstruction and language typology. Prerequisite: 103:12 or Same as RL:120.

103:121 Syntactic Theory 3 s.h.
Examination of current generative theory and linguistic argumentation; critical analysis of research. Prerequisite: 103:11.

103:122 Phonological Theory 3 s.h.
Basic issues in generative phonological theory. Prerequisite: 103:12.

103:125 Elementary Swahili I for Graduates 3 s.h.
Same as 129:145, 141:125.

103:126 Elementary Swahili II for Graduates 3 s.h.
Same as 129:146, 141:126.

103:217 Structure of Mayan Languages 3 s.h.
Hearing 3 s.h.

103:231 Topics in Linguistics 3 s.h.
Variety of topics in general linguistics. Same as 8L: 100.

103:234 Introduction to Second Language 3 s.h.
Observations of ESL and intensive English classes at the University design and presentation of short lessons, text evaluation, and demonstrations of innovative approaches of the last decade; materials. Prerequisites: 103:110 and 103:141.

103:250 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. Same as 131:147, 133:173.

103:251 Formalisms 3 s.h.
Basic topics in analyzing argumentation in linguistics (validity, soundness, necessary conditions, sufficient conditions, proof construction); basic mathematics and logic for the analysis of natural languages (propositional and predicate calculus, set theory, axiomatic method, functions, relations, basic automata theory).

103:253 Sociolinguistics 3 s.h.
Theory and methodology of sociolinguistic variation; relationship between language variables and socioeconomic class, sex, ethnicity, geography. Prerequisite: 103:100.

103:256 Philosophy of Language 3 s.h.
Consent of instructor required. Same as 26:189.

103:257 Language and Culture 3 s.h.
Prerequisites: 113:3, and 113:171 or 103:100 or consent of instructor. Same as 113:172.

103:258 Anthropological Linguistics 3 s.h.
Same as 13:77.

103:259 Psychology of Language 3 s.h.
Same as 3:117.

103:260 Applied Linguistics 3 s.h.
Theories of second language acquisition and second language teaching. Prerequisite: 103:100 or equivalent.

103:261 Introduction to Semantics 3 s.h.
Overview of meaning in natural language mapped onto lexical and syntactic structures formal and logical and Set theory; description of truth conditions, compositionality presupposition, definiteness, quantification in natural language. Prerequisite: 103:111 or equivalent.

103:262 Development Language 1-3 s.h.
Prerequisite: 103:172 or 103:100 or consent of instructor. Same as 3:118.

103:277 Basic Neuro Science for Speech and Hearing 3 s.h.
Same as 3:11.

103:281 Structure of Mayan Languages 3 s.h.
Grammatical structure; may include historical, social, cultural perspectives. Consent of instructor required. Same as 113:191.

103:284 Special Projects 3 s.h.
Theoretical and applied topics.

**Primarily for Graduates**

103:200 Prospectus in Linguistics 1 s.h.
Core areas of linguistic analysis (phonology, morphology, syntax, semantics) demonstrating common theoretical base of modern approaches to natural language.

103:210 Linguistic Structures 3 s.h.
Grammatical and/or phonological structure of a selected language or language family. May be repeated with different language. Consent of instructor required.

103:212 Advanced Syntactic Theory 3 s.h.
Recent development in syntax. Nature of linguistic data, argumentation, assumptions. May be repeated. Prerequisite: 103:121.

103:217 Language Universals and Linguistic Typology 3 s.h.
Proposed universal principles of linguistic structure; approaches to classification of languages on the basis of grammatical and phonological structure. Consent of instructor required. Prerequisite: 103:100 or equivalent.

103:218 Psycholinguistics 3 s.h.
Prerequisite: 3:217 or consent of instructor. Same as 3:218.

Same as 113:271.
103:230 Speeds Perception
3 s.h.
Classical, contemporary theories. Perception in auditory, visual, and tactile modalities. Offered fall semesters of even years. Prerequisites: background in phonetics, speech science, and hearing science; or consent of instructor. Same as 3:230.

103:231 History of the German Language
3 s.h.
Same as 3:231.

103:232 History of the Scandinavian Languages
3 s.h.
Same as 3:232.

103:251 Old Norse
3-4 s.h.
Same as 6:190.

103:252 Middle High German
3 s.h.
Same as 11:243.

103:262 Topics in Comparative Romance
3 s.h.
Prerequisite: 35:204 or equivalent. May be repeated. Same as 20:201, 35:202.

103:272 Learning Memory, and Cognition
3 s.h.
Same as 3:225.

103:275 Acoustics and Phonomechanics of Speech
5 s.h.
Prerequisites: 3:112 and 3:219, or consent of instructor. Same as 3:250.

103:272 Physiology of Speech Production
5 s.h.
Prerequisites: 3:112 and 3:219, or consent of instructor. Same as 3:252.

103:300 seminar: Spanish linguistics
3 s.h.
Same as 35:500.

103:312 seminar: Problems in Linguistics
3 s.h.
Intensive study of theoretical and practical problems. May be repeated.

103:320 Seminar: Psycholinguistics
2 s.h.
Consent of instructor required. Same as 3:533.

103:370 Seminar: Speech Science
2 s.h.
May be repeated. Consent of instructor required. Same as 3:532.

103:390 Special Projects
arr.

103:400 Master’s Thesis
arr.

103:450 Ph.D. Thesis
arr.

Special English Courses
For students whose first language is not English. Courses taken to meet the College of Liberal Arts English proficiency requirement may not be taken P/N. ESL courses may not be taken S/U.

103:1 Iowa Intensive English: Communication Skills
0 s.h.
Autographed comprehension, spoken English; American attitudes, values, and customs; information exchange, talking with Americans; cultural differences; beginning, intermediate, advanced. Consent of ESL coordinator required.

103:2 Survival English I
3 s.h.
Language skills for everyday life as the United States; common vocabulary, basic grammar in conversation and listening; for persons whose English is basic. Offered only through Saturday and Evening Class Program. Consent of ESL coordinator required.

103:3 Iowa Intensive English: Reading
0 s.h.
Effective reading: skills and practice of reading strategies using newspapers, popular magazines, schedules, documents, academic textbooks, correspondence, literature; beginning, intermediate, advanced. Consent of ESL coordinator required.

103:4 Iowa Intensive English: Grammar
0 s.h.
Correct use of English grammatical structures; extensive practice to achieve competence in English communication. Beginning, intermediate, advanced. Consent of ESL coordinator required.

103:5 Iowa Intensive English: Writing
0 s.h.
Personal and formal writing, journal entries, letters, critiques, essay exams, short papers involving library use; revising and editing; beginning, intermediate, advanced. Consent of ESL coordinator required.

103:6 TA Preparation in English: Fluency Building
0 s.h.
Pronunciation, conversational fluency, knowledge of American culture. Consent of ESL coordinator required.

103:7 TA Preparation in English: Pronunciation and Oral Skills
0 s.h.
Intensive work toward maximum intelligibility; emphasis on stress, rhythm, intonation. Consent of ESL coordinator required.

103:8 TA Preparation in English: Presentation Skills
0 s.h.
Intelligence (spelling and homonym) of expression in presenting and responding, practice in videotaped lectures; student expectations and classroom management in an American university. Consent of ESL coordinator required.

103:9 TA Preparation in English: Orientation
0 s.h.
Student expectations, types of classroom interaction, basic classroom management in an American university. Consent of ESL coordinator required. Offered only through Saturday and Evening Class Program. Signature of ESL coordinator required.

103:184 English as a Second Language: Conversation Skills
3 s.h.
Speaking skills for the American academic setting and American society. Pronunciation, grammar, and vocabulary; structured opportunities for spoken fluency. TOEFL score of 530 or consent of ESL coordinator required.

103:185 English as a Second Language: Pronunciation and Oral Skills
3 s.h.
Development of pronunciation and oral skills appropriate to formal speaking: diagnostic and correction of persistent pronunciation problems; correct stress, intonation. TOEFL score of 530 or consent of ESL coordinator required.

103:186 English as a Second Language: Grammar
3 s.h.
English structure; troublesome grammar patterns. TOEFL score of 530 or consent of ESL coordinator required.

103:187 English as a Second Language: Writing
3 s.h.
Complex grammatical constructions, discourse considerations, formal vocabulary expected of university students; organization styles, types of argumentation; analytical methods used in academic writing. TOEFL score of 530 or consent of ESL coordinator required.

103:188 English as a Second Language: Listening Comprehension
3 s.h.
Listening skills. TOEFL score of 530 or consent of ESL coordinator required.

103:189 English as a Second Language: Reading and Writing Skills
3 s.h.
Increasing reading speed and comprehension of university level writing and vocabulary; selection, discussion, and note taking assignments to develop critical analysis skills. TOEFL score of 530 or consent of ESL coordinator required.

LITERATURE, SCIENCE, AND THE ARTS

Chair: Alan F. Nagel

Professors: Judith P. Aikin (German), David Baldus (Law), Remi Cadoret (Psychiatry), Richard M. Caplan (Medicine), David Hamilton (English), Nancy Hauserman (Business Administration), Paul Heidger (Anatomy), D. Martin Jenni (Music), David E. Klemm (Business Administration), Paul Heidger (Law), Alan F. Nagel (L. S.A./English), Herrnan Lyne (Communication Studies), Donald McCloskey (History/Economics), James A. McPherson ( Writers’ Workshop), Alan F. Nagel (L. S.A./English), Herman Rapport (English/Comparative Literature), John Reitze (Law), William Reisinger (Political Science), Jon Ringer (L. S.A.), Alan L. Widdowson (Law)

Associate professors: Thomas Christensen (Music), Kenneth J. Cranmer (History), Catherine A. Cole (Marketing), Evan Fales (Philosophy), Alice Filer (Biochemistry), Sabine 1. St. (German/Comparative Literature), Thomas Lutz (English), Jacob Snider (English), John R. Stratton (Sociology), Stephen Z. Wieging (Sociology), Fredrick Woodard (English)

Assistant professors: John B. Harper (English), Frederick C. Moten (English), T.M. Scrase (L.S.A./Music), Donald Thomas (French and Italian) Adjunct assistant professor’s: Sandra Barkan (Comparative Literature), W. Chappell (L. S.A.)

Undergraduate degree: B.A. in Literature, Science, and the Arts

The Interdisciplinary Program in Literature, Science, and the Arts (LSA) is designed to provide elective courses for all upper-level students. The Bachelor of Arts major in LSA offers a liberal education broader than that permitted by the requirements for a major in a single subject area; it emphasizes skills in writing, analytical thinking, and discussion while requiring coordination of courses across the disciplines of the liberal arts.

The LSA major is a general liberal arts bachelors degree. Students completing the major with careful selection of courses may find that it prepares them for graduate study in the professions, or in the humanities or social sciences.

LSA courses are open to juniors, seniors, and graduate students from any department or college. Sophomore students occasionally may be admitted by approval of the instructors. One course, 33:50 Making Choices: Interdisciplinary Perspectives, is open to sophomores and freshmen who have completed the rhetoric requirement.

Courses are small group round-table discussions led by two or more faculty representing different departments and disciplinary perspectives. The topics of these courses engage the special contributions of particular disciplines, while focusing on important problems of value and judgment in our times. Reading lists are chosen from outstanding works of the past and present.

Specific requirements – beyond the general education courses for the B.A. in Literature, Science and the Arts are as follows.

LSA courses
12 s.h.
Natural sciences
12 s.h.
Philosophy, religion, history
12 s.h.
Literature
12 s.h.
Fine arts
3 s.h.
Foreign language: one semester beyond second year
3 s.h.

(Foreign language courses in the original language may also be used to satisfy the requirement in literature.)

Students considering an LSA major should consult with the program chair before the end of their sophomore year.

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 honors, students must have the endorsement of the chair of the Interdisciplinary Program in Literature, Science, and the Arts and meet requirements for the University Honors Program. Honors students submit an honors project to a faculty committee.

COURSES
33:50 Making Choices: Interdisciplinary Perspectives
3 s.h.

interdisciplinary consideration of what we know, what we value, what we hope, what we should do; focus on case studies of private, professional decision making.

33:111 Myth and Reason
2.5 s.h.

Theories of reason and rationality, presumed to govern knowledge, producing disciplines, in relation to myths as stories and explanations; Western and non-Western examples; readings from Sophocles, Euripides Plato, Vico Nietzsche.
33:121 The Good Society 
2-4 s.h.
Life in society and the potentials of human life in society, as seen in works by authors such as Plato, Machiaveli, Shakespeare, Locke, Gibbon, Marx; recent fiction, nonfiction. GER: humanities.

33:122 The Experience of Politics 
2-4 s.h.
Political experience as presented in biographical and autobiographical works.

33:125 Crimes and Punishments 
2-4 s.h.
Society’s varying reactions to crime and punishment as reflected in history, literature, social, and psychological theory.

33:131 The Family in Law and Society 
24 s.h.
Family viewed from multiple perspectives; emphasis on legal and social definitions and functions, historical and cultural varieties of families, imaginative representations in literature.

33:140 Evolution Emerging 
24 s.h.
Concepts, and extensions of evolution, from Darwin to present, in relation to language, philosophy, art, science, cultural values.

33:144 Mind and Behavior 
3 s.h.
Theories of what it is to act and to know, and of what intelligence might be in animals, humans, machines in light of philosophy and psychology. Junior or senior standing or content of instructor’s permission.

33:145 Literature, Music, and Aesthetics 
2-4 s.h.
Interdisciplinary connections between literature and music; attention to specific cultural, ideological contexts. Same as 9: 145, 22: 137.

33:151 Individuals and Institutions 
2-4 s.h.
Relationships between individuals and institutions through outstanding works of literature, social science, and law by authors such as Plato, Sophocles, Burke, de Tocqueville; Nietzsche, Alexander Berkett.

33:152 Values in the Contemporary World 
24 s.h.
Modern problems in definition and choice of values; writings of contemporary ethical theorists, novelists. Same as 33: 149.

33:153 Hard Cases: Science Policy and Values 
3 s.h.
Major studies in practical ethics through difficult case studies in fields such as science, business, politics, medicine; readings in classic authors, such as Plato, Aristotle, Kant, Mill, recent contributions from several disciplines.

33:154 Human Nature and the Impact of Science 
24 s.h.
Relationships of scientific, humanistic, social, religious thought. GER: humanities.

33:155 Risk Technology and the Public 
2-4 s.h.
Place and criticism of risks in society; quantitative risk assessments and public comprehension of them, roles of experts, public interests, readings from literature, politics, readings in classic authors, such as Plato, Aristotle, Kant, Mill, recent contributions from several disciplines.

33:161 Form and Milieu in the Arts 
2-4 s.h.
Interplay between art forms and other cultural patterns, institutions, rituals; close examination of creative and theoretical writings, specific works of music, graphic art; discussions with artists and directors on campus performances. GER: humanities.

33:163 Images of Business in American Literature 
24 s.h.
Representations of business and the lives of people in relation to business economics by nineteenth and twentieth century writers; emphasis on ethical dilemmas, competing economic and other human values.

33:164 Roots of Modern Culture 
2-4 s.h.
Study of changing understandings of modernity in historical and cultural perspectives.

33:165 Culture and Consciousness 
24 s.h.
Normal and abnormal states of consciousness in a variety of cultures, from perspectives of anthropology, philosophy, psychology, religious experience, psychopathology, dreams, trances, altered states.

33:166 Narratives of Detection 
2-4 s.h.
How fictional and scientific narratives illustrate and demonstrate by focusing on select details within established verbal structure; stories, plays, essays; scientific reports, articles, speculations.

33:172 Poetry and Song 
2-4 s.h.
Survey of literature and music across several centuries; comparison of literary and musical forms, historical and cultural contexts of a work’s composition and of its performance style; and evaluation; use and value of the arts.

33:18 special projects
art.

33:191 Independent Study for Honors 
2-4 s.h.

DIVISION OF MATHEMATICAL SCIENCES

The Division of Mathematical Sciences is composed of the Program in Applied Mathematical and Computational Sciences and the Departments of Computer Science, Mathematics, and Statistics and Actuarial Science. For information about these programs, see the appropriate departmental sections.

MATHEMATICS

Chair: Richard Randell
Professor emerita: Marilyn Zweng
Associate professor: Olivier Dhurandhar, Oguz Durumlu, Charles Frohman, Michael A. Geraghty, Margaret Kleinfeld, John P. Ledineg, David Mandenscheid, Walter Seaman, Gerhard Strohmer, Ezo Ventuno, Lihe Wang, Yangbo Ye
Assistant professors: Richard Baker, Weinmin Han, Kathleen O’Hara, Tong Li, Ying-Qing Wu, Rose Zbiek
Assistant professor emerita: Matilde Macagno
Undergraduate degrees: B. A., B.S. in Mathematics; minor in Mathematics.
Graduate degrees: M. S., Ph.D. in Mathematics

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.

Undergraduate Programs

The major in mathematics is designed around a core requirement of courses in calculus, linear algebra, and basic analysis and group theory. Other courses applicable to the major include higher-level courses in pure or applied mathematics as well as specific courses in statistics or computer science. Students are encouraged to pursue interests in the many fields in which mathematics is useful, including natural and social sciences and business.

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 industrial and governmental positions and for college and university teaching and research.

Handbooks for majors are available in the mathematics department office. They contain useful, detailed information about schedule planning and career options.

Bachelor of Arts

Students seeking a B.A. in mathematics must satisfy the requirements of either program A or program B. Program A is intended for students who foresee working in industry, government, or business or who plan to pursue graduate study in mathematics. Program B is primarily for students seeking secondary school teaching licensure. Some restrictions apply in both programs.

Program A Requirements

22 M:25-26 Calculus 1-11 8 s.h.
22 M:35-36 Engineering Calculus 1-11 8 s.h.
22 M:45-46 Accelerated Calculus I-I 8 s.h.
(Advanced placement credit is accepted for all or part of the calculus requirement.)
22 M:27 Introduction to Linear Algebra 4 s.h.
22 M:28 Calculus III 4 s.h.
22 M: 100 Introduction to Ordinary Differential Equations 3 s.h.
22 M:50 Elements of Group Theory 3 s.h.
22 M:55 Fundamental Properties of Spaces and Functions 3 s.h.
Higher-level courses may be substituted for the above, if approved by the Department of Mathematics.

(These courses with appropriate prerequisites and study in mathematics. The computer laboratory sequence 22M:30-32 may count as one of these courses. The following computer science and statistics courses also may be used to fulfill this requirement.)
22 C: 16 Introduction to Programming with Pascal 4 s.h.
22 C:17 Programming Techniques and Data Structures 3 s.h.
22 C:21 Algorithms and Data Structures 3 s.h.
22 C: 135 Introduction to Computation Theory 3 s.h.
22 C: 153 Design and Analysis of Algorithms I 3 s.h.
22 S: 120 Probability and Statistics 4 s.h.
22 S: 133 Quality Control and Engineering Statistics 3 s.h.
22 S: 152 Regression and Design 3 s.h.
22 S: 153 Mathematical Statistics I 3 s.h.
22 S:154 Mathematical Statistics II 3 s.h.
22 S: 155 Regression Analysis 3 s.h.
22 S: 156 Applied Time Series Analysis 3 s.h.
22 S: 164 Introduction to Discrete Probability Models 3 s.h.
22 S: 167 Introduction to Stochastic Processes 3 s.h.
22 S: 180 Mathematical Finance 3 s.h.
22 S: 181 Life Contingencies I 3 s.h.
Total 37-38 s.h.
The program must include a two-semester sequence from Group I, or any two courses chosen from one of the clusters listed in Group II.

### Group I

- 22M:100/140 Introduction to Ordinary Differential Equations/Continuous Mathematical Models
- 22M:100/142 Introduction to Ordinary Differential Equations/Intermediate Differential Equations
- 22M:100/144 Introduction to Ordinary Differential Equations/Introduction to Partial Differential Equations
- 22M:115/116 Introduction to Analysis 1-11
- 22M:120/121 Abstract Algebra I-II
- 22M:27/127 Introduction to Linear Algebra/Matrix Theory
- 22M:123/124 Foundations of Set Theory/Foundations of Logic
- 22M:28/160 Calculus I/Introduction to Differential Geometry I
- 22M:118/119 Complex Variables/Complex Variables: Applications
- 22M:50/120 Elements of Group Theory/Abstract Algebra I
- 22M:70/198 Foundations of Geometry/Undergraduate Seminar
- 22S:153/167 Mathematical Statistics I 3 s.h.
- 22S:155 Regression Analysis 3 s.h.
- 22S:156 Applied Time Series Analysis 3 s.h.
- 22S:164 Introduction to Discrete Mathematics 3 s.h.
- 22S:167 Introduction to Stochastic Processes 3 s.h.

### Group II

- 22M:28/160 Calculus I/Introduction to Differential Geometry I
- 22M:28/160 Calculus I/Introduction to Partial Differential Equations
- 22M:27/127 Introduction to Linear Algebra/Matrix Theory
- 22M:28/160 Calculus I/Introduction to Partial Differential Equations
- 22M:70/198 Foundations of Geometry/Undergraduate Seminar
- 22S:155 Regression Analysis 3 s.h.
- 22S:156 Applied Time Series Analysis 3 s.h.
- 22S:164 Introduction to Discrete Mathematics 3 s.h.
- 22S:167 Introduction to Stochastic Processes 3 s.h.

### Bachelor of Science

#### Program A Requirements

Program A requirements for the B.S. are the same as those for the B.A. program, except that two additional courses in mathematics numbered 22M:107 or higher, excluding 22M:109 and 22M:195, are required. The following computer science and statistics courses also may be used to fulfill this requirement.

- 22C:135 Introduction to Computation Theory 3 s.h.
- 22C:137 Programming Techniques and Data Structures 3 s.h.
- 22C:21 Algorithms and Data Structures 3 s.h.
- 22C:135 Introduction to Computation Theory 3 s.h.
- 22C:153 Design and Analysis of Algorithms I 3 s.h.
- 22S:152 Regression and Design 3 s.h.
- 22S:153 Mathematical Statistics I 3 s.h.
- 22S:154 Mathematical Statistics II 3 s.h.
- 22S:155 Regression Analysis 3 s.h.
- 22S:156 Applied Time Series Analysis 3 s.h.
- 22S:164 Introduction to Discrete Probability Models 3 s.h.
- 22S:167 Introduction to Stochastic Processes 3 s.h.

### Program B Requirements

Program B requirements for the B.S. are the same as those for the B.A. program, except that two additional courses in mathematics numbered 22M:107 or higher, excluding 22M:109, are required. The statistics and computer science courses listed in the program A requirements for the B.S. also may be used to fulfill this requirement.

#### General Education Requirements

Candidates must satisfy the College of Liberal Arts General Education Requirements and are encouraged to select GER courses that use mathematics.

#### Other Requirements

Additional degree requirements concerning grade-point average, and so forth, are discussed in the College of Liberal Arts section of the Catalog.

At least 15 semester hours of post-calculus courses applied toward the major requirements must be taken at The University of Iowa.

#### Double Major in the Division of Mathematical Sciences

Students wishing to combine a degree in mathematics with one in computer science, statistics, or actuarial science must satisfy the requirements of program A or program B. Both degrees must be the same-B.A. or B.S. The College of Liberal Arts requires that students seeking a mathematics double major must earn a minimum of 56 semester hours in courses taken outside the division.

#### Honors

Any undergraduate student with a cumulative grade-point average of 3.20 or higher may join the University Honors Program; interested students should contact the honors office in the Shambaugh House Honors Center. In order to graduate with honors in mathematics, a student must be a member of the College of Liberal Arts Honors Program, must complete the regular requirements for an undergraduate major in mathematics with a grade-point average of at least 3.40, and must complete either an honors project or suitable approved advanced course work. A student planning to do an honors project is responsible for finding a faculty member willing to supervise the project. Students typically register for 22M:197 for at least 3 semester hours. For more information, contact the mathematics department honors adviser.

#### Minor

The minor in mathematics requires:

A minimum of 15 semester hours credit earned in Department of Mathematics courses; at least 12 of these 15 semester hours must be taken at The University of
Iowa in advanced courses; neither transfer credit nor credit by examination is accepted toward the 12 semester hours of advanced work; advanced courses are 22M:27, 22 M:28, and all courses numbered 22M:50 or higher except 22M:81, 22M: 104, 22M: 109, and 22M: 195; a grade-point average of at least 2.00 in all work attempted in the Department of Mathematics. No course counted toward the minor may be taken pass/nonpass.

Graduate Programs

Master of Science

Students earn the M.S. through courses and comprehensive examinations. There is no thesis.

There are four programs leading to an M.S. in mathematics. The requirements (courses and comprehensive examination areas) may be modified with the consent of the department.

Program I

This program prepares students for further study of pure and applied mathematics and for employment in government and industry. Students must take a two-semester sequence in analysis (either 22M: 115-116 or 22 M:210-211); a course in topology (22M: 132); and a two-semester sequence in abstract algebra (either 22M:120- 121 or 22M:205-206). The student must take two comprehensive examinations, one on the analysis and topology sequence and the other on the algebra sequence.

The program requires a minimum of 30 semester hours of graduate credit, including at least 24 semester hours in the following.

Mathematics
Any courses numbered 22M:110 or higher, or equivalent.

Computer Science
22C: 122 Advanced Computer Organization and Architecture
22C: 123 Programming Language Foundations
22C: 135 Introduction to Computation Theory
22C: 145 Artificial Intelligence I
Any courses numbered 22 C:200 or higher

Statistics
22 S:153 Mathematical Statistics I
22 S:154 Mathematical Statistics II
22 S:167 Introduction to Stochastic Processes
Any courses having any of the above three courses as prerequisites
Any course numbered 22 S:200 or higher

Program II

This program is designed for secondary school teachers. The requirements are the same as those in program I or 111, except that two mathematics education courses are required. All mathematics courses numbered 22M: 100 or higher may be used to satisfy the 24-semester-hour requirement. Students are encouraged to consult with mathematics education faculty when planning their courses of study.

Program III

This program focuses on applied mathematics. It requires several courses and two comprehensive examinations, one on differential equations (22M:144, 22M:142) and one on numerical analysis and optimization (22M:170, 22M:171, 22M:174). The required courses are:

22M:144 Introduction to Partial Differential Equations I
22M:142 Intermediate Differential Equations
22M: 140 Continuous Mathematical Models or 22M:151 Discrete Mathematical Models
22M:174 Optimization Techniques
22M:170 Numerical Analysis: Nonlinear Equations and Approximation Theory
22M:171 Numerical Analysis: Differential Equations and Linear Algebra

Two additional courses from the following:

22M:118 Complex Variables
22M:127 Matrix Theory
22M:140 Continuous Mathematical Models
22M:151 Discrete Mathematical Models
22M:152 Theory of Graphs
22C: 116 Advanced Operating Systems
22 C:153 Design and Analysis of Algorithms I
22S:153 Mathematical Statistics I
22 S:154 Mathematical Statistics II
22 S:167 Introduction to Stochastic Processes

The program requires a minimum of 30 semester hours of graduate credit, including at least 24 semester hours of graduate credit, including at least 24 semester hours in the Division of Mathematical Sciences. Students who have courses or experience equivalent to the required courses may request substitute electives.

Program IV

This program is designed for nondepartmental students working toward Ph.D. degrees in areas that require mathematical knowledge. The program has no 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 in mathematics if they have maintained a minimum grade-point average of 3.00 in W mathematics courses taken for the master’s in mathematics and have successfully completed the Ph.D. comprehensive examination in the chosen area.

Students in program IV are assigned a mathematics adviser, who works with them and their major adviser to plan an appropriate curriculum for the master’s in mathematics. A suitable program of study should be approved by a mathematics adviser 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.

Admissions

Admission to an M.S. program (1-111) is based on a combination of undergraduate course work and grades, letters of recommendation, and GRE General Test scores (also TOEFL scores for foreign students). The following guidelines are current although exceptions may be made. Numerical standards are reset every year or two.

Students must have completed work in an undergraduate mathematics program equivalent to the bachelor’s degree offered by the mathematics department. Students whose preparation does not meet this requirement may be admitted conditionally and are asked to take specific courses that cover the deficiency.

Students must have an undergraduate grade-point average of at least 3.20. Relevance and difficulty of courses are considered when evaluating grades; grades of C or lower in mathematics courses need to be balanced by A grades.

Students must submit three letters of recommendation to support their applications.

Students must score at least 650 on the quantitative section of the GRE General Test. Applicants are encouraged to submit scores for the mathematics area examination as well—particularly students who need financial support whose credentials may show weak areas.

Foreign students are required to demonstrate their competence in English. Normally this is done by scoring at least 550 on the TOEFL.

Doctor of Philosophy

The Ph.D. program places strong emphasis on preparation for research and teaching. The department maintains no division between “pure” and “applicable” mathematics. It cooperates in interdisciplinary doctoral programs with the College of Education and the Program in Applied Mathematical Sciences.

A Ph.D. student in mathematics must satisfy the following requirements for course work (credits and breadth), examinations, foreign language, and the Ph.D. thesis.

At least 72 semester hours of graduate credit is required and at least three years of graduate residence, including at least one year at The University of Iowa. While there are no individual required courses, several are designated as preparatory for the Ph.D. comprehensive examination (see below). Students should give these high priority.

To further encourage mathematical breadth, students must earn at least 18 semester hours of graduate credit in regular courses equivalent to or more advanced than the Ph.D. comprehensive examination preparatory courses. The department maintains a list of 200- and 300-level courses that are accepted as well as rules to ensure proper distribution.

The Ph.D. comprehensive examination consists of three parts, each a three-hour written exam. The three areas are chosen by the student from the department’s list of comprehensive examination areas, as follows: at least two of algebra, analysis, logic, and topology; and either
one more of the preceding or partial differential equations.

For each comprehensive area, there is a two-semester, 200-level course sequence designated as preparatory, although exams may differ from course content. The three parts may be taken concurrently (all three over a two-week period) or separately (over two or three different semesters). In the first case, one grade (pass, fail, conditional pass) is given on the whole three-part examination by a committee consisting of six faculty members, two from each area. When the exams are taken separately, the following rules apply: the student receives a grade of pass or fail in each area; a passing grade from each examiner in each area is needed to receive a pass in the Ph.D. comprehensive exam; and a maximum of one failure is allowed in each area.

Candidates also take an oral final examination on their dissertation material.

Candidates 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 mathematics department graduate committee. The demonstration of language competence must take place after the student has enrolled in graduate school.

The most distinctive aspect of a Ph.D. is the thesis. The department expects this to be an original mathematical work comparable in content and writing quality to that found in standard mathematical research journals. The thesis is written under the supervision of a member of the department's faculty and is approved by a committee.

Admission

Admission to the Ph.D. program is based on a combination of undergraduate or graduate course work and grades, letters of recommendation, and Graduate Record Examination scores (also TOEFL scores for foreign students). See the information on admission for the master's programs in this section of the Catalog. The department generally requires stronger grades and scores for doctoral admission: undergraduate or graduate grade-point average of at least 3.40, GRE General Test quantitative score of at least 700, TOEFL score of at least 575. Often new graduate students are admitted as master's candidates even if they intend to go on for a Ph.D.

Courses

Undergraduate: Lower Division

These courses are not open to graduate students except by special arrangement with the department chair.

22M:40 Matrix Algebra for Engineers 2 s.h.

22M:45 Accelerated Calculus 4 s.h.

22M:50 Elements of Group Theory 3 s.h.

22M:55 Fundamental Properties of Spaces and Functions 3 s.h.

22M:61 Calculus I 3 s.h.

22M:62 Calculus II 3 s.h.

22M:63 Calculus III 3 s.h.

22M:64 Calculus IV 3 s.h.

22M:65 Calculus V 3 s.h.

22M:66 Calculus VI 3 s.h.

22M:67 Calculus VII 3 s.h.

22M:68 Calculus VIII 3 s.h.

22M:69 Calculus IX 3 s.h.

22M:70 Foundations of Geometry 3 s.h.

Axiomatic development of common foundations for Euclidean, non-Euclidean geometry; constructions of non-Euclidean models, independence of parallel postulate. Prerequisite: 22M:26 or 22M:46 or equivalent.
Undergraduate: Upper Division

22M:101 Introduction to Ordinary Differential Equations 2.3 s.h.
First order ordinary differential equations; second-order linear differential equations; higher-order linear and matrix differential equations; existence and uniqueness theorems. Prerequisites: 22M:27 and 22M:28, or consent of instructor.

22M:104 Introduction to Matrix Theory 3 s.h.
Matrices, linear transformations, determinants, Hermite form, characteristic roots, applications. Prerequisite: grade standing or consent of instructor.

22M:107 History of Mathematics 3 s.h.
Prerequisites: two semesters of calculus and one semester of linear algebra, or consent of instructor.

22M:108 Philosophy of Mathematics 3 s.h.
Role of formalism, intuitionism, logicism, Platonism in shaping foundations of mathematics; nature of mathematical existence and truth; Gödel's incompleteness theorems; axioms of choice; philosophical differences between various set theories (e.g., Zermelo-Fraenkel, Gödel-Von Neumann), category theory, other valid foundations of mathematics; relationship between mathematics, science. Prerequisites: two semesters of calculus and 22M:27, or consent of instructor.

22M:109 Classical Analysis 3 s.h.
Multivariable calculus, vector functions, line integral, total differentials, gradient, implicit functions, coordinate systems, Taylor's expansion, extrema, multiple integrals, vector fields, surface integrals, Stokes's theorem. Graduate standing or consent of instructor required. Prerequisite: one year of calculus.

22M:115 Introduction to Analysis I 3 s.h.
Sets and functions, sequences and series of real numbers; limits, metric spaces, continuous functions, connectedness, completeness, compactness. Prerequisite: 22M:55 or graduate standing or consent of instructor.

22M:116 Introduction to Analysis II 3 s.h.
Riemann integral, fundamental theorems of calculus, elementary functions, Taylor series, sequences and series of functions, uniform convergence, Picard fixed-point theorem, existence of solutions to differential equations, implicit function theorem. Prerequisite: 22M:115.

22M:118 Complex Variables 3 s.h.
Geometry of complex plane, analytic functions; Cauchy-Goursat theorem; applications; Laurent series, residues, elementary conformal mapping. Prerequisite: 22M:28 or consent of instructor.

22M:119 Complex Variables: Applications 3 s.h.
Conformal mapping and integral transforms [Fourier, Laplace, Mellin, Hankel, and related transforms]; applications to ordinary, partial differential equations. Prerequisites: 22M:118 or consent of instructor.

22M:120 Abstract Algebra I 3 s.h.
Rings and linear algebra; groups with operators, endomorphism rings, polynomial rings, rings with chain conditions, unique factorization, norms, similarity of matrices, determinants, canonical forms. Prerequisite: 22M:50 or consent of instructor.

22M:121 Abstract Algebra II 3 s.h.
Continuation of 22M:120, which is prerequisite.

22M:123 Foundations of Set Theory 3 s.h.
Sets theory as used in abstract mathematics; equivalent forms of axioms of choice, cardinal numbers and their arithmetic, ordinal numbers and transfinite induction. Prerequisites: 22M:50 or 22M:55 or graduate standing or consent of instructor.

22M:124 Foundations of Logic 3 s.h.
Propositional calculus, Boolean algebras, introduction to axiomatic theories. Prerequisite: 22M:50 or 22M:55 or graduate standing or consent of instructor.

22M:126 Abstract Theory of Numbers 2.3 s.h.
Factorization, congruence, Diophantine equations, law of quadratic reciprocity. Prerequisite: 22M:50 or equivalent.

22M:127 Matrix Theory 3 s.h.
Vector spaces, linear transformations, matrices, equivalence of matrices, eigenvalues and eigenvectors, canonical form, similarity, orthogonal transformations, bilinear and quadratic forms. Prerequisite: 22M:27 or 22M:40 or 22M:104.

22M:130 Elementary Topology I 3 s.h.
Introduction to topological Euclidean spaces and manifolds; emphasis on basic facts (disks, spheres, annuli, Cantor sets) in dimensions 1, 2, 3; continuous maps homomorphisms and embedding; connectedness and paths; convergence and compactness; manifolds, homotopy, contractible sets. Browder fixed-point theorem, covering spaces. Prerequisite: 22M:55 or consent of instructor.

22M:132 General Topology 3 s.h.
Basic concepts of general topological spaces and continuous functions: topological structures defined via bases, subspaces, products, quotients, spaces of functions; compactness, connectedness, countability, separation properties; Urysohn's Lemma, applications to metrication and extensions of maps; infinite products and Tychonoff theorem; complete metric spaces; nets on function spaces; on ultrafilters. Prerequisite: 22M:115 or 22M:130 or graduate standing.

22M:140 Continuous Mathematical Models 3 s.h.
Building and analyzing mathematical models involving differential equations; specific problems from engineering and the sciences; modeling project. Prerequisite: 22M:100 or consent of instructor.

22M:142 Intermediate Differential Equations 3 s.h.

22M:144 Introduction to Partial Differential Equations I 2-3 s.h.
Basic concepts, elementary solution methods; first-order equations; linear second-order equations of elliptic, parabolic, hyperbolic type; separation of variables. Prerequisite: 22M:100 or equivalent.

22M:145 Introduction to Partial Differential Equations II 3 s.h.
Explicit techniques, topics such as Fourier series and expansions, Sturm-Liouville theory, complex variable methods, Fourier and Laplace transforms, approximation methods. Prerequisite: 22M:144 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:27 or equivalent.

22M:152 Theory of Graphs 3 s.h.
Same as 22C:167.

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. Prerequisite: 22M:55 or 22M:100 or consent of instructor.

22M:161 Introduction to Differential Geometry II 11 3 s.h.
May include Riemannian symmetry theory, minimal surfaces, connections, elementary Lie groups, relativity. Prerequisite: 22M:160 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:27 and 22M:28, or 22M:40 and 22M:42, or consent of instructor; and knowledge of computer programming.

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:28 or 22M:41 or consent of instructor; and knowledge of computer programming.

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. Prerequisite: 22M:100 or equivalent.

22M:175 Finite Difference Method for Partial Differential Equations 3 s.h.
Solutions of definite difference schemes, iteration methods, splitting methods; stability, convergence, error estimates; numerical solution of partial differential equations of elliptic, parabolic, hyperbolic, or mixed type. Prerequisite: 22M:170 and 22M:171, or consent of instructor.

22M:176 Finite Element Method for Partial Differential Equations 3 s.h.
Conformal principle, finite element subspaces; p, h, p-interpolations; convergence analysis; shape functions, computation of stiffness matrices and load vectors; the effect of numerical integrations, possible error control, adaptivity. Prerequisites: 22M:170 and 22M:171, or consent of instructor.

22M:178 Parallel and Vector Algorithms in Scientific Computing 3 s.h.
Current implementations of basic linear algebra techniques on selected parallel and vector machines with applications to numerical solution of (partial) differential equations; parallel processing experience on Encore Maxima, Alliant FX8 machines at High Speed Computing Facility. Prerequisites: course in parallel programming and 22M:171, or consent of instructor.

22M:195 Current Issues in Mathematics Education 2-3 s.h.
Philosophy and objectives, curricular problems, review and evaluation of current literature, special methods. Consent of instructor required. Same as 7E:235, 7S:235.

22M:196 Topics in Mathematics arr.
Consent of instructor required.

22M:197 Individual Study and Honors in Mathematics arr.
Consent of advisor required.

22M:198 Undergraduate Seminar 2-3 s.h.
Senior standing, major in mathematics, and consent of instructor required.

22M:199 Readings in Mathematics 2-3 s.h.
Consent of department chair required.

Core Graduate Courses

22M:200 Introduction to Differential Topology 3 s.h.
Manifolds, functions; tangent bundles, transversality, submanifolds, tubular neighborhoods, normal bundles, vector fields, degree and intersection theory, fixed-point theory, Morse theory. Prerequisite: 22M:132 or equivalent.

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.

22M:203 Topology of Manifolds 3 s.h.
Embedding, knotting, immersions; isotopy, homotopy, regular neighborhoods, engulfing, surgery, cobordism; three-, four-, and higher-dimensional manifolds. Prerequisite: 22M:200 and 22 M:201, 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 consent of instructor.

22M:206 Introduction to Algebra II 3 s.h.
Continuation of 22M:205, which is prerequisite.

22M:210 Analysis I 3 s.h.
Lebesque measure and integral, fundamental theorem of calculus, abstract measures and integration, Fubini's theorem, Radon-Nikodým theorem, Riesz representation theorem, L-p spaces. Prerequisite: 22M:116 or equivalent.

22M:211 Analysis II 3 s.h.
Hilbert space, Banach space techniques; Hilbert-Banach theorem, open mapping theorem, principle of uniform boundedness; reflexivity, H-spaces, Paley-Wiener theorem, space of functions analytic in the open unit disk. Prerequisites: 22M:118 and 22M:210, or equivalent.
22M:213 Ordinary Differential Equations 1 3 s.h.
Existence, uniqueness, continuous dependence of solutions to initial value problems, autonomous systems; Focus care Bender theory, linear systems and linearizations; perturbation, periodic solutions, bifurcation; comparison and oscillation theorems; auxiliary value problems. Prerequisite: 22M.16 or equivalent.

22M:214 Ordinary Differential Equations II 3 s.h.
Continuation of 22M.213.

22M:216 Partial Differential Equations 3 s.h.
Elliptic equations; parabolic, theory; maximum, principle; a priori estimates; 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.16 or consent of instructor.

22M:217 Partial Differential Equations 3 s.h.
Continuation of 22M.216.

22M:220 Introduction to Mathematical Logic 1 3 s.h.
Propositional calculus, first order predicate calculus; completeness theorems, formal elementary number theory, Gödel incompleteness theorems. Grade standing or consent of instructor required.

22M:221 Introduction to Mathematical Logic II 3 s.h.
Formal number theory, arithmetic hierarchy, Post theorem, formal recursive functions, Turing machines, Thue systems, word problems. Prerequisite: 22M.220.

22M:260 Differential Geometry I 3 s.h.
Singular homology and cohomology, axioms for homology and cohomology, duality theorems in manifolds, homotopy groups, Hurewicz theorem. Prerequisite: 22M.201 or equivalent.

22M:261 Differential Geometry II 3 s.h.
Continuation of 22M.260. Prerequisite: 22M.260 or consent of instructor.

22M:270 Abstract Numerical Analysis 3 s.h.
Abstract framework for numerical analysis of integral, differential equations; Banach, Hilbert spaces, linear, nonlinear operators; Galerkin collocation, other numerical procedures for solving linear, nonlinear equations. Prerequisites: 22M:115/116 and 22M:170/171, or consent of instructor.

22M:303 Topics in Analysis 2-3 s.h.
Measure theory, integration, general topology. Maybe repeated. Consent of instructor required.

22M:305 Topics in Topology 2-3 s.h.
May include homotopy topology, theory of m-manifolds, 4-manifolds, or higher-dimensional manifolds, knotting and embedding problems, fiber bundles and characteristic classes. K-theory, m-manifolds, m-dimensional manifolds. May be repeated. Consent of instructor required.

22M:313 Functional Analysis I 3 s.h.
Locally convex topological vector spaces, duality, tensor products and nuclear spaces; Krein-Milman theorem, Choquet's theory, geometry of Banach spaces, nonlinear functional analysis, operators on Hilbert spaces, spectrum theory, algebras of operators. Prerequisite: 22M.211 or equivalent.

22M:314 Functional Analysis II 3 s.h.
Continuation of 22M.313. Prerequisite: 22M.313 or equivalent.

22M:320 Topics in Ordinary Differential Equations 2-3 s.h.
Prerequisite: 22M.213 or consent of instructor.

22M:321 Topics in Applied Mathematics arr.
Application of mathematics to other disciplines. Consent of instructor required.

22M:324 Topics in Partial Differential Equations 2-3 s.h.
Consent of instructor required.

22M:328 Topics in Logic Theory of models, recursive functions, sets, deduction. Prerequisite: 22M:321 or consent of instructor.

22M:330 Topics in Algebra Algebraic number theory, groups, representation rings, algebras, ideal theory, lattice theory. Prerequisite: 22M.206 or consent of instructor.

22M:335 Topics in Ring Theory 3 s.h.
Theory of commutative and noncommutative rings and their categories of modules. Prerequisite: 22M.206 or consent of instructor.

22M:340 Homological Algebra 3 s.h.
Modules, tensor products, groups of homomorphisms, categories, functors, homology, monomorphism, projective and injective modules, derived functors, torsion and extension functors, homological dimension. Prerequisite: 22M.206 or equivalent.

22M:352 Theory of probability 1 3 s.h.
Martingale theory, weak convergence of probability measures, applications to stochastic processes and statistics. Prerequisite: 22M.204. Same as 22M.206.

22M:360 Topics in Differential Geometry 3 s.h.
Hodge decomposition theorem for elliptic operators on vector bundles over manifolds, the heat equation in this setting, applications to global geometry and topology. May include additional topics in global Riemannian geometry, index theory. Consent of instructor required.

22M:371 Topics in Numerical Analysis 3 s.h.
Prerequisite: 22M.170/171 or consent of instructor.

22M:386 Seminar in Undergraduate Mathematics Education arr.
Various topics in teaching, learning, curriculum; philosophy, objectives, strategies, methods; use of technology, group learning, project, discovery method, multiple approaches, other current issues. May be repeated. Consent of instructor required.


22M:388 Seminar in Nonassociative Rings Consent of instructor required.

22M:389 Seminar: Algebra Consent of instructor required.

22M:390 Seminar: Operator Theory Consent of instructor required.

22M:391 Seminar: Logic and Foundations of Mathematics Consent of instructor required.

22M:392 Seminar: Topology Consent of instructor required.

22M:393 Seminar: Mathematical Physics Consent of instructor required.

22M:394 Seminar: Mathematical Biology Consent of instructor required.

22M:395 Seminar: Analysis Consent of instructor required.

22M:396 Seminar: Functional Analysis Consent of instructor required.

22M:397 Seminar: Partial Differential Equations Consent of instructor required.

22M:398 Seminar: Numerical Analysis Consent of instructor required.

22M:399 Reading Research Consent of instructor required.

**MICROBIOLOGY**

Head: Michael A. Apicella
Professors: Michael A. Apicella, Robert F. Adam
(Internal Medicine), Steven Clegg, John E. Butler, John Cazin, Jr., Charles D. Cox, Lisa Daniels, Michael G. Feiss, Rudolph P. Galask (Obstetrics and Gynecology), David T. Gibson (Biocatalysis Professor), E. Peter Greenberg, Charles Grose (Pediatrics), Louis G. Hofmann, William Johnson, John D. Kemp (Pathology), David M. Lubaroff (Urology), Richard G. Lynch (Pathology), Allen J. Markovetz, Stanley Pettit (Pediatrics), Erich W. Six, Donald P. Stahly, George V. Stauffer, Mark F. Stinski, C. Martin Stoltzfus

Associate professors: Gail A. Bishop (Internal Medicine), Morris O. Dailey (Pathology), Caroline S. Harwood, Jose E. Rodriguez, Mary E. Wilson (Internal Medicine)

Associate professors emeriti: Robert L. Richardson, Donald H. Walker, Jr.

Assistant professors: John T. Hartley, Bradley D. Jones, Richard J. Roller

Undergraduate degree: B.S. in Microbiology; minor in Microbiology.

Graduate degrees: M.S., Ph.D. in Microbiology

Microbiology is the branch of biological sciences that deals with the smallest living things: bacteria, fungi, algae, prototoxs, 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 fraction of contemporary biochemical research employs microbiological and immunological methods.

Some research areas in which both practical and theoretical advances are occurring include the study of microbial species and viruses that infect animals, including man, plants, and other microbes; the use of 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 stabilizing 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 selection and culture of hybrid cell lines able to produce antibodies of single type (monoclonal antibodies).

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. For the graduate with a bachelor’s degree in microbiology, positions are available in government, hospitals, public health laboratories, research laboratories, and industrial laboratories (food, dairy, chemical, pharmaceutical, and genetic engineering companies).

Students who continue beyond the bachelor’s degree have more advanced career opportunities in these same areas as well as college and university teaching.

**Undergraduate Program**

The College of Liberal Arts administers undergraduate programs and grants undergraduate degrees in microbiology. See the College of Liberal Arts introductory section of the Catalog for general information about undergraduate study at the University.

**Bachelor of Science**

Undergraduate students majoring in microbiology at The University of Iowa must meet the General Education Requirements of the College of Liberal Arts. They must complete a minimum of 21 semester hours in microbiology to obtain a B.S. degree. No more
than 2 semester hours of 61:161, 61:171, or 61:172, and 1 semester hour of 61:163 may be counted. Students may count 61:218 and 61:220 toward this requirement only once.

Students who want to apply for certification by the National Registry of Microbiologists are required to earn 30 semester hours of credit in biological sciences, 20 of which must be in microbiology. Certification is required for employment or advancement in some areas, primarily in diagnostic microbiology.

Students may take microbiology courses more advanced than 61:157 General Microbiology only if they receive a grade of C or above in 61:157. Mathematics and science courses required by the department for the B.S. degree must be taken for letter grades.

Microbiology Seminar (61:163) should be taken for credit only once during the senior year. Students are encouraged to take the course for O semester hours credit during other semesters after they have taken 61:157.

Microbiology majors must take the following courses in addition to required microbiology courses.

- 4:13 Principles of Chemistry I 3 s.h.
- 4:14 Principles of Chemistry II 3 s.h.
- 4:16 Principles of Chemistry Lab I 2 s.h.
- 4:121 Organic Chemistry I 3 s.h.
- 4:122 Organic Chemistry II 3 s.h.
- 4:141 Organic Chemistry Laboratory 3 s.h.
- 61:120 Biochemistry and Molecular Biology I 4 s.h.
- 61:130 Biochemistry and Molecular Biology II 4 s.h.
- 22M:16 Calculus for the Biological Sciences 4 s.h.
- or 22M:25 Calculus I 4 s.h.
- or 22M:35 Engineering Calculus I 4 s.h.
- or *2:10-11 Principles of Biology 1-II 8 s.h.
- 29:11-12 College Physics 8 s.h.

*Students who completed 2:3 Principles of Animal Biology may use that class instead of 2:10-1 I if they declare a microbiology major by the first day of class fall 1996.

Recommended courses include the following.

- 8W: 100 Nonfiction Writing 3 s.h.
- or 8W: 112 Writing for the Sciences 3 s.h.
- 22C:7 Introduction to Computing with FORTRAN 3 s.h.
- or 22C:16 Introduction to Programming with Pascal 4 s.h.
- and 22C:17 Programming Techniques and Data Structures 3 s.h.

Honors

The honors program is open to juniors and seniors who have a grade-point average of at least 3.20 overall and 3.20 in microbiology courses. The program requires 25 semester hours of course work in microbiology, including 6 semester hours in 61:171-172 Honors Microbiology. These two courses constitute an introduction to experimental research. At the end of the research, students present a written report. Students who successfully complete these requirements receive the B.S. degree with honors.

Minor

An undergraduate minor in microbiology requires at least 15 semester hours of credit in microbiology courses with a minimum grade-point average of 2.00. Of these 15 semester hours, at least 12 must be taken at The University of Iowa in courses numbered 61:103 and above.

Graduate Programs

The College of Medicine administers graduate programs in microbiology; graduate degrees are granted through the Graduate College. See the College of Medicine introductory section and the Graduate College section of the Catalog for general information about study in medicine and graduate study at the University.

The objectives of the graduate programs in microbiology are to help students become highly qualified in research and in teaching of microbiology.

Five areas are included in the program: pathogenic bacteriology, microbial genetics, immunology, microbial physiology, and animal virology. Several of these specialized areas involve interdisciplinary training both within and outside of the department, so students receive broad experience during their course of study. An interdisciplinary Ph.D. program in Immunology is also available.

Students working for the Ph.D. may obtain an M.S. during their graduate work or proceed directly toward the Ph.D.

All students admitted as candidates for advanced degrees are expected to assist in departmental teaching.

Incoming students choose a research supervisor who serves as chair of their advisory committee. This committee assists students in planning a program of study and, from time to time, reviews students’ progress.

The department cooperates with other departments in the various colleges on campus, affording ample opportunity for students to avail themselves of diverse course offerings, seminars, and research programs. For example, courses and seminars in clinical laboratory microbiology, immunology, genetics, cellular and molecular biology, biocatalysis/biotechnology, and electron microscopy are taught on an interdisciplinary basis.

Master of Science

Candidates for the M.S. are required to take a minimum of 12 semester hours of microbiology courses in three of the five different subdiscipline available in microbiology. Students may substitute a course taken previously (at The University of Iowa or elsewhere) for the course requirements, upon obtaining approval from the M.S. committee. Additional course requirements or selections 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.

Doctor of Philosophy

The minimum course requirements for the Ph.D. are one course in each of four subdiscipline (of the five subdiscipline available in microbiology) or 15 semester hours of course work in two different areas. Students may substitute a course taken previously (at The University of Iowa or elsewhere) for the course requirements, upon obtaining approval from the Ph.D. committee. Students also must pass a comprehensive examination and write a thesis based on their own research. The thesis must be defended satisfactorily in an oral examination.

Admission

Prospective graduate students should become familiar with the general admission requirements of the Graduate College. Departmental requirements include a review and formal vote by the faculty before students are admitted. Before beginning graduate work, students must have completed courses in biological sciences, chemistry (organic and inorganic), mathematics including calculus, and physics. Students admitted without the above course work must take it during the first year of graduate school. Students should have at least a 2.70 grade-point average to be admitted to the graduate program in microbiology. Preference is given to students applying for the Ph.D. program.

Facilities

The department shares the Bowen Science Building with the Departments of Anatomy, Biochemistry, Pharmacology, and Physiology and Biophysics. Laboratory space and modern equipment are available for teaching and research.

Courses

61:100 Cooperative Education Internship 0 s.h.
61:103 Medical Microbiology 4 s.h.
61:107 Medical Microbiology Principles, methods essential to study of microorganisms, their interaction and identification; microorganisms involved in infectious diseases; current concepts of immunology. Open only to College of Medicine students or to others with consent of course director.
61:112 Health sciences Microbiology 4 s.h.
Medical microbiology: bacteriology, immunology, pathogenic bacteriology, virology, mycology, parasitology. Open only to dental, physician assistant, and pharmacy students.
61:147 Survey of Immunology 4 s.h.
Fundamentals of cellular and molecular immunology, their application to clinical problems; participation by faculty from microbiology, internal medicine, pathology, urology. Prerequisite: 61:157 with a grade of C or higher or an introduction course in biochemistry. Same as 78:251.
61:157 General Microbiology 5 s.h.
Principles of microbial diversity, microbial genetics, physiology and metabolism, pathogenic microbiology, virology, immunology, industrial and environmental microbiology. Laboratory emphasis on basic techniques. Prerequisites: 2:10 and 2:11. Corequisites: 4:121.
Military Science (Army ROTC)  Liberal Arts  181

61:159 Pathogenic Bacteriology 5 s.h.
Pathogenic bacteria, with emphasis on mechanisms of pathogenicity. Laboratory methods for isolation, identification, and characterization of bacteria. Consent of instructor required. Prerequisite: 61:157 with a grade of C or higher.

61:160 Microbial Physiology 3 s.h.
Microbial cell structure and function, growth, energy metabolism, biosynthesis, and intracellular processes. Laboratory supplement in 61:180. Prerequisites: 61:157 with a grade of C or higher and a Stoichiometry course.

61:161 Problems in Microbiology and Research Under faculty supervision. Undergraduate major and consent of instructor required. Prerequisite: 61:157 with a grade of C or higher.

61:163 Seminar: Microbiology 1 s.h.
Current topics in microbiology. Prerequisite: 61:157 with a grade of C or higher.

61:164 Microbiology 4 s.h.
Emphasis on medical microbiology, principles of immunology, and methods of tissue preparation for transmission electron microscopy. Sophomore pre nursing standing or consent of instructor required.

61:165 Clinical Laboratory Microbiology 3 s.h.
Fundamentals of laboratory procedures in isolating, identifying bacteria and fungi from clinical materials. Consent of instructor required. Prerequisite: 61:159.

61:166 Clinical Laboratory Virology 3 s.h.
Fundamentals, practical training in viral isolation, laboratory diagnosis of viral infections, and virologic techniques. Consent of instructor required. Prerequisite: 61:157 with a grade of C or higher.

61:167 Advanced Immunology 3 s.h.
Integration of concepts in cellular and molecular immunology, with emphasis on the laboratory diagnosis of viral infections, and virologic techniques. Consent of instructor required. Prerequisite: 61:157 with a grade of C or higher.

61:168 Introduction to Animal Viruses 4 s.h.
Lecture and laboratory course designed for undergraduate students majoring in a biological science. Basic physical chemical, biological properties of animal viruses, their association with human disease; laboratory emphasis on methods in basic scientific laboratory virology. Consent of instructor required. Prerequisite: 61:157 with a grade of C or higher.

61:169 Medical Mycology 4 s.h.
Same as 2:137.

61:170 Microbial Genetics 3 s.h.
Genetics of bacteria, bacteriophages, laboratory supplement in 61:175. Prerequisite: 61:157 with a grade of C or higher or consent of instructor.

61:171 Honors Microbiology 3 s.h.
Prerequisites: 61:103 or 61:147. Consent of instructor required. Prerequisite: 61:157 with a grade of C or higher.

61:173 Microbial Genetics Laboratory 2 s.h.

61:179 Bacterial Diversity 4 s.h.
Isolation, cultivation of bacteria from a variety of habitats, physiological, genetic characteristics of bacterial groups. Consent of instructor required. Prerequisite: 61:157 with a grade of C or higher.

61:160 Microbial Physiology Laboratory 2 s.h.

61:207 Advanced Topics in Immunology 2 s.h.
Lecture: Skill in scientific presentation. Consent of instructor required. Prerequisites: 61:147 or equivalent.

61:215 Genetics Seminar 0-2 s.h.

61:217 Immunology Research Seminar 1 s.h.
Current topics in immunologic research.

61:218 Electron Microscopy Techniques 3 s.h.
Methods of tissue preparation for transmission, scanning electron microscopy; fixation, embedding, ultra thin sectioning and staining; theory, use, maintenance of electron microscopes; associated photographic techniques advanced techniques such as immunofluorescence, freeze fracture. Consent of instructor required. Prerequisite: one course in a biological science. Same as 2:218, 60:218.

61:220 Advanced Electron Microscopy 3 s.h.
Individually designed projects, library searches, seminars, and workshop participation. Consent of Instructor required. Prerequisite: completion of introductory EM course. Same as 2:220, 60:220.

61:259 Molecular Biology of Bacterial Pathogenesis 3 s.h.
Molecular mechanisms of microbial virulence factors, including genetic regulation of virulence factors. Consent of instructor required. Prerequisite: 61:170 or permission of the instructor.

61:261 Research: Microbiology 3 s.h.
Open only to advanced degree candidates in microbiology. Consent of instructor required.

61:263 Graduate Student Research Seminar 1 s.h.
Presentation of thesis work in progress. Open only to microbiology graduate students.

23:91 The Profession of Arms 1 s.h.
23:92 The Military in a Modern Society 1 s.h.
23:93 Military Survival Skills 2 s.h.
23:94 Principles of Modern Warfare 2 s.h.

The basic course requirements may be taken over a one-year period or during a six-week paid camp during the summer. Students with prior military training may be exempt from the basic course requirements.

ADDITIONAL COURSE WORK

Students desiring a commission must complete one course from each of the following categories. These courses may be the same as those used to satisfy the College of Liberal Arts General Education Requirements.

Written Communications
10:2 Rhetoric I 4 s.h.
10:3 Accelerated Rhetoric (or equivalent) 4 s.h.

Human Behavior
26:61 Introduction to Philosophy 3 s.h.
26:102 Introduction to Ethics 3 s.h.
30:1 Introduction to American Politics 3 s.h.
31:1 Elementary Psychology 3 s.h.
32:2 Religion and Society 3 s.h.
34:1 Introduction to Sociology: Principles 3 s.h.
45:1 American Values 3 s.h.
113:3 Introduction to the Study of Culture and Society 4 s.h.
113:10 Anthropology and Contemporary World Problems 3 s.h.

Math Reasoning
7P:25 Elementary Statistics and Inference 3 s.h.
Courses

23:90 Leadership Laboratory 0 s.h.
Military skills and application of leadership; focus on improving cadets’ abilities to perform as officers.

23:91 The Profession of Arms 1 s.h.
Officership in the military as a profession; organization of the military basic customs, traditions; officer branches of the Army. Offered fall and spring semesters.

23:92 The Military in a Modern Society 1 s.h.
The military and how its global involvement affects foreign policy; NATO and U.N. organizations; role of strategic balance in ensuring national security; fundamental leadership principles. Offered spring semesters.

23:93 Military Survival Skills 2 s.h.
Practical fieldcraft skills including land navigation, basic survival techniques, first aid, communication procedures. Offered fall and spring semesters. Prerequisites: 23:91 and 23:92, or consent of instructor.

23:94 Principles of Modern Warfare 2 s.h.
Practices of military doctrine and leadership; current uses affecting military operations worldwide, peacekeeping role of the military, and principles of warfare; leadership assessment and examination of leadership characteristics. Offered spring semesters. Prerequisite: 23:93 or consent of instructor.

23:95 Advanced Military Fitness Training 1 s.h.
Aerobics and strength training and endurance, flexibility, and nutrition; exercise and classroom instruction; developed around Army physical fitness training program. Offered fall and spring semesters.


23:116 Challenges of Leadership 3 s.h.
Organizational leadership; emphasis on maximizing performance, motivation, delegation of authority, and responsibility; decision in professional ethics, counseling techniques. Offered fall semesters. Consent of instructor required. Prerequisite: completion of basic COURSE requirement.

23:117 Small Unit Tactics 3 s.h.
Detailed fundamentals of military planning and preparation of military operations, terrain, and tactics; instruction in land navigation, drill and ceremonies, radio communications, and physical training; includes field exercises during weekends. Offered spring semesters. Prerequisite: 23:116 or consent of instructor.

23:118 Military Management 3 s.h.
Leadership and management in large organizations; analysis of military personnel, logistics, and training systems; military justice system. Offered fall semesters. Prerequisite: 23:117 or consent of instructor.

23:119 Service Orientation 3 s.h.
Culminating course that integrates all previous leadership instruction in preparation for role as Army officer; logistics, personnel administration, training, and professional development. Offered spring semesters. Prerequisite: 23:118 or consent of instructor.

23:121 Readings in Contemporary Military Issues 1-3 s.h.
Independent study to meet specific program requirements; topics based on student’s needs; semester basis hours based on research required. May be repeated. Consent of instructor required.

Molecular Biology

Graduate degree: Ph.D. in Molecular Biology

The Molecular Biology Ph.D. Program is an interdepartmental program involving members of the Departments of Biochemistry, Biological Sciences, Internal Medicine, Microbiology, Pathology, Pediatrics, Pharmacology, and Physiology and Biophysics. See “Molecular Biology” in the College of Medicine section of the Catalog for a list of participating faculty members, degree requirements, and courses.
pre-Columbian and nineteenth- and twentieth-century art. The historic building that was Iowa’s first territorial and state capital from 1842 to 1857 has become the Old Capitol Museum. The University Hospitals and Clinics houses the Medical Museum, with artifacts and displays on the history of medicine. Not only are these resources important to the museum student, they enrich campus life by providing added dimension to the learning experience.

Courses

24:000 Cooperative Education Internship 0 s.h.
24:102 Introduction to Museology 3 s.h. History, philosophy, organization programs of various kinds of museums and related cultural institutions; emphasis on American museums. GER: Humanities. Same as 28: 102, 97: 115, 113; 103, 79:12.
24:104 Principles of Exhibit Design 2 s.h. Conceptual design and execution of museum exhibits and galleries, including planning and drafting; uses of space, objects, composition, color, graphics, lighting, typography; evaluation strategies. Prerequisite: 24: 102 or consent of instructor.
24:106 Museum Laboratory Methods 2 s.h. Techniques used in preparation of classroom teaching materials and museum exhibit accessories; instruction in various casting processes and other laboratory methods. May be repeated.
24:113 Introduction to Conservation of Museum Objects 2 s.h. Theory and methods of museum conservation of objects and museum exhibit accessories; instruction in various casting molds, making and modeling procedures used in replication or presentation of artifacts. (Museum History, geological, or biological materials. May be repeated.
24:120 Collection Care and Management 2 s.h. Relationship of a museum’s management policy to its administrative, legal, and ethical obligation to its collections; acquisitions, deacquisitions, collection size, data standards, storage environment, health, safety, documentation. Same as 12-12.
24:146 Description and Organization of Material 3 s.h. Theory and methods of museum conservation of collections. Handling, exhibition, preparation; emphasis on composition of museum objects and how objects react within their exhibition and storage environment.
24:150 Directed Studies and Projects 3 s.h. Advanced readings in historical, development, educational philosophy, programs, and operations of museums; directed study. Individual projects coordinated with programs, exhibits, or collections of campus and area museums. May be repeated. Prerequisites: 24: 102 and 24: 104.
24:151 Directed Studies and Projects 3 s.h. Continuation of 24:150; may be taken as independent unit. May be repeated. Prerequisites: 24:102 and 24:104.
24:180 Museum Internship 3 s.h. Practical working experience designed to introduce the intern to functions, departments, programs of sponsoring museum and to relate the experience to the museum’s overall mission and to the museum field in general. Consent of museum studies faculty and sponsoring museum required.

Music

Director: David Nelson
Associate directors: Don Coffman, Delbert Disselhorst, John Hill
Adjunct professor: Roger Mather

Associate professors: Elizabeth Aubrey, Richard J. Bloesch, Thomas Christensen, Katherine Eberle, Michael Eckert, Diana Gannett, David K. Gompper, Don R. Haines, George K. Scott McCoy, Maurita Murphy Mead, Kenneth Phillips, John Rapson, Kristin Thelander, Carol Thomas, Uriel Teacher, Robert Yeats
Assistant professors: Don Coffman, David Henning, Rene Lecuna, Daniel Shapiro, Mark Weiger
Adjunct assistant professor: Darlene Lawrence
Adjunct instructor: Barbara Dean

Undergraduate degrees: B.A. in Music; B. M.; minor in Music
Graduate degrees: M.A., M. F.A., Ph.D. in Music; D.M.A.

A primary degree in a fine arts community of international repute, The University of Iowa School of Music 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 500 students majoring in music 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. Faculty ensembles in residence include the Stadivar String Quartet, the Iowa Woodwind Quintet, and the Iowa Brass Quintet. 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 non-majors, the opportunity for further study of music. The graduate curricula are designed primarily as preparation for teaching in secondary schools, colleges, and universities and for careers in performance.

The school is a charter member of the National Association of Schools of Music.

Bachelor of Music

GENERAL COURSE REQUIREMENTS

All baccalaureate candidates in music must satisfy the College of Liberal Arts General Education Requirements, except that B.M. candidates may waive the historical perspectives requirement. The following School of Music course requirements also must be met.

25:1 Fundamental of Music for Majors, or the successful completion of the undergraduate theory examination 3 s.h.
25:5 Musicianship and Theory I-IV 16 s.h.
25:71-72 Group Instruction in Piano I-II or the successful completion of proficiency exams I and II 2 s.h.

(Registration in Group Instruction in Piano I-II is corequisite with 25:2-3 Musicianship and Theory I and II, unless exempted by proficiency exam, which students must take while enrolled in 25:1-2. Transfer students should complete this requirement in their first year of residence, unless exempted by proficiency exam.)

25:74 Recital Attendance 7 s.h.

(Seven semesters are required for all candidates for the B.M. degree, 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.)

25:107 Techniques of Conducting 2 s.h.
25:144 History of Music I 3 s.h.
25:146 History of Music II 3 s.h.
25:154 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” in this section of the Catalog. Music therapy students may complete either a senior recital or a senior research project. Composition and music history majors substitute 25:99 Bachelor’s Thesis for the senior recital.)

At least four semester hours of electives from the following. (The combination of courses 25:145 and 25:147 or more than one course chosen from 25:101, 25:102, 25:243, and 25:244 does not fulfill this requirement.)

25:117 Arranging for Band 2 s.h.
25:18 Jazz Composition and Arranging I 2 s.h.
25:155 Composition 2 s.h.
25:145 Counterpoint before 1600 or 1680 3 s.h.
25:147 Counterpoint after 1600 3 s.h.
25:148 Analysis of Music Literature 1600-1750 3 s.h.
25:149 Analysis of Music Literature 1750-1825 3 s.h.
25:150 Analysis of Music Literature 1825-1900 3 s.h.
25:151 Analysis of Music Literature 1890-Present 3 s.h.
25:152 Analysis of Music Literature Special Topics 3 s.h.
25:153 Keyboard Harmony 2 s.h.
25:157 Orchestration 2 s.h.
25:212 Gregorian Chant 3 s.h.
25:101 Jazz Improvisation I 2 s.h.
or 25:102 Jazz Improvisation II 2 s.h.
or 25:243 Jazz Improvisation 111 2 s.h.
or 25:244 Jazz Improvisation IV 2 s.h.

APPLIED MUSIC

Four years of applied music are required. Each year must include at least one semester of studio instruction, one semester of private lessons, and one semester of ensemble participation. Applied music is determined in the student’s areas of instruction. Students are allowed a maximum of 6 semesters of applied music. Those who want to continue lessons beyond the maximum allowable lower-level registration must do so under the nonmajor category.

ENSEMBLE PARTICIPATION

Students also must participate in a major ensemble each semester of residence. Those enrolled in summer session must be available for ensemble participation as needed. Ensemble assignments are made at the discretion of the major teacher and ensemble director. String majors participate in University Orchestra and/or Chamber Orchestra. Wind and percussion majors participate in the Symphony Band/Concert Band/University Band. Keyboard majors may substitute accompanying for major ensemble participation for two semesters during their junior and or senior years, with the consent of their advisers. Composition and music history majors may, with their adviser’s permission, substitute other ensembles.

Any requests for adjustment of this requirement should be submitted in writing to a review committee consisting of the ensemble directors involved, the adviser, the major teacher, and a representative from the director’s office. The committee meets regularly at the end of each early registration period.

Major ensembles are:
25:142 Camerata Singers 0-1 s.h.
25:181 University Choir 0-1 s.h.
25:194 Symphony Band/Concert Band/University Band 0-1 s.h.
25:191 University Chorale 0-1 s.h.
25:185 Kantorei 0-1 s.h.
25:192 Orchestra 0-1 s.h.

ELECTIVES

Students may take advanced electives in performance (including chamber music and piano accompanying), theory, composition, music education, music history, music literature, orchestration, and conducting.

Performance Major

Performance majors are available in each of the orchestral areas—strings, brass, woodwinds, and percussion—and in voice and keyboard. Students must take at least 17 additional semester hours beyond the School of Music general course requirements, to be chosen from a list of electives unique to each performance major area. Course listings for each of the respective areas are available from the music office.

Jazz Studies Emphasis

Students are admitted to this program only by audition, which occurs after they complete the freshman year. When admitted, they are assigned a jazz studies adviser in addition to their regular faculty adviser.

Music Therapy

Admission to the program in music therapy is based on successful completion (grade of C+ or better) of 25:114 Orientation to Music Therapy. In addition to the core courses in music therapy listed below, specific courses are required in biological sciences, sociology, abnormal psychology, social psychology, and music.

A six-month internship in an approved off-campus clinical facility is required before the completion of the degree. Following successful completion of the internship, students may apply for registration with the National Association for Music Therapy and are qualified to sit for the board certification examination. To increase their job opportunities in the education sector, students are encouraged to complete music teacher license requirements. Complete information on the program is available in the music education office.

Course requirements for the major in music therapy are as follows.

7S: 144 Psychology of Music 2 s.h.
7S: 149 Behavioral Research in Music 2 s.h.
25:74 Recital Attendance (4 semesters required) 4 s.h.
25:94 Music Therapy Practicum (three semesters, for 1, 2, and 2 semester hours, respectively) 5 s.h.
25:96 Music Techniques in Special Education and Recreation 3 s.h.
25:114 Orientation to Music Therapy 2 s.h.
25:138 Music Therapy Techniques: Atypical Children 3 s.h.
25:139 Music Therapy Techniques: Adult Clients 3 s.h.
25:140 Internship in Music Therapy 2 s.h.
25:94 Music Therapy Practicum (senior research project) 1 s.h.
or 25:154 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 semester hours of ensemble participation. Those who elect the senior research project option must take three years of applied music and 6 semester hours of ensemble.

Composition Major

Applicants should submit examples of creative work for evaluation by the composition faculty. Upon admission to the program, students are assigned a faculty adviser. Accomplished students may gain admission as entering freshmen; in such cases the approval of submitted work waives the necessity of a performance audition. If the composition faculty advises postponement of admission until further study has been undertaken, the entering freshman or transfer student must audition to be admitted to the school.

Students fulfill the general requirements of the Bachelor of Music degree as stated earlier in this section of the Catalog. Beyond these requirements, composition majors must complete additional course work in composition, music theory, and electives. An appropriate plan of study is designed by students in consultation with their advisers.

The Bachelor’s Thesis (25:99) replaces the recital required of applied music majors. It consists of one or more compositions, approved by a committee of three faculty members and performed on regularly scheduled School of Music recitals.

Bachelor of Arts

The B.A., with its 50 semester hours of allowable music credit, is offered for all performance majors listed under the B.M. degree as well as music history and composition. The B.A. is not available in the music therapy or jazz emphasis programs. Students may earn teacher licensure if they complete the curriculum listed for the appropriate licensure program (e.g., strings; brass, woodwind, and percussion; vocal and keyboard; see “Teacher Licensure (Music Specialist).”)

Specific course requirements vary for each of the available majors under the B.A. degree, although all College of Liberal Arts General Education Requirements must be met for each. Students should check with their advisers, the area head, or the music office for specific program requirements.

Teacher Licensure (Music Specialist)

Areas of concentration in music education are instrumental music or vocal music. In addition to the B.A. or B.M. requirements in music and liberal arts, licensure to teach music in Iowa schools requires satisfactory completion of specific requirements in the area of concentration. Requirements in the instrumental and vocal areas are listed below. The general requirements are listed under “Curriculum and Instruction” in the College of Education section of the Catalog.

STRING MAJORS

Instruction in performance (violin and viola majors take one year of 25:23 Cello; cello and bass majors take one year of 25:21 Violin) 2 s.h.
25:100 Class Strings (violinists take viola and bass; violists take violin and bass; cellists take viola and bass; bassists take viola and cello) 2 s.h.
7E: 144 Methods and Materials: Elementary School Instrumental Music 2 s.h.

KEYBOARD MAJORS (NONVOCAL)

Keyboard majors who elect to teach in the nonvocal area must complete the requirements in either the brass-woodwind-percussion or string areas and pass the proficiency examination of 25: 71-72 Group Instruction in Piano I-II.

HONORS

Freshman and sophomore music majors with an interest in scholarship and a grade-point average of at least 3.20 are invited to become members of the College of Liberal Arts Honors Program (see College of Liberal Arts introductory section in the Catalog). They also may take part in the honors program of the School of Music. Some entering freshmen are invited to join on the basis of their high school record and ACT scores.

Throughout undergraduate residence, honors music students may take advantage of enrollment in honors sections of courses in the school and in the college, and may seek honors designation for any course with consent of the instructor.

Honors students with junior or senior standing may undertake work leading to the bachelor’s degree (B.M. or B.A.) with honors. Graduation “with honors” is awarded after completion of at least 3.0 semester hours of honors work; a minimum of 3 semester hours of such work must be in 25:97. Honors students in music are encouraged to take graduate-level courses. Advanced course work in music history, music theory, and languages is particularly recommended. An honors committee appointed by the honors adviser and the student’s faculty sponsor evaluates the student’s work.

Consult the music honors adviser for more information.

MINOR

Students may minor in music by completing 15 semester hours in the School of Music, 12 of which must be in advanced courses. A complete list of advanced courses is available at the School’s office.

FINANCIAL AID

A number of music activity scholarships are available to qualified undergraduate music majors. For information, write to the School of Music.
Six semester hours of music history:

- 25:301 Advanced History and Literature of Music I 3 s.h.
- 25:302 Advanced History and Literature of Music II 3 s.h.

If excused from 25:301 and/or 25:302 as a result of the advisory examination in music history, students elect another course from the music history sequence, and may elect other musicology courses.

- 25:303 Medieval Music 3 s.h.
- 25:304 Renaissance Music 3 s.h.
- 25:305 Seventeenth-Century Music 3 s.h.
- 25:306 Eighteenth-Century Music 3 s.h.
- 25:307 Nineteenth-Century Music 3 s.h.
- 25:308 Twentieth-Century Music 3 s.h.
- 25:309 American music 3 s.h.
- 25:313 Major Composers 3 s.h.
- 25:314 Genres of Music 3 s.h.
- 25:323 Historical Musical Notations I 3 s.h.
- 25:324 Historical Musical Notations II 3 s.h.
- 25:330 Seminar in Musicology 3 s.h.
- 25:331 Performance Practices I 3 s.h.
- 25:332 Performance Practices II 3 s.h.
- 25:312 Medieval and Renaissance Music 3 s.h.
- 25:316 Performance Practice with the Tuba 3 s.h.

ENSEMBLE PARTICIPATION

Students participate in a major ensemble each semester of residence (see list of major ensembles in this section of the Catalog). During the summer session, students must be available for ensemble participation as needed. Ensemble assignments are made by the major professor and the ensemble director. Keyboard majors may substitute accompaniment for participation in a major ensemble, at their adviser's discretion. Theory, composition, musicology, and music education majors may, with their adviser's permission, substitute other ensembles.

Requests for adjustment of this requirement must be submitted in writing to the associate director of graduate studies in the School of Music.

Master of Fine Arts

The M.F.A. is for students of superior ability in instrumental or vocal performance. It requires a minimum of 60 postbaccalaureate semester hours, to include at least two full-length recitals or programs (25:401 M.F.A. Thesis), for a maximum of 8 semester hours of credit.

Students may earn a Master of Arts degree while working toward the Master of Fine Arts degree, but all requirements for each degree—including two final examinations—must be met separately, (see the Graduate College section of the Catalog.)

Doctoral Degrees

All doctoral study in music includes:

- minimum course requirements listed under the M.A. degree;
- one or more additional in music theory listed in the master’s degree requirements;
- one or more additional courses in the history of music, chosen from those listed in the master’s degree requirements;

Proficiency in one or more foreign languages is required in some areas; a list of area requirements is available from the academic office of the School of Music.

Ensemble requirements are the same as described under “Master of Arts” above, unless waived by the student's adviser.

Doctor of Philosophy

Areas of concentration for the Ph.D. 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 academic office of the School of Music.

Doctor of Musical Arts

Requirements for the D.M.A. degree in performance and pedagogy are the same as the general doctoral requirements of the school, except that the D.M.A. dissertation consists of three full-length recitals or two recitals and a concerto performance with orchestra or other appropriate ensemble. Singers may substitute the execution of one or more major roles in a large-scale work for one of their recitals. Conductors present two programs.

D.M.A. candidates also must complete a scholarly investigation of limited scope in a written essay or thesis.

Theory Pedagogy Minor

Any student admitted to a graduate degree program in the School of Music may take this minor by completing the required courses. Students whose advisory examination places them in Review Theory must successfully complete that course before being admitted to the minor.

REQUIRED COURSES

- 25:145 Countertone before 1600 3 s.h.
- 25:147 Countertone after 1600 3 s.h.
- 25:236 Methods and Techniques of Teaching Basic Theory 3 s.h.
- 25:237 Seminar: Music Theory Research 0-1 s.h.
- 25:242 History of Music Theory I 2 s.h.

Six semester hours from the following:

- 25:148 Analysis of Music Literature 1600-1750 3 s.h.
- 25:149 Analysis of Music Literature 1750-1825 3 s.h.
- 25:150 Analysis of Music Literature 1825-1900 3 s.h.
- 25:151 Analysis of Music Literature 1890-Present 3 s.h.
- 25:152 Analysis of Music Literature Special Topics 3 s.h.
- 25:212 Gregorian Chant 3 s.h.
- 25:241 History of Music Theory I 2 s.h.

Graduate Awards

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.

Music for Nonmajors

Courses particularly recommended for interested students who are not majoring in music include the following:

- 25:10 Fundamentals of Music
- 25:13-14 Masterpieces of Music
- 25:64 Recital Attendance for Non-Majors
- 25:212-104 World Music 1-11, for students interested in non-Western music
- 25:159 Survey of Music Masterpieces I
- 25:160 Survey of Music Masterpieces II

Beginning Folk Guitar (25:78) and Group Piano I, Non-Music (25:82) are available for nonmajors who wish to develop elementary performance 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” in this section of the Catalog).

Applied music instruction is offered to nonmajors as instructors are available. Nonmajors interested in performance should consult music advisors regarding appropriate courses in applied music.

Center for New Music

The Center for New Music (CNM) is a vital component of the School of Music’s composition program. Since its founding in 1966, CNM has been both laboratory and showcase for late twentieth-century music. It presents several 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, and it commissions and produces new works. Audition, rehearsal and programming information is available on request.

Facilities

The Iowa Center for the Arts has one of the nation’s finest facilities for teaching and performance in music. In addition to class and seminar rooms, the Music Building includes 55 teaching studios, 73 practice rooms, a library, two electronic music laboratories, ear training and listening facilities with 50 listening posts, four large rehearsal halls, ample solo and ensemble practice facilities, professional recording facilities, a fine arts computer studio with two terminals and eleven microcomputers with MIDI equipment and music-related software, seven practice and recital organs, the
80-seat Kraf\'f Organ Studio, and the 720-seat Clapp Recital Hall. Hancher Auditorium seats 2,680 people for concerts and 2,400 for operas and other stage productions.

Resources of the Rita Benton Music Library include more than 68,000 volumes of music and books, some 3,000 titles in microformats, more than 14,000 sound recordings and videotapes, and 300 current periodicals in several languages. The collection of reference materials is particularly strong, supporting research in many areas of musical study. The rare book holdings include a large number of late eighteenth- and nineteenth-century scores. The library's quarters in the Music Building provide seating for 100 people in the reading room and 35 at the listening stations in the sound recordings room. Physical facilities also include a combined rare book and seminar room and spaces for microform readers, typewriters, and videotape machines.

### Courses

#### General

- **25:00 Cooperative Education Internship** 0 s.h.
- **25:13 Masterpieces of Music I** 3-4 s.h.
  - Major composers from late eighteenth through nineteenth centuries. GER: Humanities.
- **25:14 Masterpieces of Music II** 3-4 s.h.
  - Major composers of early eighteenth century, and from 1890s to present. GER: Humanities.

#### Theory and Composition

- **25:1 Fundamentals of Music for Majors** 3 s.h.
  - Music fundamentals through writing, hearing, performance; notation of pitch and rhythm; intervals, scales, triads; harmony; elements of tonality, key signatures, major and minor modes; sight-reading, dictation. Corequisite: 25:71 or successful completion of piano proficiency exam.
- **25:2 Musicianship and Theory I** 4 s.h.
  - Principles of harmony; emphasis on aural skills, theoretical concepts, notation. Offered fall semesters. Prerequisite: 25:1 or equivalent, or successful completion of music fundamentals exam. Corequisite: 25:71 or successful completion of piano proficiency exam.
- **25:3 Musicianship and Theory II** 4 s.h.
  - Continuation of 25:2. Offered spring semesters. Corequisite: 25:72 or successful completion of piano proficiency exam.
- **25:4 Musicianship and Theory III** 4 s.h.
  - Continuation of 25:3. Focus on common practice repertoire. Offered fall semesters.
- **25:5 Musicianship and Theory IV** 4 s.h.
  - Continuation of 25:2-4; focus on twentieth century repertories. Offered spring semesters.
- **25:10 Fundamentals of Music** 3 s.h.
  - Foundations of musical phenomena from wide range of historical, cultural repertories; fundamentals of tone, form, principles of organization; composition, esthetics. Open only to nonmajors.
- **25:11 Review Theory** 1 s.h.
  - Open only to graduate students. Not accepted for graduate credit.
- **25:64 Recital Attendance for Non-Majors** 1 s.h.
  - Musical experience through student, faculty recitals.
- **25:74 Recital Attendance for Majors** 1 s.h.
  - Consent of instructor required.
- **25:99 Bachelor's Thesis** 0-1 s.h.
  - Consent of instructor required.
- **25:145 Countermelody before 1600** 3 s.h.
  - Writing, analysis. Prerequisite: 25:4 or equivalent.
- **25:147 Counterpoint after 1600** 3 s.h.
  - Writing, analysis. Prerequisite: 25:5 or 25:1 or equivalent.

#### Historical Surveys and Musicology

- **25:103 World Music I** 3 s.h.
  - GER: foreign; civilization and culture, humanities.
- **25:104 World Music II** 3 s.h.
  - GER: humanities.
- **25:106 History of Black Music** 3 s.h.
  - Same as 129:130.
- **25:137 Literature, Music, and Aesthetics** 2-4 s.h.
  - Interdisciplinary connections between literature and music with attention to specific cultural, ideological contexts. Same as 9:145, 33:145.
- **25:144 History of Music I** 3 s.h.
  - GER: historical perspectives. Prerequisites: 25:3 and 25:4, or equivalents for majors; consent of instructor for nonmajors.
- **25:146 History of Music II** 3 s.h.
  - GER: historical perspectives. Prerequisites: 25:3 and 25:4, or equivalents for majors; consent of instructor for nonmajors.
- **25:159 Survey of Music Masterpieces I** 3 s.h.
  - GER: humanities.
- **25:160 Survey of Music Masterpieces II** 3 s.h.
  - GER: humanities.
- **25:164 Literature and Music** same as 8:168.
- **25:189 Organ Literature Survey** 2 s.h.
  - Fiftieth century to present. Open only to advanced undergraduate, graduate students. May be repeated.
- **25:198 Organ Pedagogy** 1-2 s.h.
  - History, theory, practice from Renaissance to present; methods, literature appropriate for various levels. May be repeated.
- **25:216 Interpretation of German Art Song**
  - Focus on Schubert, Schumann, Brahms, Wolf, Strauss, Mahler; diction, style.
- **25:217 Interpretation of Non-German Art Song**
  - Focus on English, French, Italian, Spanish; diction, style.
- **25:238 Musicology Colloquium** 0 s.h.
- **25:301 Advanced History and Literature of Music I** 3 s.h.
  - Style in Western music.
- **25:302 Advanced History and Literature of Music II** 3 s.h.
  - Continuation of 25:301.

**Note:** 25:303-25:309 and 25:313-25:314 deal with periods and special topics in music history; they are not offered every year.

- **25:303 Medieval Music** 3 s.h.
- **25:304 Renaissance Music** 3 s.h.
- **25:305 Seventeenth-Century Music** 3 s.h.
- **25:306 Eighteenth-Century Music** 3 s.h.
- **25:307 Nineteenth-Century Music** 3 s.h.
- **25:308 Twentieth-Century Music** 3 s.h.
- **25:309 American Music** 3 s.h.
- **25:313 Major Composers** 3 s.h.
- **25:314 Genres of Music** 3 s.h.
- **25:316 The History of Musical Instruments** 3 s.h.
- **25:317 Principles of Construction and Maintenance of Keyboard Instruments** 3 s.h.
- **25:320 Introduction to Musicology** 3 s.h.
  - Methods, materials of research in historical musicology; field of musicology.
- **25:321 Introduction to Graduate Study in Music** 2 s.h.
  - Music library; reference materials; bibliography; research problems, methods; writing research papers.
- **25:322 Advanced Bibliography and Reference Materials** 4 s.h.
  - Emphasis on materials in student's major concentration. Prerequisite: 25:321 or consent of instructor.
- **25:323 Historical Music Notations I** 3 s.h.
  - Renaissance white notation, keyboard instruments, musical paleography; transcription of early vocal, instrumental notations; editorial problems.
- **25:324 Historical Music Notations II** 3 s.h.
  - Chant neumes, medieval black notation, musical and textual paleography; transcription of early vocal and instrumental notations; editorial problems.
- **25:330 Seminar in Musicology** 3 s.h.
  - Concentrated study of one or more selected areas of music history, involving written papers and oral reports. May be repeated.
- **25:331 Performance Practices I: Medieval and Renaissance Music** 3 s.h.
  - Practical approaches to interpreting music before 1600, including use of instruments, vocal production, music notation, and ornamentation.
- **25:332 Performance Practices II: Seventeenth- and Eighteenth-Century Music** 3 s.h.
  - Interpretation aspects of music of Baroque and Classical periods.
Research and literature
25:14 Seminar, Percussion Methods, Materials, and Performance Practice 1-2 s.h.
Contemporary percussion literature and current styles, notation, techniques of performance and composition. Consent of instructor required.
25:154 Senior Recital 1 s.h.
25:199 Special Studies arr.
25:226 History of Organ Building and Design 2.3 s.h.
Development of organ design from Middle Ages to present; basic concepts of construction and maintenance. May be repeated.
25:229 Organ Literature special Topics 2 s.h.
Specialized study in selected areas of organ literature. Open only to graduate students with consent of instructor. May be repeated.
25:239 Advanced Piano Pedagogy Seminar 1-2 s.h.
Techniques, materials, philosophy, and psychology for teaching at all levels.
25:261 Advanced Choral Literature I 3 s.h.
Choral music from Gregorian chant through Bach.
25:262 Advanced Choral Literature II 3 s.h.
Choral music from Raucoco to contemporary.
25:293 String Instrument Literature arr.
25:296 Piano Literature I arr.
25:297 Piano Literature II arr.
25:335 Seminar in Woodwind Research 1 s.h.
Detailed study of important operatic scores from standpoint of performers and directors; production problems.
25:340 Seminar in Brass Research 1 s.h.
25:341 Seminar, Choral Literature and Analysis III 3 s.h.
Renaissance choral works.
25:342 Seminar, Choral Literature and Analysis IV 3 s.h.
Baroque choral works.
25:343 Seminar: Choral Literature and Analysis V 3 s.h.
Classic romantic choral works.
25:344 Seminar: Choral Literature and Analysis VI 3 s.h.
Contemporary choral works.
25:381 Readings in Music History arr.
25:390 M.A. Performance Project 3 s.h.
25:400 MA. Thesis 3 s.h.
25:402 M.A. Recital arr.
25:503 D.M.A. Recital arr.

Honors Program
25:97 Honors in Music 1-4 s.h.
Open only to honors students. Maybe repeated.

Music Education
Other music education courses are offered by the Division of Curriculum and Instruction in the College of Education. See that section of the Catalog for listings and descriptions. Where dual numbers are indicated, students preparing for music teacher licensure should register under the education number.
25:71 Group instruction in Piano I 1 s.h.
Beginning instruction for music majors whose principal performing medium is voice or an orchestral or band instrument; study includes development of skills in sight reading, technique, harmonization, transposition, improvisation, simple literature. Open only to music majors. Corequisite: 25:2.
25:72 Group Instruction in Piano U 1 s.h.
Elementary to early intermediate instruction for music majors whose principal performing medium is voice or an orchestral or band instrument; continuation of skills introduced in 25:71; introduction of easy solo and ensemble literature. Prerequisite: 25:71 or successful completion of proficiency examination. Corequisite: 25:3.
25:73 Group Instruction in Piano III 1 s.h.
Intermediate instruction for music majors whose principal performing medium is voice or an orchestral or band instrument; continuation of skills introduced in 25:72; study of intermediate solo and ensemble literature; modern chording. Prerequisite: 25:72 or successful completion of proficiency examination II.
25:78 Beginning Folk Guitar 2 s.h.
Development of guitar and basic skills. Consent of instructor required. Same as 72:78.
25:82 Group Piano I: Non-Music 1 s.h.
Designated for beginners; no previous background necessary; includes reading, technical study, chord ing, playing by ear, improvisation. Not open to music students. GER: Humanities.
25:84 Group Piano III: Non-Music 1 s.h.
25:94 Music Therapy Practicum 1-3 s.h.
Supervised clinical training with adult clients and children in a variety of health care settings. Open only to music therapy majors. Prerequisite: 25:114.
25:96 Music Techniques in Special Education and Recreation 2-3 s.h.
Music methods and materials appropriate for the disabled students in special education and recreation settings; overview of individualized educational planning for students with disabilities. Open to music therapy and music education students; open to other students with consent of instructor.
25:100 Class Setting arr.
Open only to string majors for study of a secondary string instrument.
25:105 Instrumental Techniques 1-3 s.h.
Fundamental skills in wind, percussion instruments. Same as 76:143.
25:107 Techniques of Conducting 2 s.h.
Basic elements, score analysis.
25:108 instrumental Conduction 2 s.h.
Advanced skills; score analysis, rehearsal techniques, literature selection. Same as 78:145. Prerequisite: 25:107.
25:109 Choral Methods 3 s.h.
Effective choral music programs for all ages. Same as 78:147.
25:110 Choral Conducting and Literature 3 s.h.
Prerequisite: 25:107. Same as 78:148.
25:111 Children and Adolescent Voice Production 2 s.h.
Teaching children and adolescents to sing; emphasis on principles, techniques of voice production, pedagogy. Same as 78:139.
25:12 Wing Methods and Materials 2-4 s.h.
Same as 78:150.
25:13 Methods of Teaching Piano 2-4 s.h.
Corequisites: 25:11, 17 arr. Piano methods, teaching techniques for preschoo; elementary, intermediate, advanced precollege, adult students. May be repeated.
25:14 Orientation to Music Therapy 2 s.h.
Theory, practice; typical clients, places of employment.
25:15 Diction for Singers I 2 s.h.
English and French; theory of correct pronunciation for singing. No previous background necessary.
25:16 Diction for Singers II 2 s.h.
German and Italian; theory of correct pronunciation for singing. No previous background necessary.
25:17 Arranging for Band 2 s.h.
Scoring techniques for concert, marching bands. Offered spring semesters.

Sacred Music
25:227 Liturgies I 1-2 s.h.
History of liturgies and survey of liturgical music from Judaism to present.
25:228 Service Playing and Improvisation 1-2 s.h.
Hymn playing, accompanying, and basic improvisation techniques. May be repeated. Open to organ majors and others by consent of instructor.
25:252 Organ Pedagogy 1-2 s.h.
Survey of organ literature: ancient odes, Latin hymns, Reformation hymns and psalms; current developments in organ music, may be presented as special topic study. May be repeated.
25:284 Studies in Church Music 1 s.h.
Individualized projects in selected areas of church music; liturgies, hymnody, church choir repertoire, religion and the arts

Jazz Studies
25:101 Jazz Improvisation I 2 s.h.
Prerequisite: 25:2 or consent of instructor.
25:102 Jazz Improvisation II 2 s.h.
Prerequisite: 25:1 or consent of instructor.
25:118 Jazz Composition and Arranging I 1-2 s.h.
Prerequisite: 25:4.
25:141 History of Jazz 2 s.h.
Prerequisite: 25:4 or equivalent.
25:196 Jazz Band Techniques and Pedagogy 1 s.h.
25:231 Jazz Composition and Arranging I 2 s.h.
Prerequisite: 25:118.
25:243 Jazz Improvisation I 1 s.h.
Prerequisite: 25:102 or consent of instructor.
25:244 Jazz Improvisation II 1 s.h.
Prerequisite: 25:243 or consent of instructor.

Music and Technology
See also 25:250, 251 and 254 Experimental Studio I, II, and III under "Composition."
25:213 Fundamentals of Piano Technology 1 s.h.
25:214 Recording Techniques 3 s.h.
Consent of instructor required.
25:218 Art and Technology I 3 s.h.
Consent of instructor required.
25:219 Art and Technology II 3 s.h.
Consent of instructor required.
25:230 Seminar in Audio Recording 2 s.h.
Offered summer sessions.
25:295 Music Acoustics 3 s.h.
Same as 29:112.

Jazz Studies
25:101 Jazz Improvisation I 2 s.h.
Prerequisite: 25:2 or consent of instructor.
25:102 Jazz Improvisation II 2 s.h.
Prerequisite: 25:1 or consent of instructor.
25:118 Jazz Composition and Arranging I 1-2 s.h.
Prerequisite: 25:4.
25:141 History of Jazz 2 s.h.
Prerequisite: 25:4 or equivalent.
25:196 Jazz Band Techniques and Pedagogy 1 s.h.
25:231 Jazz Composition and Arranging I 2 s.h.
Prerequisite: 25:118.
25:243 Jazz Improvisation I 1 s.h.
Prerequisite: 25:102 or consent of instructor.
25:244 Jazz Improvisation II 1 s.h.
Prerequisite: 25:243 or consent of instructor.

Music and Technology
See also 25:250, 251 and 254 Experimental Studio I, II, and III under “Composition.”
25:213 Fundamentals of Piano Technology 1 s.h.
25:214 Recording Techniques 3 s.h.
Consent of instructor required.
25:218 Art and Technology I 3 s.h.
Consent of instructor required.
25:219 Art and Technology II 3 s.h.
Consent of instructor required.
25:230 Seminar in Audio Recording 2 s.h.
Offered summer sessions.
25:295 Music Acoustics 3 s.h.
Same as 29:112.
Continuing Education Program
25:80 The Composer-Improvisor in You 3 s.h.

Applied Music Major Field
Instruction consists of individual and or class lessons, at instructor’s option, for a minimum of one hour per week. Students may register for 1-4 semester hours as recommended by their advisers. Majors are required to attend related applied music seminars. Offered on a fee-per-semester basis, in addition to tuition.

UNDERGRADUATE MAJOR

Lower Level
25:40 Lower Level Voice 1-2 s.h.
25:41 Lower Level Piano 1-2 s.h.
25:42 Lower Level Organ 1-2 s.h.
25:44 Lower Level Violin 1-2 s.h.
25:45 Lower Level Viola 1-2 s.h.
25:46 Lower Level Cello 1-2 s.h.
25:47 Lower Level String Bass 1-2 s.h.
25:48 Lower Level Flute 1-2 s.h.
25:49 Lower Level Oboe 1-2 s.h.
25:50 Lower Level Clarinet 1-2 s.h.
25:51 Lower Level Bassoon 1-2 s.h.
25:52 Lower Level Saxophone 1-2 s.h.
25:53 Lower Level Horn 1-2 s.h.
25:54 Lower Level Trumpet 1-2 s.h.
25:55 Lower Level Euphonium 1-2 s.h.
25:56 Lower Level Trombone 1-2 s.h.
25:57 Lower Level Tuba 1-2 s.h.
25:58 Lower Level Percussion 1-2 s.h.

Upper Level
25:119 Upper Level Voice 1-4 s.h.
25:120 Upper Level Piano 1-4 s.h.
25:121 Upper Level Organ 1-4 s.h.
25:122 Upper Level Violin 1-4 s.h.
25:123 Upper Level Viola 1-4 s.h.
25:124 Upper Level Cello 1-4 s.h.
25:125 Upper Level String Bass 1-4 s.h.
25:126 Upper Level Flute 1-4 s.h.
25:127 Upper Level Oboe 1-4 s.h.
25:128 Upper Level Clarinet 1-4 s.h.
25:129 Upper Level Bassoon 1-4 s.h.
25:130 Upper Level Saxophone 1-4 s.h.
25:131 Upper Level Horn 1-4 s.h.
25:132 Upper Level Trumpet 1-4 s.h.
25:133 Upper Level Euphonium 1-4 s.h.
25:134 Upper Level Trombone 1-4 s.h.
25:135 Upper Level Tuba 1-4 s.h.
25:136 Upper Level Percussion 1-4 s.h.

GRADUATE MAJOR
25:263 Major Voice 1-2 s.h.
25:264 Major Piano 1-2 s.h.
25:265 Major Harpsichord 1-2 s.h.

Applied Music-Minor Field
Instruction consists of one half-hour lesson or two hours of class instruction weekly, at instructor’s option. Offered on a fee-per-semester basis, in addition to tuition.

25:17 Secondary Performance-Voice 1 s.h.
25:18 Secondary Performance-piano 1 s.h.
25:19 Secondary Performance-Organ 1 s.h.
25:21 Secondary Performance-Violin 1 s.h.
25:22 Secondary Performance-Viola 1 s.h.
25:23 Secondary Performance—Cello 1 s.h.
25:24 Secondary Performance-String Bass 1 s.h.
25:25 Secondary Performance—Flute 1 s.h.
25:26 Secondary Performance-Oboe 1 s.h.
25:27 Secondary Performance-Clarinet 1 s.h.
25:28 Secondary Performance-Bassoon 1 s.h.
25:29 Secondary Performance-Tuba 1 s.h.
25:30 Secondary Performance-Horn 1 s.h.
25:31 Secondary performance – Trumpet 1 s.h.
25:32 Secondary Performance-Euphonium 1 s.h.
25:33 Secondary Performance-Trombone 1 s.h.
25:34 Secondary Performance-Clarinet 1 s.h.
25:35 Secondary Performance-Percussion 1 s.h.

Applied Music -Nonmajor
Instruction consists of a half-hour lesson or two hours of class instruction weekly, at instructor’s option. Offered on a fee-per-semester basis, in addition to tuition. Intended for both undergraduate and graduate students.

25:59 Performance Instruction for Non-Majors 1 s.h.

Ensemble participation
No fee is charged; courses may be repeated; consent of instructor required.
25:95 Old Gold Singers 0-2 s.h.
they guide conduct by regulating opportunities, prescribing behavior, and influencing beliefs and attitudes. The goal of the PEOPLE program is to help students both understand and evaluate these complex relationships by examining them from a variety of perspectives.

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. Students must complete a 36 semester-hour course of study with a minimum grade-point average of 2.00 to earn the PEOPLE certificate.

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 pursuing a major or minor in one or more of the program’s three primary departments–economics, philosophy, and political science–are eligible to join the PEOPLE program. Students whose primary interest lies outside all three can qualify for the program by completing a minor in one of them. Pre-law students may find PEOPLE especially attractive.

Students interested in enrolling in the PEOPLE program should contact the program director. Because of the program’s multiple requirements, students are encouraged to begin the program as freshmen 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. This is not uncommon, since many courses satisfy multiple requirements.

Foundation

Each PEOPLE student must complete a major or minor in economics, philosophy, or political science. Within the chosen discipline, the student takes courses that provide basic familiarity with issues and methods of the discipline and that emphasize either the interplay of causes, reasons and values or the interdependence of individuals and institutions. These courses are the foundation of the PEOPLE program. Select one of the following:

ECONOMICS

Students must choose either the macroeconomics or the macroeconomics track.

Macroeconomics Track

6E: 1 Principles of Macroeconomics 3-4 s.h.
6E: 104 Macroeconomic Theory 3 s.h.
6E: 179 History of Economic Thought 2-3 s.h.

One of the following:

6E: 118 Labor Economics 3 s.h.
6E: 113 Health Economics 3 s.h.
6E: 133 Environmental and Natural Resource Economics 3 s.h.
6E: 135 Regional and Urban Economics 3 s.h.
6E: 141 Economies of American Industries 3 s.h.
6E: 145 Introduction to the Economics of Transportation 3 s.h.

6E: 171 Antitrust Legal and Economic Analysis 3 s.h.
6E: 172 Law and Economics 3 s.h.
6E: 177 Industrial Organization 3 s.h.

Macroeconomics Track

6E: 1 Principles of Macroeconomics 3-4 s.h.
6E: 105 Macroeconomics 3 s.h.
6E: 179 History of Economic Thought 2-3 s.h.

One of the following:

6E: 118 Money, Banking, and Financial Markets 3 s.h.
6E: 119 Economics of the Government Sector 3 s.h.
6E: 125 International Economics 3 s.h.
6E: 129 Economic Growth and Development 3 s.h.
6E: 163 Comparative Economics 3 s.h.
6E: 173 Advanced International Economics 3 s.h.
6E: 174 Monetary Economics 3 s.h.
6E: 176 Public Sector Economics 3 s.h.

PHILOSOPHY

26:102 Introduction to Ethics 3 s.h.
26:132 Introduction to Political Philosophy 3 s.h.

One course in the history of philosophy, chosen from the following:

26:34 Philosophy and the Just Society 3 s.h.
26:111 Ancient Philosophy 3 s.h.
26:112 Medieval Philosophy 3 s.h.
26:114 seventeenth Century Philosophy 3 s.h.
26:116 Eighteenth Century Philosophy 3 s.h.
26:117 Nineteenth Century Philosophy 3 s.h.
26:118 Twentieth Century Philosophy 3 s.h.
26:125 American Philosophy 3 s.h.
26:141 Existentialist Philosophy 3 s.h.

One of the following:

26:133 Philosophy of History 3 s.h.
26:180 Analytic Ethics 3 s.h.
26:182 History of Ethics 3 s.h.
26:184 Moore, Prichard, and Ross 3 s.h.
26:185 Political Philosophy 3 s.h.
26:187 Epistemology 3 s.h.

POLITICAL SCIENCE

One introductory course on theories of politics chosen from:

30:30 Introduction to Political Thought and Political Action 3 s.h.
30:70 Introduction to Political Communication 3 s.h.

Three advanced courses on theories of politics chosen from:

30: 118 Law and Social Change 3 s.h.
30:132 Modern Political Theory 3 s.h.
30:133 Postmodem Political Theory 3 s.h.
30:135 Introduction to Positive Political Theory 3 s.h.
30: 136 Game Theory for Political Scientists 3 s.h.
30: 138 Current Political Theory 3 s.h.
30:139 Political Issues 3 s.h.
30:172 Political Communication and Cognition 3 s.h.
30:182 Honors Seminar on Political Theory 3 s.h.
Fields
Students must pass three courses (total of 9 semester hours) in each of two of the following four fields—economics, ethics, politics, and law.

ECONOMICS
Students should choose either the macroeconomics track or the microeconomics track. Students using economics as their foundation may not select this field.

Macroeconomics Track
6E:1 Principles of Macroeconomics 3-4 s.h.
6E:104 Macroeconomic Theory 3 s.h.
6E:179 History of Economic Thought 2-3 s.h.

Macroeconomics Track
6E:2 Principles of Macroeconomics 3-4 s.h.
6E:105 Macroeconomics 3 s.h.
6E:179 History of Economic Thought 2-3 s.h.

ETHICS
Students using philosophy as their foundation may not select this field.

26:102 Introduction to Ethics 3 s.h.
One of the following:
26:34 Philosophy and the Just Society 3 s.h.
26:132 Introduction to Political Philosophy 3 s.h.
26:182 History of Ethics 3 s.h.

One of the following:
14:107 Ancient Views of Justice 3 s.h.
26:180 Analytic Ethics 3 s.h.
26:184 Moore, Prichard and Ross 3 s.h.
26:185 Political Philosophy 3 s.h.
32:158 Religious Ethics: Morality and Religious Faith 3 s.h.
32:161 History of Religious Ethics 3 s.h.
32:163 Introduction to Biomedical Ethics 3 s.h.

POLITICS
Students using political science as their foundation may not select this field.

One introductory course on theories of politics chosen from:
30:30 Introduction to Political Thought and Political Action 3 s.h.
30:70 Introduction to Political Communication 3 s.h.

Two advanced courses on theories of politics chosen from:
30:118 Law and Social Change 3 s.h.
30:132 Modern Political Theory 3 s.h.
30:133 Postmodern Political Theory 3 s.h.
30:135 Introduction to Positive Political Theory 3 s.h.
30:136 Game Theory for Political Scientists 3 s.h.
30:138 Current Political Theory 3 s.h.
30:139 Political Issues 3 s.h.
30:172 Political Communication and Cognition 3 s.h.
30:182 Honors Seminar on Political Theory 3 s.h.

LAW
Liberal Arts undergraduates typically are not permitted to register for courses in the College of Law (prefix 91). PEOPLE program students may register for law courses if they register under a cross-listed liberal arts number, obtain prior approval from the director of the PEOPLE program, and obtain consent of instructor.

Students may count the credit toward a liberal arts degree but not toward any subsequent University of Iowa law degree. The requirements are as follows:

One course on principles of legal theory, chosen from:
144:201 Jurisprudence 2-3 s.h.
144:203 Litigation, Social Science, and Social Change 3 s.h.
144:205 Legal Reasoning arr.

One course on the history of legal theory, chosen from:
16A:110 Law in American History I 3 s.h.
16A:111 Law in American History II 3 s.h.
16E:114 Foundations of Anglo-American Law 3 s.h.
30:116 American Constitutional Law and Politics 3 s.h.
144:207 Modern Constitutional History arr.

One course on issues in legal theory, chosen from:
8:259 Law and Lawyers in Literature 1-3 s.h.
30:117 The Politics of Civil Rights and Liberties 3 s.h.
30:118 Law and Social Change 3 s.h.
30:174 Women and the Law 3 s.h.
47:193 Human Rights in the World Community: Problems of Law and Policy 3 s.h.
144:211 Native American Law 3 s.h.

Integration
Two courses (6 semester hours) are required.

Theory of inquiry
One course chosen from:
26:104 Introduction to Philosophy of Science 3 s.h.
26:196 Philosophy of the Human Sciences 3 s.h.
30:100 Understanding Political Research 3 s.h.
30:180 Honors Seminar on the Study of Politics 3 s.h.

Seminar
One course chosen from:
33:151 Individuals and Institutions 3 s.h.
33:153 Hard Cases: Science Policy and Values 3 s.h.
33:155 Risk Technology and the Public 3 s.h.
33:157 Democracy and the Rule of Law 3 s.h.
144:144 Seminar: Reasons, Causes, and Values 3 s.h.

Courses

144:144 Seminar: Reasons, Causes, and Values 3 s.h.
Interdisciplinary topics that cross boundaries between philosophy, politics, science, law, economics.

144:201 Jurisprudence 2-3 s.h.
Selected philosophers, emphasis on legal positivism, natural law, may include nature of jurisprudence, reasoning between law and morality, authority, normativity, rationalism, nature of law, political obligation. Same as 91.288.

144:203 Litigation, Social Science, and Social Change 3 s.h.
Empirical research in a wide variety of legal areas; how law can be obtained, evaluate, use such information; skill development in methodology, statistics, use of such knowledge to improve advocacy. Same as 91.557.

144:205 Legal Reasoning arr.
Recent theones, philosopica work on theory construction, knowledge, language, objectivity, morality. Same as 913.17.

144:207 Modern Constitutional History in American legal, cultural history from World War II to 1960. Pre or corequisite: 91:232 or consent of instructor. Same as 91:667.

144:211 Native American Law 3 s.h.
Specialized body of law that has grown up around native Americans and their reservations, tribal self-government, adjudication, property tenure, hunting and fishing rights, federal Indian policy. Same as 91:319.

PHILOSOPHY
Chair: Richard Fumnerton
Professors: Laird Addis, Panayot Butchvarov, Phillip Cummins, James Dieringer, Richard Fumnerton
Associate professors: Evan Fales, Gregory Landini, Scott McDonald, David Stern, Guenter Zoeller
Assistant professor: Diane Jeske
Undergraduate degree: B.A. in Philosophy; minor in Philosophy
Graduate degrees: M.A., Ph.D. in Philosophy

Undergraduate Programs
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 B.A. degree requires at least 27 semester hours of credit in courses numbered from 26:61 through 26:198 and must include 26:103 Introduction to Symbolic Logic, 26:111 Ancient Philosophy, and either 26:114 Seventeenth Century Philosophy or 26:116 Eighteenth-Century Philosophy.

The final 12 semester hours of philosophy courses used to complete the departmental requirement must be taken at The University of Iowa.

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 a major’s undergraduate education. The director of undergraduate studies can provide more information.
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 Honors Program and must have taken and passed at least three philosophy courses for the major. In order to graduate with honors in philosophy, the student must complete the regular requirements for art undergraduate major in philosophy with a grade-point average 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. The honors adviser can provide more information.

Courses

More detailed descriptions of undergraduate and graduate courses offered during a given semester or summer session are available in the Department of Philosophy main office shortly before early registration.

For Undergraduates Only

26:1 Problems of More Reasoning 3 s.h. Ethical thought, with emphasis on its applications for contemporary moral controversies: philosophical introduction.
26:33 Philosophy and Natural History 3 s.h. Human nature and its relation to society, knowledge, religion, science, and freedom: philosophical and historical examination of theories of the twentieth century. GER: historical perspectives.
26:34 Philosophy and the Just Society 3 s.h. The nature of individuals and governments and the obligations they have to each other: philosophical and historical examination of theories of Plato through the nineteenth century. GER: humanities.
26:36 Principles of Reasoning Logic and its applications. GER: quantitative or formal reasoning.
26:61 Introduction to Philosophy Issues and arguments; topics may include rational belief, evidence, the self, causation, and the presuppositions of religion. GER: humanities.

For Undergraduates and Graduates

Not open to freshmen.
26:102 Introduction to Biblical Analysis and historical introduction to ethical theories about issues such as the nature of goodness and the nature of right conduct. GER: humanities.
26:103 Introduction to Symbolic Logic Main ideas and basic techniques of modern symbolic logic.
26:104 Introduction to Philosophy of Science Main ideas and major figures from Plato and Aristotle.
26:111 Ancient Philosophy Main trends and major figures such as Plato and Aristotle.
26:112 Medieval Philosophy Main trends and major figures such as Augustine and Aquinas.
26:114 Seventeenth-century Philosophy Main trends, central arguments, and major texts from Bacon and Descartes to Leibniz and Locke.
26:116 Eighteenth-century Philosophy Main trends, central arguments, and major figures from Berkeley to Kant.
26:117 Nineteenth-century Philosophy Main trends and major figures of nineteenth-century philosophy.
26:118 Twentieth-century Philosophy Main trends and major figures of twentieth-century philosophy.
24:133 Philosophy of History Major problems in philosophy of history.
26:134 Philosophy of Religion Major problems in philosophy of religion. Same as 32:146.
24:141 Existentialist Philosophy Main ideas of existentialism, stressing Kierkegaard, Nietzsche, Heidegger, and Sartre.
26:143 Philosophy East and West Comparative analysis of ideas in Eastern and Western philosophy.
26:144 Indian Philosophy Main ideas and major texts.
26:145 Buddhist Philosophy Introductions to the main ideas of Buddhist philosophy.
26:148 Readings in Philosophy For honors students. May be repeated.
26:149 Undergraduate Seminar in Philosophy Intensive seminar discussion of selected philosophical problems. Consent of instructor required.
24:151 Topics in Ancient Philosophy Intensive study of a single ancient philosopher or philosophical problem. Consent of instructor required.
26:152 Plato Notes on all the major works of Plato. Consent of instructor required.
26:153 Aristotle Notes on all the major works of Aristotle. Consent of instructor required.
26:155 Aquinas, Scottus, Occamian Philosophical views of one or more of these and possibly other important philosophers of the Middle Ages: general philosophical trends of the period. Consent of instructor required.
26:158 Descartes Major works, such as the Discourse on Method, as well as lesser known works, such as The World. Consent of instructor required.
26:160 Spinoza and Leibniz Analysis of main ideas and major texts. Consent of instructor required.
26:162 Locke Indepth study of Locke’s metaphysical and epistemological views in their historical context. Consent of instructor required.
26:164 Hume I Hume’s epistemology and metaphysics as developed in An Enquiry Concerning Human Understanding. Consent of instructor required.
26:166 Kant I Analytical study of main ideas and major texts of Kant’s metaphysics and epistemology. Consent of instructor required.
26:167 Kant II Analytical study of main ideas and major texts of Kant’s ethics and aesthetics. Consent of instructor required.
26:169 Rilke, Schelling, and Nietzsche Analytical study of main ideas and major texts. Consent of instructor required.
26:172 Kant’s Philosophy of Religion Analytical study of main ideas and major texts. Consent of instructor required.
26:173 Heidegger Critical aspects of Heidegger’s major writings in their relation to the metaphysical and epistemological tradition. Consent of instructor required.
26:174 Sartre Phenomenological and existentialist works. Consent of instructor required.
26:177 Analysis of main ideas and major texts. Consent of instructor required.
26:180 Analytic Ethics 3 s.h.
Selected topics in contemporary ethics. Consent of instructor required.

26:182 History of Ethics 3 s.h.
Selected topics in the history of philosophical ethics. Consent of instructor required.

26:184 Moore, Prichard, and Ross 3 s.h.
Twentieth century intuitional ethics: emphasis on epistemological questions. Consent of instructor required.

26:185 Political Philosophy 3 s.h.
Consent of instructor required.

26:186 Metaphysics 3 s.h.
Fundamental topics: seminal works, both classical and contemporary. Consent of instructor required.

26:187 Epistemology 3 s.h.
Selected problems in contemporary theory of knowledge. Consent of instructor required.

26:188 Philosophy of Mind 3 s.h.
Selected contemporary topics. Consent of instructor required.

26:189 Philosophy of Language 3 s.h.
Selected contemporary topics. Consent of instructor required. Same as 103:165.

26:191 Mathematical Logic 3 s.h.
Presentation of central concepts relating to decidability, computability, completeness, and model theory; second-order logic. Consent of instructor required.

26:192 Modal Logic 3 s.h.
Formal techniques of modal logic developed and applied to problems in linguistic analysis and modal semantics, with discussion of related philosophical issues. Consent of instructor required.

26:194 Philosophy of Science 3 s.h.
Discussion of central topics in philosophy of science—for example, scientific explanation, confirmation, and the meaning of scientific theories; survey of major twentieth-century developments in these areas. Consent of instructor required.

26:196 Philosophy of the Human Sciences 3 s.h.
Explanation and understanding, theories and reduction, values and ideology, freedom and causality. Consent of instructor required.

26:198 Topic in Philosophy 3 s.h.
Literature study of a single philosopher or philosophical problem. Consent of instructor required.

Primarily for Graduates

All may be repeated except 26:220.

26:220 Seminar: Philosophy of Language 3 s.h.

26:221 Seminar: Metaphysics 3 s.h.

26:222 Seminar: Epistemology 3 s.h.

26:223 Seminar: Philosophical Analysis 3 s.h.

26:224 Seminar: Philosophy of Science 3 s.h.

26:225 Seminar: Philosophy of Religion 3 s.h.

26:226 Seminar: Ethics 3 s.h.

26:227 Seminar: Ancient Philosophy 3 s.h.

26:228 Seminar: Medieval Philosophy 3 s.h.

26:229 Seminar: Modern Philosophy 3 s.h.

26:245 Research: Vshae Theory arr.

26:247 Research: Metaphysics and Epistemology arr.

26:249 Research: Logic and Philosophy of Science SST.

26:251 Research: History of Philosophy arr.

26:253 Thesis arr.

### PHYSICAL EDUCATION SKILLS PROGRAM

**Chair:** Mary G. McDonald

The Physical Education Skills Program offers courses that satisfy a portion of the General Education Requirements of the College of Liberal Arts. These requirements are discussed in the introductory section of the Catalog. The faculty members of this program are drawn from the Departments of Dance, Exercise Science, and Sports, Health, Leisure and Physical Studies.

### Courses

**285: Physics Education Skills 1 s.h.**
Basic and advanced instruction in student's choice of team and individual sports and physical and recreational activities; emphasis on life span sports and activities. See current Schedule of Courses for skills sections offered. GER: physical education.

**285:2 Physical Education Skills 1 s.h.**
See description under 285:1. GER: physical education.

**285:5 Fitness and Wellness for Life 2 s.h.**
Lecture material applied to the design of a personalized fitness/wellness program in discussion and laboratory sessions. GER: physical education.

### PHYSICS AND ASTRONOMY

**Chair:** Gerald L. Payne


**Professors emeriti:** Richard R. Carlson, Edward B. Nelson, James A. Van Allen

**Associate Professors:** Amitav Bhattacharjee, John A. Gorce, Charles R. Newsum

**Assistant Professors:** Yannick Meunce, Lawrence A. Molnar, Mary H. Reno, Vincent G.J. Rodgers

**Undergraduate degrees:** B.A., B.S. in Physics, Astronomy minor in Physics, Astronomy

**Graduate degrees:** M.S. in Astronomy, Physics; Ph.D. in Physics (including specialization in Astronomy)

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 for individual scholarly work at an advanced level in selected specialties.

Total departmental enrollment is approximately 2,000 each semester of the academic year and 200 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 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 75 undergraduate majors—one-quarter of whom are honors students—and 80 graduate students in physics or astronomy.

About 50 percent of graduates with bachelor’s degrees pursue advanced study. Others find positions in secondary school teaching and in government and industrial laboratories. Some use their training as the basis for careers in other fields.

Graduates with M.S. or Ph.D. degrees in physics or astronomy have opportunities for employment in universities, colleges, and research laboratories in government and industry.

### Undergraduate Programs

The department offers the following programs in physics: Bachelor of Science and Bachelor of Arts and an undergraduate minor. It offers the same programs in astronomy. In addition, a double major in physics and astronomy is offered. Each program is described below.

### Bachelor of Science in Physics

The B.S. program provides preparation for graduate study in physics and related sciences, or for employment in research laboratories.

#### Required Courses

The following courses or their equivalents are required for the Bachelor of Science with a major in physics. Students must select Group 1 or Group 2.

**Group 1**

- **22M:25-26 Calculus I-II** 8 s.h.
- **22M:45-46 Accelerated Calculus I-II** 8 s.h.
- **22M:27 Introduction to Linear Algebra** 4 s.h.
- **22M:28 Calculus 111** 4 s.h.

**Group 2**

- **22M:35-36 Engineering Calculus I-II** 8 s.h.
- **22M:45-46 Accelerated Calculus I-II** 8 s.h.
- **22M:40 Matrix Algebra for Engineers** 2 s.h.
- **22M:41 Differential Equations for Engineers** 3 s.h.
- **22M:42 Vector Calculus for Engineers** 3 s.h.

#### Other Required Courses

Students also must take the following:

**29:27-28 Physics I-II (Students who completed 29: 17-18 before August 1994 may use those courses instead.)** 8 s.h.

**29:17-18 Introductory Physics I-II** 8 s.h.

**29:29 Physics 111** 4 s.h.

**29:15 Intermediate Mechanics** 3 s.h.

**29:118 Statistical Physics** 3 s.h.

**29:129-130 Electricity and Magnetism** 6 s.h.

**29:132 Intermediate Laboratory (two semesters)** 4 s.h.

**29:140 Introduction to Quantum Mechanics I** 3 s.h.

**29:141 Introduction to Quantum Mechanics II** 3 s.h.

One additional course selected from:

**29:117 Optics** 3 s.h.
29: 128 Electronics 4 s.h.
29: 132 Intermediate Laboratory (third semester) 2 s.h.
29: 171-2 Mathematical Methods of Physics 6 s.h.
29: 180 Electromagnetic Foundations of Optics 3 s.h.
29: 182 Electro-Optics 3 s.h.
29: 184 Optical Signal Processing 3 s.h.
29: 192 Elementary Particles and Nuclear Physics 3 s.h.
29: 193 Introductory Solid State Physics 3 s.h.
29: 194 Plasma Physics 3 s.h.
29: 196 Fluid Mechanics 3 s.h.

An additional 5 semester hours of introductory course work in another science or engineering field, including computer science but not mathematics

Undergraduate majors who plan to pursue graduate study are advised to go as far beyond the minimum requirements stated above as feasible including further work in mathematics. However, only 50 semester hours of 29-prefix courses count toward a single-major bachelor’s degree.

Bachelor of Arts in Physics

The B.A. program is designed for students who wish to gain knowledge of physics but do not plan a research-oriented career in physics. This degree program is appropriate for those planning careers in medicine, law, science-related administration, business, technical writing, or careers in medicine, law, science-related administration, business, technical writing, or secondary-school science teaching (see “Science Education” in this section and in the College of Education section of the Catalog). The B.A. program requires fewer courses in physics and mathematics than the B.S. program, and thus provides for a wider choice of electives.

The following courses or their equivalents are required for the Bachelor of Arts with a major in physics.

22M:25-26 Calculus 1-11 8 s.h.
or
22M:35-36 Engineering Calculus 1-11 8 s.h.
29:27-28 Physics I-II 8 s.h.
or
29:1-12 College Physics (Students who completed 29:17-18 before August 1994 may use those courses instead.) 8 s.h.
29:29 Physics III 4 s.h.
29:115 Intermediate Mechanics 3 s.h.
29:117-18 Mathematical Methods of Physics 3 s.h.
29:29-30 Electricity and Magnetism 3 s.h.
29:132 Intermediate Laboratory (two semesters) 4 s.h.

An additional 12 semester hours or more of science in a thematic area as approved by the student’s adviser or the course work required for teacher licensure.

Bachelor of Science in Astronomy

A balanced and integrated program of astronomy, mathematics, and physics courses is required for the B.S. degree in astronomy. This program prepares students for advanced study in astronomy or astrophysics, or serves as an interesting choice of major for a liberal arts education.

The following courses or their equivalents are required for the Bachelor of Science with a major in astronomy. Students must select Group 1 or Group 2.

Required Courses

Group 1
22M:25-26 Calculus I-II 8 s.h.
or
22M:45-46 Accelerated Calculus I-II 8 s.h.
22M:27 Introduction to Linear Algebra 4 s.h.
22M:28 Calculus III 4 s.h.

Group 2
22M:35-36 Engineering Calculus I-II 8 s.h.
or
22M:45-46 Accelerated Calculus I-II 8 s.h.
22M:40 Matrix Algebra for Engineers 2 s.h.
22M:41 Differential Equations for Engineers 3 s.h.
22M:42 Vector Calculus for Engineers 3 s.h.

Other Required Courses

Students also must take the following.
29:27-28 Physics I-II (Students who completed 29:17-18 before August 1994 may use those courses instead.) 8 s.h.
29:29 Physics III 4 s.h.
29:61-62 General Astronomy 8 s.h.
29:115 Intermediate Mechanics 3 s.h.
29:132 Intermediate Laboratory 2 s.h.
29:137 Astronomical Laboratory 2 s.h.
29:140 Introduction to Quantum Mechanics I 3 s.h.
29:141 Introduction to Quantum Mechanics II 3 s.h.
or
29:194 Plasma Physics 3 s.h.

Undergraduate majors who plan to pursue graduate study are advised to go as far beyond the minimum requirements listed above as feasible, by taking one or more of the courses listed below. However, only 50 semester hours of 29-prefix courses can count toward a single-major bachelor’s degree.

29:117 Optics 3 s.h.
or
29:118 Statistical Physics 3 s.h.
29:137 Astronomical Laboratory (additional semester) 2 s.h.
29:141 Introduction to Quantum Mechanics II 3 s.h.
29:171-172 Mathematical Methods of Physics 6 s.h.
29:194-195 Plasma Physics 6 s.h.
29:196 Fluid Mechanics 3 s.h.

Bachelor of Arts in Astronomy

The B.A. program is designed for students who wish to gain considerable knowledge of astronomy but who do not plan a research-oriented career in astronomy. This degree program is appropriate for those planning careers in secondary school science teaching or science-related administration (see “Science Education” in this section and the College of Education section of the Catalog). It is also appropriate for those preparing for professional school. The B.A. program requires fewer courses in physics and mathematics than the B.S. program, and thus provides for a wider choice of electives.

The following courses or their equivalents are required for the B.A. with a major in astronomy.

22M:25-26 Calculus I-II 8 s.h.
or
22M:35-36 Engineering Calculus I-II 8 s.h.
29:11-12 College Physics 8 s.h.
29:27-28 Physics I-II (Students who completed 29:17-18 before August 1994 may use those courses instead.) 8 s.h.
29:29 Physics III 4 s.h.
29:61-62 General Astronomy 8 s.h.
29:115 Intermediate Mechanics 3 s.h.
29:117 Optics 3 s.h.
or
29:118 Statistical Physics 3 s.h.
29:119-120 Introduction to Astrophysics I-II 6 s.h.
29:129-130 Electricity and Magnetism 6 s.h.
29:132 Intermediate Laboratory 2 s.h.
29:137 Astronomical Laboratory 2 s.h.
29:140 Introduction to Quantum Mechanics I 3 s.h.
29:141 Introduction to Quantum Mechanics II 3 s.h.
or
29:194 Plasma Physics 3 s.h.

Double Major in Physics and Astronomy

Students who wish to obtain a double major in physics and astronomy must earn a minimum of 56 semester hours outside physics and astronomy. Those interested in such a combination should consult with their adviser. For general requirements of the College of Liberal Arts, see the College of Liberal Arts section of the Catalog.

Honors

Junior and senior majors who are members of the University Honors Program may take 6-8 semester hours of 29:99 Honors Seminar 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 or astronomy. They must present a written research report (honors thesis) and describe the results of the research at a departmental seminar.

Minor in Physics

A minor in physics requires 15 semester hours with a minimum grade-point average of 2.00. Those 15 hours must include 12 semester hours of upper-level physics courses taken at The University of Iowa, including 29:29 (prerequisites: 29:27 and 29:28 or 29:17 and 29:18) and all 100-level physics courses.
Minor in Astronomy

A minor in astronomy requires 15 semester hours of credit in astronomy courses with a minimum grade-point average of 2.00; 12 semester hours must be taken at The University of Iowa. The 15 semester hours should include 6 semester hours selected from the following:
29: 119-120 Introduction to Astrophysics 1-1
29:137 Astronomical Laboratory

An additional 6 semester hours of these courses or of 100-level physics courses

Graduate Programs

Two advanced degrees are offered in physics: the Master of Science—with either thesis or critical essay—and the Doctor of Philosophy. One is offered in astronomy: the Master of Science–with either thesis or critical essay. Students who wish to pursue a program in astronomy beyond the M.S. level may qualify for a Ph.D. in physics with specialization and a dissertation in astronomy or astrophysics. An M.S. is not prerequisite to the Ph.D.

The Department of Physics and Astronomy participates in an interdisciplinary doctoral program with the Program in Applied Mathematical Sciences (see the Graduate College section of the Catalog).

Each entering graduate student is assigned a faculty adviser, who assists in preparing a plan of study and in guiding the student’s progress. Graduate students become candidates for advanced degrees in physics or astronomy only after passing a qualifying examination in all principal areas of physics at the level of advanced undergraduate work. The examination is given before the beginning of the second semester each year and must be taken by all first-year graduate students. After a student has selected a research specialty, the appropriate thesis or essay adviser then becomes the candidate’s general adviser and the chair of the final examination committee.

Master of Science in Physics

The M.S. in physics is offered with either thesis or critical essay. The degree may be terminal or an intermediate step toward a Ph.D. In either case, the final examination is oral, conducted by a committee of three members of the graduate faculty appointed by the dean of the Graduate College.

The program for the M.S. with thesis requires 30 semester hours of graduate work (100- or 200-level courses) and a thesis based on an original experimental or theoretical investigation by the candidate. No more than 6 of the minimum 30 semester hours may be for research (29:281 Research: Physics).

The program for the M.S. with a critical essay requires 30 semester hours of graduate work (100- or 200-level courses), an independent study of the literature on a chosen topic, and preparation of a critical essay on that topic. No more than 4 of the minimum 30 semester hours may be for the critical essay (29:220 Individual Critical Study). Up to one-third of the graduate program may be in related scientific fields other than physics and mathematics—for example, chemistry, astronomy, geology, or engineering.

Candidates for either of the M.S. programs must have satisfactorily completed the following courses or their equivalents as undergraduates or graduates:

29: 115 Intermediate Mechanics 3 s.h.
29: 117 Optics 3 s.h.
29: 118 Statistical Physics 3 s.h.
29: 129-130 Electricity and Magnetism 6 s.h.
29: 132 Intermediate Laboratory (two semesters) 4 s.h.
or
29: 133 Advanced Laboratory (two semesters) 4 s.h.
29: 140-141 Introduction to Quantum Mechanics I and II 6 s.h.
29: 171-172 Mathematical Methods of Physics 6 s.h.
Two additional courses selected from:
29: 192 Elementary Particles and Nuclear Physics 3 s.h.
29: 193 Introductory Solid State Physics 3 s.h.
29: 194 Plasma Physics 3 s.h.
The student’s plan of study should provide for as much advanced work as aptitude and previous preparation permit.

Students who fail to pass the departmental qualifying examination may still receive the M.S. if they fulfill the following requirements: complete 30 semester hours of 100- or 200-level courses;
write a thesis or critical essay;
pass an oral examination on the thesis or critical essay;
and obtain a grade of B or better in 29:205, 29:2 12, 29:213, 29:214, 29:245, and 29:246 (these courses count toward the 30 semester hours).

Master of Science in Astronomy

The M.S. in astronomy is offered with either thesis or critical essay. The general requirements are the same as those for the M.S. in physics (see above). Course requirements or their equivalents for undergraduates or graduates are as follows.

29: 1 15 Intermediate Mechanics 3 s.h.
29: 117 Optics 3 s.h.
29: 118 Statistical Physics 3 s.h.
29: 19-120 Introduction to Astrophysics I-II 6 s.h.
29: 129-130 Electricity and Magnetism 6 s.h.
29: 133 Advanced Laboratory 2 s.h.
29: 137 Astronomical Laboratory 2 s.h.
29: 140-141 Introduction to Quantum Mechanics I and II 6 s.h.
29: 171-172 Mathematical Methods of Physics 6 s.h.
29: 194 Plasma Physics 3 s.h.

Students who intend to pursue a Ph.D. in physics with an astrophysics specialization should take the following courses as early in the master’s program as possible.

29: 195 Plasma Physics 3 s.h.
29: 232-233 Theoretical Astrophysics 3 s.h.
29: 234 Stellar Structure and Evolution 3 s.h.
29: 235 Special Topics in Astrophysics 1-3 s.h.

Doctor of Philosophy in Physics

The program of study for the Ph.D. with a major in physics includes thorough course work in both classical and quantum theoretical physics for all candidates, whether their specialized research is to be in an experimental or a theoretical area. All candidates 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.

They also must take at least 27 semester hours of 200-level courses in the department, excluding 29:220, 29:281, 29:282, and seminars. The following minimum program is recommended as preparation for the comprehensive examinations.

29: 141 Introduction to Quantum Mechanics I 3 s.h.
29:192 Elementary Particles and Nuclear Physics 3 s.h.
29: 193 Introductory Solid State Physics 3 s.h.
29: 205 Classical Mechanics I 3 s.h.
29: 212 Statistical Mechanics I 3 s.h.
29: 213-214 Classical Electrodynamics 6 s.h.
29: 245-246 Quantum Mechanics 1-II 6 s.h.

Advanced mathematics, such as complex variables and tensor analysis, is used freely in these courses. An introduction to these fields is given in 29:171-172 Mathematical Methods of Physics. The selection of less advanced courses will depend on the adequacy of the students' preparation for graduate work; the students' choice of more advanced and specialized courses will depend on the direction in which their interests develop. No more than 30 of the minimum 72 semester hours may be in research and seminars.

Candidates for the Ph.D. degree 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 adviser, to a widely distributed, refereed scientific journal.

Financial Aid

Students qualified for graduate study are encouraged to apply for fellowships and assistantships. Inquiries should be directed to the department chair.

Research and Facilities

The department has an excellent library and a number of well-equipped laboratories and observatories. A VAX computer as well as numerous UNIX workstations are available in the department, and the associated facilities of
the University's Weeg Computing Center are available for research by students and staff. National supercomputers are accessed via internet. The central machine shop is fully equipped and staffed with skilled instrument makers and machinists, and there are several electronics and machine shops for the use of advanced students and the research staff. Experimental research is conducted in astronomy (optical and radio), atomic and molecular physics, elementary particle physics, laser physics, nuclear physics, plasma physics, solid state physics, and space physics. Extensive facilities are available for construction of specialized research equipment and for processing and analysis of data.

A versatile 6.0-MV Van de Graaff accelerator is used in studies of nuclear reactions induced by hydrogens, helium, lithium, and beryllium nuclei with beam energies up to 14 MeV. Experiments requiring higher energies and heavier ions are done using large national accelerators in the United States and Europe. Experiments on fundamental thermal, electrical, and magnetic properties of metals, alloys, compounds, and high-temperature superconductors are included in the experimental solid state program, as are surface studies of metals and semiconductors. Several devices are available for basic studies in plasma physics, including two Q machines; two triple plasma devices, several multipolar plasma devices, and a parallel plate magnetron device. These devices are used to investigate linear and nonlinear plasma waves, dusty plasmas, and double layers.

State-of-the-art laser systems are available for high resolution spectroscopic measurement and ultrafast pump-probe studies of molecular structure, collisional relaxation and nonlinear optical effects in atomic and molecular systems and semiconductor materials, and for plasma diagnostics. Experimental research in elementary particle physics is carried out at Fermi National Accelerator Laboratory, Los Alamos National Laboratory, Stanford Linear Accelerator Center, CERN in Switzerland, DESY in Germany, 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 in observational astronomy. The primary optical instrument, a 24-inch reflector with a CCD camera, is used for stellar, planetary, and cometary studies. The department also maintains a fully automated 14-inch telescope with CCD cameras and a 4.5-meter radio telescope on campus for instructional use and undergraduate research. Research programs in galactic and extragalactic radioastronomy 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 ten miles north of campus. Current long-term research activities include studies of extragalactic radio sources, red giant stars, radio wave scattering in the interstellar medium, and interacting binary stars. Students and faculty also conduct research programs using the Kitt Peak National Observatory, the Arecibo Observatory, the Infrared Telescope Facility, and the International Ultraviolet Explorer.

Active theoretical research is carried out in astrophysics; atomic, molecular, and optical physics; elementary particle physics; laser physics; mathematical physics; nuclear physics; plasma physics; solid-state 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 magnetospherionosphere interactions. Facilities are available for designing and constructing spaceflight 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, and Galileo.

Courses

Prerequisites and corequisites are specified as guides and may be waived by the instructor. Students may not repeat an elementary course for credit or grade points if they already have completed a higher level course for which the elementary course, or its equivalent, is a prerequisite. Courses 29:5-29:15, 29:17-29:20, 29:21-29:50, and 29:61-29:65 are accepted toward the College of Liberal Arts General Education Requirement in the natural sciences.

Physics—Primarily for Undergraduates

29:000 Cooperative Education 0 in

29:5 Chemistry and Physics of the Environment 3 s.h.

Chemistry and physics of the ecology of our planet; air, earth, water, and noise pollution; return of pollutants to man; chemistry and physics of the balance of nature; for conscience students. GER: natural sciences. Not open to students who have received credit for 29:11. Prerequisite: 22M:2 or equivalent.

29:9 Directions in Modern Physics 3 s.h.

Introduction to recent progress in experimental and theoretical physics; chaotic dynamical systems, most of turbulence, space plasma, superconductivity, symmetries in particle physics, cosmology. GER: natural sciences. Prerequisite: 22M:5 or equivalent.

29:11 College Physics 4 s.h.


29:12 College Physics 4 s.h.

Continuation of 29:11, which is prerequisite; electricity, magnetism, light. GER: modern physics. GER: natural sciences.

29:17 Introductory Physics I 3+1 h.


29:18 Introductory Physics II 3 s.h.

Continuation of 29:17; electricity and magnetism, light. GER: natural sciences.

29:27 Physics I 4 s.h.

Mechanics, waves, thermodynamics. Open only to physics and astronomy majors. Offered fall semesters. GER: natural sciences. Corequisites: 22M:25 or 22M:35 or 22M:45.

29:28 Physics II 4 s.h.

Continuation of 29:27; electricity, magnetism, optics. Open only to physics and astronomy majors. Offered spring semesters. GER: natural sciences.

29:29 Physics III 3 s.h.

Continuation of 29:28; atomic, nuclear, particle physics; relativity. Offered fall semesters.

29:83 Modern Physics 3 s.h.

Wave mechanics, hydrogen atom, and molecular structure, nuclear physics, elementary particles; primarily for engineering students. Prerequisite: 29:18 or 29:28.

29:93 Reading in Physics 1 arr.

29:98 Undergraduate Seminar 1 arr.

Selected topic in physics or astronomy. May be repeated.

29:99 Honors Seminar 1 arr.

Supervised original research leading to written report, oral defense. Open only to senior and junior honors candidates in physics or astronomy.

Physics—For Undergraduates and Graduates

29:103 Reading in Physics 1 arr.

29:112 Modern Acoustics 3 s.h.

Same as 25:295.

29:115 Intermediate Mechanics 3 s.h.

Newtonian mechanics; nongravitational reference systems; central forces, celestial mechanics, rigid body motion; Lagrangian and Hamiltonian equations of motion; small oscillations. Prerequisites: 22M:26 or 22M:36, and 29:11 or 29:17 or 29:27.

29:117 Optics 3 s.h.

Geometrical and physical optics; properties of lenses and simple optical instruments; phenomena of propagation, interference, diffraction, polarization of light, modern optics.

29:118 Statistical Physics 3 s.h.

Integrated introduction to subjects of thermodynamics, statistical mechanics, kinetic theory, emphasis on applications. Prerequisites: 29:29 and 29:15.

29:128 Electronics 4 s.h.

Characteristics of bipolar and FET transistors and integrated circuit devices such as operational amplifiers and digital logic; circuit introduction to microprocessors; design and study of analog and digital circuital instrumentation, with emphasis on laboratory work. Prerequisites: 29:12 or 29:18 or 29:28.

29:129 Electricity and Magnetism 4 s.h.


29:130 Electricity and Magnetism 3 s.h.

Continuation of 29:129, which is prerequisite; magnetism, electromagnetic waves, A.C. circuits, problems of Maxwell's equations for wave guides, antennas, optics, plasma physics, other topics.

29:131 General Laboratory 3 s.h.

Laboratory instruction and development, experimental and theoretical development of labs, teaching demonstrations, new hardware and software technologies; emphasis on physics, but other applications covered. May be repeated. Offered only through Saturday and Evenning Class Program.

29:132 Intermediate Laboratory 2 s.h.

Electronics; electromagnetics, optics, atomic, nuclear, solid state physics; techniques for 22M:28 analysis, including error analysis; laboratory work for 29:117, 29:129, 29:150, 29:141. May be repeated. Prerequisites: 29:18 or 29:28; 29:62; and 22M:26 or 22M:36.

29:133 Advanced Laboratory 2 s.h.

Topics in electricity, electronics, magnetism; atomic, nuclear, plasma, solid state physics; techniques in data analysis, including error analysis. May be repeated.
29:140 Introduction to Quantum Mechanics 1 3 s.h.
Supercposition 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: 29:29 or 29:83; and 22M:28 or 22 M:40-42.

29:141 Introduction to Quantum Mechanics II 3 s.h.
Perturbation theory, variational methods, WKB approximation, scattering, Helium atom, periodic table, atoms, spectroscopy, transition rates, other selected applications. Prerequisite: 29: 140.

29:171 Mathematical Methods of Physics 3 s.h.

29:172 Mathematical Methods of Physics 3 s.h.
Continuation of 29:171; fiber space, special functions, Fourier transform and expansions in orthogonal polynomials, differential equations, Green’s functions.

29:180 Electromagnetic Foundations of Optics 3 s.h.
Microscopic origins of macroscopic optical properties of matter; dipole radiation; normal modes of matter; optical activity; anisotropy of crystals; spacial, electro-optical, magneto-optical, acousto-optical phenomena; spontaneous emission; Rayleigh scattering. Prerequisite: 29:130 or equivalent. Same as 55:177.

29:182 Electrodynamics 3 s.h.
Properties of a medium, Maxwell’s equations, radiation theory, physical optics, multiple expansion of radiation field. Prerequisites: 29:130 and 29:172.

29:211 Mechanics of Continua 3 s.h.
Hydrodynamics, dynamics of ideal fluids, both incompressible and compressible; viscous flow; plasticity theory of elasticity. Prerequisites: 29:205 and 29:171.

29:212 Statistical Mechanics I 3 s.h.
Probabilistic models; kinetic equations; classical and quantum equilibrium statistical mechanics with applications including ideal and imperfect gases and phase transitions, reversible processes, fluctuations, non-linear. Prerequisites: 29:118, 29:140, and 29:172.

29:213 Classical Electrodynamics 3 s.h.
Advanced electromagnetics boundary value problems, Green’s functions, Maxwell’s equations, radiation theory, physical optics, multiple expansion of radiation field. Prerequisites: 29:130 and 29:172.

29:214 Classical Electrodynamics 3 s.h.
Special relativity, motion of charges in fields, themes of radiation reaction, special topics. Prerequisite: 29:2 13 and 29:172.

29:220 Advanced Critical Study 3 s.h.
Essay on topic chosen in consultation with faculty member. Open only to candidates for M.S. with critical essay.

29:222 Nonlinear Optics 3 s.h.
Classical treatment of second, third order optical nonlinearities; phase matching, harmonic generation, three and four wave mixing, self-focusing, self-phase modulation, stimulated scattering of light, applications. Prerequisite: 29:130 or equivalent. Same as 55:177.

29:224 Laser Principles 3 s.h.
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: 29:130 or equivalent. Same as 55:274.

29:226 Quantum Electrodynamics 3 s.h.

29:228 Topics in Quantum Electronics 3 s.h.
Quantum optics, optical properties of matter, laser science, photonics. Consent of instructor required.

29:245 Quantum Mechanics I 3 s.h.

29:246 Quantum Mechanics II 3 s.h.
Continuation of 29:245.

29:247 Introduction to Quantum Field Theory 3 s.h.
Quantum field theory, quantum chromodynamics running coupling constants, operator product expansions, Ward identities, symmetries, anomaly breaking, phase transitions, quantum gravity, string theory. Prerequisites: 29:246.

29:248 Quantum Gauge Theories 3 s.h.

29:251 Advanced Nuclear Physics 3 s.h.
Nuclear models, nucleon-nucleon interaction, low, intermediate, and high energies based on nucleon-nucleon and quark-gluon degrees of freedom; nuclear structure, nuclear reactions, strong interactions, G Wilson, few, and many body quantum models, electroweak interactions and beta decay, quark-gluon models, nuclear symmetries, interacting boson models, heavy ion models, and applications, including the role of nuclear physics in stellar evolution and cosmology. Prerequisites: 29:243 and 29:246, or consent of instructor.

29:261 Seminar: Phase Transitions 3 s.h.
Current research. Same as 55:291.

29:262 Seminar: Solid State Physics 3 s.h.
Current research.

29:266 Seminar: Space physics 3 s.h.
Current research.

29:267 Seminar: Nuclear Physics 3 s.h.
Current research.

29:268 Seminar: Elementary Particle Physics 3 s.h.
Current research.

29:271 Theoretical Solid State Physics 3 s.h.
Central principle of the quantum theory of solids; lattice dynamics, electronic structure, optical properties, superconductivity, magnetism, applications. Prerequisite: 29:193 and 29:246.

29:272 Theoretical Solid State Physics II 3 s.h.
Magnets; disordered systems; Green’s function methods. May be repeated.

29:273 General Relativity and Cosmology 3 s.h.
Einstein’s theory of gravity; applications to astrophysics and cosmology. May be repeated.

29:274 Statistical Mechanics II 3 s.h.
Quantum statistical mechanics; quantum statistical mechanics. May be repeated.

29:275 Particle Physics 3 s.h.
Advanced topics in statistical mechanics, such as foundations of kinetic theory and nonequilibrium statistical mechanics, quantum statistical mechanics. May be repeated.

29:285 Topics in Quantum Mechanics 3 s.h.
Current topics in quantum mechanics, such as symplectic, relativistic quantum mechanics, quantum gravity, atom-trap quantum field theory. May be repeated.

29:286 Topics in Quantum Mechanics 3 s.h.
Current topics in quantum mechanics, such as symplectic, relativistic quantum mechanics, quantum gravity, atom-trap quantum field theory. May be repeated.

29:308 Solar Terrestrial Physics 2 s.h.
Atmosphere of sun, radio and x-ray 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. May be repeated.

29:309 Research: physics 3 s.h.
Prerequisite: 29:246 or consent of instructor.

29:315 Advanced Plasma Physics 3 s.h.
Magnetohydrodynamics, magnetohydrodynamics, plasma behavior, statistical mechanics of plasmas, magneto-hydrodynamics, hierarchy; Fokker-Planck equation and relaxation processes, magnetohydrodynamics, linear wave motion, shocks, nonlinear plasma motions, instabilities, fluctuations and radiation processes; topics from recent literature. May be repeated. Prerequisite: 29:12 or 29:213 or consent of instructor.

Astronomy - Primarily for Undergraduates

29:50 Modern Astronomy 3 s.h.
Survey for non-science majors; topics from visible phenomena in the sky to latest astronomical findings; properties of planets, origin of solar system, life cycle of stars, galaxies and quasars, origin of the universe. Open only to non-science majors. GER: natural sciences.

29:51 Introductory Astronomy Laboratory 1 s.h.
Laboratory for 29:50. Prerequisite: 3 semester hours credit in 29:50. GER: natural sciences.

29:52 Characteristics and Origins of the Solar System 3 s.h.
Well defined topics in solar system astronomy, such as celestial mechanics, structure and energy source of sun, production of craters on moon and other solar systems objects formation of solar system, properties of planetary atmospheres including human modification of Earth’s atmosphere, astronomical perspectives on origin of life; for nonmajors. GER: natural sciences. Prerequisites: 29:50 or consent of instructor.

29:61 General Astronomy 4 s.h.
Qualitative and quantitative introduction to the development of astronomy, celestial mechanics, time, electromagnetic radiation, telescopes and astronomical instrumentation; planets, smaller solar system objects; historical emphasis on observation with telescopes. GER: natural sciences. Prerequisite: four years of high school math.

29:62 General Astronomy 4 s.h.
Continuation of 29:61; qualitative and quantitative introduction to properties and evolution of sun, stars, interstellar matter, galaxies, cosmology, laboratory emphasis on observation with telescopes. GER: natural sciences. Prerequisite: four years of high school math.

29:94 Reading in Astronomy 3 s.h.
Astronomy for Undergraduates and Graduates

29:104 Reading in Astronomy 1

29:119 Introduction to Astrophysics I 3 s.h.
Fundamentals of astrophysical processes in solar system objects, stars, nebulae, interstellar medium, galaxies; topics include stellar spectra, binary stars, interstellar gas and dust, stellar and galactic kinematics, stellar evolution, HII regions, radiation processes in galaxies and quasars, stochastic processes in astrophysics. Prerequisites: 29:18 or 29:28, and 22M:26 or 22M:36. Recommended: computer programming experience.

29:120 Introduction to Astrophysics II 3 s.h.
Continuation of 29:119. Prerequisites: 29:29, and 22M:26 or 22M:36.

29:137 Astronomical Laboratory 2 s.h.
Techniques and instrumentation in astronomy. May be repeated. Consent of instructor required. Prerequisite: 29:62.

Astronomy - Primarily for Graduates

29:232 Theoretical Astrophysics I 3 s.h.
Radiative transfer, theory of stellar photospheres and continua, spectra of stars, formation of absorption lines in spectra of stars. Consent of instructor required.

29:233 Theoretical Astrophysics II 3 s.h.
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.

29:234 Stellar Structure and Evolution 3 s.h.
Structure of stellar interiors; nucleosynthesis in stars and evolution of stars. Consent of instructor required.

29:235 Special Topics in Astrophysics 1-3 s.h.
Advanced lectures. May be repeated.

29:263 Seminar: Astrophysics 1
Current research.

29:282 Research: Astronomy 1
Original research in observational, theoretical astronomy.

Four of these:
30:30 Introduction to Political Thought and Political Action 3 s.h.
30:40 Introduction to the Politics of the Industrial Democracies 3 s.h.
30:41 Introduction to the Politics of Russia, Eastern Europe, and Eurasia 3 s.h.
30:42 Introduction to the Politics of Developing Areas 3 s.h.
30:50 Introduction to Political Behavior 3 s.h.
30:60 Introduction to International Relations 3 s.h.
30:61 Introduction to American Foreign Policy 3 s.h.
30:70 Introduction to Political Communication 3 s.h.

Students must earn at least 18 semester hours in political science courses numbered 100 or above (credit from 30:191 Government Internship and 30:192 Washington Internship cannot be included in this total). At least 12 of the required 18 semester hours must be taken in regularly scheduled classroom work. Transfer students must take at least 12 of the 33 semester hours of work in political science at The University of Iowa.

Students must maintain at least a 2.00 grade-point average in all political science courses and in all political science courses taken at The University of Iowa.

Bachelor of Science

The B.S. degree requires three semesters of mathematics or statistics. The following sets of courses are approved.

22M:17 Quantitative Methods I or 22M:25 Calculus I 4 s.h.
22S: 102 Introduction to Statistical Methods 3 s.h.
22S:148 Intermediate Statistical Methods 3 s.h.
22M:17 Quantitative Methods I 4 s.h.
22S:8 Quantitative Methods II 4 s.h.
6K:71 Statistical Analysis or 6E:85 Economic Statistics 3 s.h.
22M:25 Calculus I 4 s.h.
22M:26 Calculus II 4 s.h.
22S:102 Introduction to Statistical Methods 3 s.h.

Other sets of courses may be used with written approval of the director of undergraduate studies in political science. A 2.00 grade-point average is required.

Education Major

Undergraduates planning to emphasize political science in their teacher training should consult the College of Education for requirements. The courses 30:1 Introduction to American Politics and 30:110 The American Political System fulfill the requirement for Iowa teacher licensure.

Honors

The program leading to a B.A. or a B.S. with honors is open to students with a minimum cumulative grade-point average of 3.20 overall and in political science. To graduate with honors, students must maintain at least a 3.50 grade-point average in political science and a cumulative grade-point average of at least 3.20. Students are encouraged to take upperclass honors seminars as often as possible, although the program requires only 9 semester hours of upperclass honors course work with a grade of B or higher in each course.

Honors students must complete 30:180 Honors Seminar on the Study of Politics, preferably as sophomores. They also must take at least one additional upperclass honors seminar, 30:181 Honors Seminar on American Politics, 30:182 Honors Seminar on Political Theory, 30:183 Honors Seminar on Comparative Politics, or 30:184 Honors Seminar on International Politics. The last 3 semester hours required for graduation with honors in political science may be earned by completing 30:185 Honors Research Project, 30:186 Honors Senior Thesis, or a third upperclass honors seminar. Contact the department honors adviser for more information.

Minor

To receive a minor in political science, students must take 15 semester hours in political science courses, 12 of which must be taken in courses at The University of Iowa numbered 30:100 and above (credit from 30:191 Government Internship and 30:192 Washington Internship cannot be applied to the minor).

Graduate Programs

The department has a program leading to a Doctor of Philosophy in political science 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 with Thesis

To earn an M.A. in political science, students must complete at least 36 semester hours with a grade-point average of at least 3.25, submit a thesis, and pass a final oral examination. No more than 8 semester hours of credit for thesis preparation may be counted toward the 36-semester-hour minimum requirement. The final oral examination covers both thesis and course work.

Master of Arts without Thesis

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 without writing a master’s thesis. The requirements for the M.A. without thesis include completion of at least 30 semester hours of graduate work with a grade-point average of at least 3.25 and review of the student’s record by a final examination committee, which may waive the final oral examination.
The same requirements apply where a first-year evaluation committee finds the quality of a student’s work inadequate for recommending continuation toward the Ph.D. but adequate for proceeding with the master’s program. The committee may recommend that the student be permitted to seek the nonthesis M.A. as a terminal degree.

**Doctor of Philosophy**

The Ph.D. program in political science 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.

About ten Ph.D. students are admitted 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.

**Curriculum**

Doctoral study usually lasts four 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 today’s political scientist must understand thoroughly. Special attention is given to research design, collection of observations, analysis and interpretation of data, micro- and mainframe computers, and social science software. Most first-year students complete this training with a research tutorial involving investigative projects directed by the faculty.

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 comprehensive examinations by the end of the third year.

The fourth year is spent on dissertation research and writing. Students who do basic research and gather data abroad often require a fifth year to complete the dissertation.

Five fields of study are available: American politics, comparative politics, international relations, political theory, and for those who wish to go beyond the basic methodology training, research methods. Each student chooses three fields of study for the comprehensive examination.

A comprehensive statement of departmental requirements is set forth in the Guide to Doctoral Study in Political Science. For general graduate admission and degree requirements, see the Graduate College section of the Catalog.

**Courses**

**For Undergraduates**

Courses numbered below 100 are introductory; those numbered 100 to 199 are advanced.

30:000 Cooperative Education Training Assignment 0 s.h.

30:1 Introduction to American Politics 3 s.h.
Structure and processes: political institutions, Congress, presidency, Supreme Court, parties, interest groups, bureaucracy, discussion of framing and significance of the U.S. Constitution. GER: social sciences.

30:30 Introduction to Political Thought and Political Action 3 s.h.
Common problems, literature, analytic techniques. GER: social sciences or humanities.

30:40 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, policymaking processes, patterns of voting behavior and citizen participation. GER: social sciences.

30:41 Introduction to the Politics of Russia, Eastern Europe, and Eurasia 3 s.h.
Historical factors, institutional change, current problems. GER: social sciences.

30:42 Introduction to the Politics of Developing Areas 3 s.h.
Political systems of underdeveloped countries in Africa, Asia, Latin America; development, how they interact with other developing countries and developed countries. GER: social sciences.

30:50 Introduction to Political Behavior 3 s.h.
Patterns and basis of political behavior, emphasis on common elements across social, organizational, institutional settings. GER: social sciences.

30:60 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. GER: social sciences.

30:61 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 and content of international relations. GER: social sciences.

30:70 Introduction to Political Communication 3 s.h.
Institutions, dynamics, issues of political communities considered as networks of communication; representative topics include political action ads, mass media, lobbying, news, publics, regulations, rhetoric, symbols. GER: social sciences.

30:100 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. May be repeated.

30:11 The American Political System 3 s.h.
Political behavior of American individuals and groups; institutional structure of political system. Not open to students who have received credit for 30: 1.

30:111 Municipal Government and Politics 3 s.h.
Models of city government, civic participation, state and federal governments; rights, liabilities of municipalities; city elections, campaigns, issues, role of pressure groups.

30:112 Iowa Government and Politics 2-3 s.h.
Political parties and campaigns, constitution, election laws, legislative process, judicial procedure, rules of Iowa government.

30:13 American State Politics 3 s.h.
Approaches to analysis of political behavior in American state government; emphasis on cultures, parties, actors, processes, issues.
30:141 Soviet and Post-Soviet Government and Politics 3 s.h.

How Soviet political system developed and functioned 1917-1985. Transformations leading to 1990 breakup, emerging forms of government, politics in former Soviet republics. GER: foreign civilization and culture. Prerequisite: 30:41 or consent of instructor.

30:142 Politics in Post-Communist Societies of Eastern Europe and Asia 3 s.h.

Institutions, norms, functioning communist/communist systems in post-Stalin Soviet Union and Eastern Europe; differences shaped by history, culture, development geography; processes leading to fall of communist power 1989-1991; emerging forms of government and their politics. GER: foreign civilization and culture. Prerequisite: 30:141 or consent of instructor.

30:143 Government and Politics of the Far East 3 s.h.

Functions, institutions of government in countries of Far East; focus on social, economic, historical environments GER: foreign civilization and culture. Same as 39:178.

30:144 Latin American Government 3 s.h.

Governmental institutions, major interest groups; focus on area as a whole. GER: foreign civilization and culture.

30:145 Major States of Latin America 3 s.h.

Comparison of political systems; historical background with emphasis on contemporary political scene. GER: foreign civilization and culture.

30:146 African Development 3 s.h.

Problems of economic, political, spatial integration in Africa; processes of economic development and nation building. GER: foreign civilization and culture, social sciences. Same as 44:161, 141:146.

30:147 Ethnicity and Nationalism in the Former USSR 3 s.h.

Issues in religion, language, culture for ethnic minority groups in post-Soviet societies; focus on policy challenges facing central leadership as result of rising demand for national self-determination. political sovereignty. Prerequisite: 30:41 or 418:100.

30:148 The Politics of Southern Africa 3 s.h.

Major forces of political conflict, especially in South Africa; implications for development, stability of Africa and the West. GER: foreign civilization and culture. Same as 141:148.

30:149 Problems in Comparative Politics 3 s.h.

Structures, functions, behaviors of different political systems. May be repeated with consent of instructor.

30:150 The Political Economy of the Third World 3 s.h.

Patterns of political and economic change common to countries in Africa, Asia, Latin America; state formation and consolidation, neocolonialism and dependency, conflicting conceptions of meaning of development, costs and benefits of alternative strategies for achieving development. Prerequisite: 30:42 or consent of instructor.

30:151 Political Leadership 3 s.h.

Functions, effects of leadership in different political systems.

30:152 The Legislative Process 3 s.h.

Role of courts, lawyers, judges, interest groups in the American political system.

30:154 Political Psychology 3 s.h.

Political phenomena from psychological perspective; political behavior 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.

30:155 Political Violence and Revolution 3 s.h.

Causes, consequences in present and past political systems; Institutional violence, political crime, political and social movements, rebellion, revolution.

30:156 Politics of Ethnic and Cultural Conflict 3 s.h.

Origins, nature, political consequences of communal cleavage and conflict in contemporary societies and international settings.

30:157 Voting Behavior and Elections 3 s.h.

Determinants of voting behavior; correlates of political participation, political apathy; political socialization processes, nature and functions of elections.

30:158 The Criminal Justice System 3 s.h.

Role of actors, institutions that constitute and participate in the American criminal justice system.

30:160 International Politics 3 s.h.

Concepts and problems; war, conflict resolution, political violence.

30:161 International Organizations 3 s.h.

Functions in contemporary world affairs and impact on international politics; growth in the number and type, bargaining and decision-making within; impact on international security, global economic issues, development, environment, other issues of international order.

30:162 American Foreign Policies 3 s.h.

Ends pursued, means employed by the United States in relations with other states and international organizations. Prerequisite: 30:61 or consent of instructor.

30:165 International Conflict 3 s.h.

International conflict as the primary ingredient of international politics: sources, causes, and effects of conflict alliance structures, power distribution, geography, arms races, deterrence.

30:166 Politics of War and Peace 3 s.h.

Origins, purposes, effects of war in the modern era; attempts to eliminate or control war as an instrument of policy; alternative methods to secure a peaceful world.

30:168 Foreign Policies of the Former Soviet Bloc 3 s.h.

International politics between former USSR and Eastern European states and between them and other states; sources of foreign policy goals, strategies; similarities, differences between these states’ objectives, strategies, capabilities. Prerequisite: 30:61.

30:169 Programs of International Politics 3 s.h.

May be repeated with consent of instructor.

30:170 The Politics of International Economics 3 s.h.

Political, historical dimensions; political aspects of trade, monetary systems, foreign investment, aid, dependency, global interdependence.

30:171 Public Opinion 3 s.h.

Role in making public policy, formation, change of political attitudes and opinions; political ideology; measurement of public opinion; how opinion polls are conducted, experience interviewing and conducting public opinion research. Same as 34:153.

30:172 Political Communication and Cognition 3 s.h.

Representative topics include issues, processes, political parties, public opinion, mass media, 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.

30:173 Comparative Law 3 s.h.

Relationship between law and politics in British House of Lords, U.S. Senate, state legislatures; major literature of American politics, emphasis on comparative, community institutions, pressures, strategies, capabilities. Prerequisite: 30:61 and 44:161.

30:179 Crises in the Middle East 3 s.h.

Dynamics of interstate relations; focus on major crises over past two decades; domestic, historical roots of crises. GER: social sciences.

30:180 Honors Seminar on the Study of Politics 3 s.h.

History, scope, methods; diverse issues, theories, techniques in systematic study. Open only to political science honors students or to others with consent of instructor.

30:181 Honors Seminar on American Politics 3 s.h.

Ideas, issues, methods in selected area. Open only to junior or senior honors students in political science or to others with consent of instructor. May be repeated.

30:182 Honors Seminar on Political Theory 3 s.h.

Ideas, issues, methods in selected area. Open only to junior or senior honors students in political science or to others with consent of instructor.

30:183 Honors Seminar on Comparative Politics 3 s.h.

Ideas, issues, methods in selected area. Open only to junior or senior honors students in political science or to others with consent of instructor. May be repeated.

30:184 Honors Seminar on International Politics 3 s.h.

Ideas, issues, methods in selected area. Open only to junior or senior honors students in political science or to others with consent of instructor. May be repeated.

30:185 Honors Research Project 3 s.h.

Special research assistance to political science faculty. Open only to junior and senior honors students in political science.

Consent of instructor required.

30:186 Honors Senior Thesis 3 s.h.

Supervised research and writing. Open only to honors students in political science who are not in their last semester of course work before graduation. Consent of instructor required.

30:190 Independent Study 3 s.h.

Supervised special projects. Consent of instructor required.

30:191 Government Internship 1-3 s.h.

Undergraduate internships in state or national legislative office, executive agency, or with election campaign official. May be repeated. Consent of instructor required.

30:192 Washington Internship 1-3 s.h.

Open only to students participating in the Washington Center. Consent of instructor required.

For Graduates

Courses numbered 200 to 299 are core courses; those numbered 300 and above are advanced.

30:200 Introduction to Political Analysis 3-4 s.h.

Conceptual problems of political analysis, empirical research strategies, quantitative techniques. Open only to doctoral students in political science or to others with consent of instructor.

30:201 Introductory Methodology 3 s.h.

Observational methods, data analysis; critical analysis of applied social research. Open only to doctoral students in political science or to others with consent of instructor.

30:202 Computing in Political Science 1 s.h.

Work on large and small computer systems. Open only to doctoral students in political science or to others with consent of instructor.

30:203 The Writing of Political Science 2 s.h.

Instruction, practice in writing; focus on style, critical thinking, use of graphics. Open only to doctoral students in political science or to others with consent of instructor.

30:204 Computational Methods 3 s.h.

Methods for political analysis; calculus, matrix algebra, set theory. Open only to doctoral students in political science or to others with consent of instructor.

30:210 American Politics 3-4 s.h.

Major literature of American politics, emphasis on comparative, systemic, behavioral studies. Open only to doctoral students in political science or to others with consent of instructor.

30:220 Administrative Theory and Public Policy 3-4 s.h.

Literature, research on organizational and administrative theory, behavior, politics.

30:221 Urban Administration 3 s.h.

Problems, principles of urban administration; tax problems, personnel matters, budgeting, planning, functional operations of city administrations-police, fire, public health, recreation, social welfare services, education.

30:231 Introduction to Positive Political Theory 3-4 s.h.

The formal analysis of politics; macroeconomic foundations, collective choice problems, spatial models, voting mechanisms.

30:240 Comparative Politics 3-4 s.h.

Current approaches analysis of systems; emphasis on conceptual, methodological issues. Open only to doctoral students in political science or to others with consent of instructor.

30:260 International Politics 3-4 s.h.

Approaches to study of international politics. Open only to doctoral students in political science or to others with consent of instructor.

30:300 Philosophy of Political Inquiry 3-4 s.h.

Purposes, methods in study of politics.

30:301 Interdisciplinary Methodology 3 s.h.

Techniques of data analysis; statistical models and their relationship to hypotheses tested. Open only to political science doctoral students. Prerequisite: one semester of intermediate statistics.

30:302 Time Series Analysis 3-4 s.h.

Applications of models of dynamic causality, particularly those associated with Box and Jenkins, focus on intervention and regular transfer function models for estimation of causal relationships through time. ARIMA models of noise processes. Prerequisite: 30:301 or equivalent.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
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<tbody>
<tr>
<td>30:303</td>
<td>Linear and Nonlinear Models in Political Science</td>
<td>3-4 s.h.</td>
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<tr>
<td>30:304</td>
<td>Experimental Methods</td>
<td>4 s.h.</td>
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<td>30:313</td>
<td>Interest Groups</td>
<td>3-4 s.h.</td>
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<td>30:314</td>
<td>Political Parties</td>
<td>3-4 s.h.</td>
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<tr>
<td>30:315</td>
<td>The Presidency</td>
<td>3-4 s.h.</td>
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<td>30:316</td>
<td>Law and Politics</td>
<td>3-4 s.h.</td>
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<tr>
<td>30:319</td>
<td>Problems in American Politics</td>
<td>3-4 s.h.</td>
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<tr>
<td>30:330</td>
<td>Economics</td>
<td>3-4 s.h.</td>
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<tr>
<td>30:331</td>
<td>Problems in Comparative Politics</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>30:332</td>
<td>Political Economy and Public Policy in Developing Countries</td>
<td>3-4 s.h.</td>
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</tbody>
</table>
Any university student may enter the B.A. program. Entering freshmen and transfer students with fewer than 30 semester hours of coursework who are interested in the B.S. program will be 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 the 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**

The B.A. program is designed for students who wish to gain considerable knowledge in psychology but do not necessarily plan a research-oriented career in psychology. The program is appropriate for students preparing for careers in law, business, technical writing, or secondary school teaching (see the College of Education section of the Catalog for the certification requirements for social science teaching). The B.A. program requires fewer psychology courses than the B.S. program, offers a wider choice of electives, and can more easily be combined with a second major.

Students interested in pursuing graduate study in psychology or other social scientific disciplines may wish to enrich their B.A. program by taking courses in mathematics, statistics, research methods, and the natural sciences.

Students must satisfy the College of Liberal Arts requirements for the B.A. and must complete at least 25 semester hours in psychology plus a 3-semester-hour upper level statistics course. Effective fall semester 1994, students must also complete at least 9 semester hours of course work in a second area of concentration. Courses used to satisfy the College of Liberal Arts General Education requirements may not be used to satisfy the second area of concentration, but a second major or a minor in any discipline will satisfy the requirement.

Transfer students must complete at least 15 semester hours of the major at The University of Iowa.

The B.A. program must include the following courses, or equivalents: 31:1 Elementary Psychology or 31:3 General Psychology; 7P:25 Elementary Statistics and Inference (same as 22S:25) or a more advanced course; 31:195 Honors Seminar in Psychology during the spring semester of their junior year. Interested majors should contact the department honors adviser early in their junior year.

**Minor**

A minor in psychology is an attractive option to students from a variety of disciplines. A minor requires 15 semester hours of credit with a minimum grade-point average of 2.00. At least 12 of those 15 semester hours must be in upper-level courses in this department; this includes all 100-level courses and 31:43. Departmental advisers can help students identify courses for a minor that complement the student’s major.

**Area Electives**

Area offerings vary somewhat from semester to semester. Prior to each registration period, students should check the latest version of the brochure Undergraduate Psychology at Iowa and the current Schedule of Courses.

An approved statistics course is a prerequisite to all 100-level courses. For psychology majors in the B.A. program, the statistics course must be 7P:25 Elementary Statistics and Inference (same as 22S:25) or a more advanced course. In the B.S. program, the statistics course must be 7P:143 Introduction to Statistical Methods (same as 22S:102) or its approved substitutes, 22S:101 Biostatistics or 6K:71 Statistical Analysis. Other statistics options are available to non-psychology majors.

**ANIMAL LEARNING AND BIOPSYCHOLOGY**

31:12 Fundamentals of Neurophysiology 3 s.h.
31:17 Introduction to Comparative Psychology 3 s.h.
31:123 Psychology of Learning 3 s.h.
31:126 Physiological Psychology and Psychobiology 3 s.h.
31:128 Introduction to Behavioral Pharmacology 3 s.h.
31:129 Biological Aspects of Behavior 3 s.h.
31:132 Motivation 3 s.h.
31:135 Principles of Behavioral Analysis 3 s.h.

**CHILD AND DEVELOPMENTAL PSYCHOLOGY**

31:14 Introduction to Child Development 3 s.h.
*31:103 Development of Children’s Social Behavior 3 s.h.
31:114 Cognitive Development of Children 3 s.h.
31:118 Infant Development 3 s.h.
*31:166 Childhood Psychopathology 3 s.h.

**CLINICAL PSYCHOLOGY**

31:33 Introduction to Clinical Psychology 3 s.h.
31:105 Personality 3 s.h.
31:109 Psychology of Aggression 3 s.h.
31:152 Health Psychology 3 s.h.
31:161 Schizophrenia 3 s.h.
31:162 Depression and Mania 3 s.h.
31:163 Abnormal Psychology 3 s.h.
*31:166 Childhood Psychopathology 3 s.h.
31:170 Behavior Modification 3 s.h.
focus in a designated research area. However, students are not required to concentrate their research interest in one of these two areas. Many faculty members have individual and collaborative research projects that contribute to one or both of the research areas. Consequently, students can easily complete the requirements of a training area while developing research knowledge and skills in one or both of the research areas.

The training area programs are sufficiently flexible to permit students to develop substantial competence in a second training area. Several joint programs have been formulated and others can be developed as student interest dictates. A joint program involves mixing course work in two areas, and research supervision or co-supervision by faculty members from both areas. The department also is prepared to help students develop additional expertise in any of the following interest areas: human factors, aging, organizational and consumer behavior, communication, and science.

Preparation in one of these interest areas involves some special advanced seminars within the department, selected courses in other departments of the University, and participation in one or more research projects in the interest area.

Doctor of Philosophy

The Ph.D. requires satisfactory completion of at least 72 semester hours of graduate work in psychology, including at least 33 semester hours in this department. All students must satisfy, through one of several options, requirements in statistics and research methods, and in learning. A course in the history and/or philosophy of psychology is strongly encouraged. Students also are expected to take sufficient course work outside the primary training area to develop a reasonably broad background in the discipline of psychology as a whole. The nature of these requirements and their placement in the graduate program varies somewhat among the training areas and depends on the individual student’s background and interests.

During each of the first three semesters, graduate students ordinarily take three courses: for example, a general core course, a course in the primary training area, and an outside area elective. Students also become familiar with the literature, research strategies, and special techniques in one or more research areas through engagement in individually supervised research projects. This research participation may be with one faculty member all year long or with a different faculty member each semester—designed to help students develop, by early in the second year, a reasonably detailed plan for the master’s research project.

By the end of the second year—a certain very early in the third year—students are expected to have completed their master’s project and to have defended their thesis. Advancement to Ph.D. candidacy is based on a faculty-wide review of the student’s overall record of performance on the M.A. project, in course work, and in teaching, research, and service.

During the third year, students continue selected course work in the training and interest

areas, develop a prospectus for the dissertation research, and prepare for the comprehensive examination. This written examination covers material in the specialty and in related areas and ordinarily is given at the beginning of the fourth year. The fourth year is devoted primarily to advanced seminars and 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.

Master of Arts with Thesis

As indicated above, the department does not offer a specific M.A. program. The M.A. with thesis is a required step for students preparing for the Ph.D. This degree requires satisfactory completion of at least 50 semester hours of graduate course work in psychology, 18 of which must be taken at The University of Iowa. The course work must include the statistics sequence, a learning course, and at least one course outside the primary specialty area. Students also must complete an acceptable scholarly thesis and conduct a successful oral defense of the thesis.

Master of Arts without Thesis

The M.A. without thesis is an option available to those few students who terminate their work in the department after four semesters. This degree requires satisfactory completion of at least 38 semester hours of graduate credit in psychology, 24 of which must be taken at The University of Iowa. The course work must include the statistics sequence, a learning course, and at least one course outside the primary area. Students also must perform successfully on a written examination covering their area of specialization.

Graduate Training Areas

Clinical Psychology

The clinical training program, fully approved by the American Psychological Association, strongly emphasizes a scientific approach to the study of psychopathology. It is designed for students who primarily are interested in developing scholarly understanding of clinical phenomena and acquiring research skills necessary to the systematic investigation of such phenomena. Recognizing that students must become familiar with clinical material and competent in the application of clinical skills, the department closely integrates practicum experience in the Carl E. Seashore Psychology Clinic with course work and supervised research experience.

Students in the clinical program may develop special competence in areas such as aggression, personality and personality disorders, psychophysiology, anxiety disorders, the affective disorders, behavioral and cognitive therapies, child psychopathology, and clinical health psychology. Faculty members collaborate actively with colleagues from departments such as otolaryngology, psychiatry, pediatrics, obstetrics and gynecology, internal medicine,
neurology, and surgery, and from other units, such as the Center for Health Services Research and the Veterans’ Affairs Medical Center. Partly as a consequence of such collaboration, there are several topics in health psychology in which clinical faculty members are prepared to offer research supervision. Within the department, joint training programs combining a clinical specialty with work in other training areas have been established and are available to students with strong interests in two specialty areas.

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 the doctoral degree. The internship ordinarily comes after completion of all course work and of most, if not all, of the dissertation project.

Development Psychology

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 psychology 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 psychology research being conducted in the department.

Human Experimental Psychology

Students affiliated with the human experimental program concentrate their training in the broad areas of perception and cognition, information processing, and learning. Current faculty members specialize in the following areas: learning and memory; problem-solving; language and cognition; mathematical psychology, psychophysical scaling, and signal detection theory; cognitive effects of drugs; human judgment and decision making; information processing: human factors and ergonomics; visual perception; and psychoacoustics.

Faculty members in the human experimental area are prepared to help students gain additional expertise in a variety of interest areas, including human factors, communications, aging, and organizational and consumer behavior. Collaborative research is under way with faculty members from the College of Business Administration, the Center for Health Services Research, and several departments, including psychology, industrial engineering, speech pathology and audiology, and anesthesia.

Neuroscience and Behavior

The program in neuroscience and behavior focuses on the analysis of learning and motivation, primarily in nonhuman subjects, through the application of behavioral and biological principles. Special faculty strengths are in classical and operant conditioning, comparative psychology, motivation and emotion, developmental psychobiology, neuropathology, neuroendocrinology, and neuroanatomy. Students in this program have the opportunity to learn state-of-the-art techniques in computer-controlled experimentation and electronic instrumentation, and advanced analytic and laboratory methods in neurosurgery, histology, and biochemical assay.

Faculty members in the neuroscience and behavior area interact extensively with colleagues from a number of basic science departments in the College of Medicine, including anatomy, anesthesia, and pharmacology. These collaborative activities provide excellent research and training opportunities for students interested in emerging interdisciplinary fields such as behavioral medicine and behavioral neuroscience.

Social Psychology

The social psychology program offers a variety of perspectives on social processes. Students develop some familiarity with all of the approaches but may focus their graduate training in any of several subareas, such as attribution, social influences on behavior, close relationships, health and stress, the social psychology of groups, and the study of social psychological aspects of clinical problems and processes.

Students in the social psychology program also may acquire additional preparation for research and teaching in interest areas such as organizational and consumer behavior, communications, human factors, and behavioral medicine. Such preparation, which ordinarily will involve selected course work outside the department (e.g., in the College of Business Administration or the Department of Communication Studies) and participation in special research projects, will broaden students’ employment prospects.

Admission

Since the graduate program in psychology is designed primarily for students seeking the Ph.D. degree, all applicants are considered on this basis. Occasionally, a qualified applicant interested in advanced work only through the M.A. level maybe admitted to pursue a joint graduate program involving psychology and another discipline or profession. A person interested in such a program should contact the department chair before filing an application.

The deadline for applications is February 1. For all materials to be on file by that date, the Graduate Record Examination (GRE) General Test should be taken in October, certainly no later than in December. The subject test in psychology is not required. Applications maybe submitted at any time but are considered only once each year–between February 1 and March IS—for admission the following fall. Admission decisions are based on a composite consideration of prior academic performance, letters of reference, scores on the verbal, quantitative, and analytic sections of the GRE General Test, and the applicant’s statement about background and purpose. Initial review of admission materials is done 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 will be expected to remedy deficiencies through special course work or independent study prior to embarking on the regular graduate program.

A student who has completed substantial graduate work at another institution before being admitted to The University of Iowa’s psychology program is expected to present documents, such as a master’s thesis or equivalent, that reflect significant engagement in research and scholarly writing. This material and the record of previous graduate course work is reviewed by the faculty members of the appropriate training area as a basis for placement in the graduate program. In no instance are students permitted to complete substantial research or writing for a master’s degree at another institution while they are regular full-time students in the graduate program at The University of Iowa.

A foreign language is not required for admission, and there are no foreign language requirements for either the M.A. or the Ph.D. in psychology.

Financial Aid

All students admitted to the graduate training program in psychology automatically are considered, on the basis of merit, for available financial support in the form of fellowships, teaching assistantships, research assistantships, traineeships, and tuition scholarships. No separate application for financial aid is required.

Faculty

The widely recognized commitment of the faculty to research and scholarship is manifest in the publication of nearly 100 articles, books, reviews, and book chapters each year. Many faculty members also are active as editors, associate editors, and regular consulting editors for major psychology journals.
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, many computerized, for human and animal studies. Facilities include two separate animal housing areas; a histology laboratory; observation suites with remote audiovisual control and recording equipment; a soundproof chamber; closed-circuit TV systems; electrophysiological recording rooms; conditioning laboratories; the Carl E. Seashore Psychology Clinic; and well-equipped electronic, mechanical, and woodworking shops.

The University’s Weeg Computing Center currently operates an IBM 3090 and an IBM RS/6000, two Encore Multimaxes, and a VAX 6420. Students and faculty have ready access to these systems through terminals in the department and through a satellite computer facility in Seashore Hall. Microcomputers of many kinds are widely available. Office space for graduate students and faculty is provided in Seashore Hall. The psychology branch of the University’s Main Library, 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 The University of Iowa Hospitals and Clinics, the Psychiatric Hospital, the Veterans Affairs Medical Center, the University Counseling Service, the Child Development Clinic, the Wendell Johnson Speech and Hearing Clinic, the Iowa Driving Simulator, the Center for Health Services Research, and the School of Social Work.

Courses

Primarily for Undergraduates

31:1 or 31:3 or equivalent is prerequisite to all other psychology courses. Only one of these may be taken for credit.

31:12, 31:13, 31:14, 31:15, 31:16, 31:17, and 31:19 are open to freshmen who have satisfactorily completed an introductory psychology course (31:1 or 31:3 or equivalent). 31,000 Cooperative Education Internship 0 s.h. Administered by Cooperative Education Program, filled on competitive basis. Open only to psychology majors. Consent of department required. Maybe repeated.

31:1 Elementary Psychology 3 s.h. Psychology as a behavioral science. GER: social sciences.

31:3 General Psychology 4 s.h. Introduction to psychology as an experimental science; focus on methods of investigation in psychology. GER: social sciences. Consent of instructor required. Prerequisite: high school preparation in mathematics and science.

31:12 Fundamentals of Neuropsychology 3 s.h. Disordered states of behavior; emphasis on relating basic information to human behavior; for students with minimal background in natural sciences.

31:13 Introduction to Clinical Psychology 3 s.h. Scientist practitioner model, training ethics, research methods in clinical psychology; current approaches to intellectual, diagnostic, personality, behavioral assessment; theories, research on treatment of psychological disorder. GER: social sciences.

31:14 Introduction to Child Development 3 s.h. Current research, theory in child psychology, including heredity and environment, infancy, perceptual development, attachment, language acquisition, personality, memory and development, intelligence, child rearing, peers, sex differences, moral development, aggression. GER: social sciences.

31:15 Introduction to Social Psychology 3 s.h. Research relating behavior of individual human organisms to factors in social environment; socialization and acculturation. GER: social sciences.

31:16 Introduction to Mental Processes 3 s.h. Individual human cognition, perception, memory, language, learning, problem solving, decision making, thought considered from viewpoint of reformation processing. GER: social sciences.

31:17 Introduction to Comparative Psychology 3 s.h. Behavioral processes in humans, animals, intelligence, memory, attention, language, consciousness; behaviorism, mentalism, evolution. GER: social sciences.

31:19 Psychology in Business and Industry 3 s.h. Applications of psychology to problems in world of work; emphasis on personnel selection, training, attitudes, motivation, measurement of job performance.

31:35 Evacuating Psychological Research Skills for critical evaluation of professional and public literature; dealing with scientific study of behavior; philosophy of scientific psychology, experimental and nonexperimental methods of investigation, principles of experimental design and construct validation, testing of hypotheses, discussion of applications in several areas of research. Prerequisite: an approved statistics course.

For Undergraduates and Graduates

Art approved statistics course - 7P-25, 22S-25, 7P-143, 22S-102, 6K-71, 22S-8, 34:10, or equivalent—is prerequisite to all 100-level psychology courses. Exceptions are 31:120 and 31:121, which have different prerequisites.

31:1 or 31:3 or equivalent is prerequisite to all other psychology courses. Only one of these may be taken for credit.

31:102 Interpersonal Influence 3 s.h. Classic and contemporary theories using research on social influences of behavior; topics include social influences on self-concept, interpersonal communications, obedience, conformity.

31:103 Development of Children's Social Behavior 3 s.h. Basic processes affecting children's responses to the social environment; attachment and dependency, social reinforcement, imitation, moral development.

31:105 Personality 3 s.h. Determinants, correlates, consequences of adaptive functioning and personality development.

31:106 Attitude change 3 s.h. Current theoretical approaches; laboratory and field methods of research; consideration of basic processes of change within broader framework of psychology.

31:107 Environmental Stress 3 s.h. Social psychological aspects of urban living, crowding, control, institutionalization, energy utilization; theory and research on stress, arousal, emotion.

31:108 Small Group Processes 3 s.h. Classic work on group processes stressing laboratory experiments, field studies and observations, relevant theory; conformity, reference groups, cohesion, contagion, group performance, response diffusion, decision making, conflict. Recommended: 31:15.

31:109 Psychology of Aggression 3 s.h. Major theories, research on aggressive behavior in human and nonhuman subordinates; implications of research on aggression for understanding contemporary social problems.

31:12 Research in Nonverbal Communication 3 s.h. May be repeated. Corequisite: 31:000 or 22S-120 or equivalent.

31:13 Language processing 3 s.h. Basic linguistic processes within context of cognitive psychology; speech perception, syntax, semantics; additional treatment of language acquisition. Same as 103:115.

31:14 Cognitive Development of Children 3 s.h. Developmental research, theory concerning children’s concepts, thinking, problem solving, memory, and communication. GER: social sciences.

31:166 Psychology of (gender) 3 s.h. Origins of gender roles, gender socialization in childhood, study of gender differences across lifespan; emphasis on research on gender differences in cognition, emotions, behavior, physical and mental disorders, communication. GER: social sciences.

31:181 Infant Development 3 s.h. Cognitive and social development during first two years of life; development of perceptual abilities, early language acquisition, imitation, mother infant attachment, temperament.

31:119 Memory and Cognition 3 s.h. Introduction to contemporary psychological theory and research on short term and long term memory, acquisition processes, related topics in cognition.

31:120 Experimental Psychology I 3 s.h. Logic and application of experimental methods to analysis of behavioral phenomena; major problem areas of experimental psychology. Prerequisite: 7P-143 or 22S-102 or equivalent.

31:121 Experimental Psychology II 3 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). May be repeated. Prerequisite: 3:1 or equivalent; some sections may require additional prerequisites.

31:123 Psychology of Learning 3 s.h. Theoretical and experimental bases of learning in animal, human behavior.

31:124 Psychology and the Law 3 s.h. Social psychological principles, theories, findings that address how principal actors in legal proceedings (i.e., defendants, witnesses, attorneys, judges, and juries) act, and are affected by, each other.

31:126 Psychological Psychology and Psychobiology 3 s.h. Basic concepts and techniques in neuroscience, their application to analysis of sensory processes, arousal mechanisms, motivation, learning.

31:127 Psychology of Dependency Behavior 3 s.h. Methodological, theoretical problems in psychopharmacological research; social, psychological, sociological, anthropological, legal factors.

31:128 Introduction to Behavioral Pharmacology 3 s.h. Behavioral consequences of drugs; emphasis on experimental findings from studies with animals, including man.

31:129 Biological Aspects of Behavior 3 s.h. Biological bases of various behaviors (e.g., temperature regulation, sexual activity) in terms of neuroanatomical substrate, neuroendocrine pathways, autonomic nervous system, homeostasis, biological rhythms.

31:130 Psychology of Thinking 3 s.h. Problem solving, reasoning, judgment and decision making, language and thought, intelligence, creativity. Recommended: 31:16 or 31:119.

31:132 Motivation 3 s.h. Survey, critique, analysis of motivational concepts in study of animal behavior; physiological/behavioral bases of motivation, including sleep, sex, maternal behavior, eating, drinking, addiction.

31:133 Fundamentals of Sensation and Perception 3 s.h. Recent developments in experimental and philosophical approaches; emphasis on physiological, behavioral results derived from studies of visual functions.

31:135 Principles of Behavioral Analysis 3 s.h. Experimental analysis of behavior, application of behavior analysis to broad range of topics in psychology, including reflexive behavior, perception, learning, motivation and emotion, memory and cognition, language, abnormal behavior, drug addiction, social behavior; consideration of behaviorist philosophy.

31:137 Language, Art, and Identity 3 s.h. Quest for expression of cognition, concepts of personal identity in ordinary language and written literature (poetry, art) (carnival), visual arts, performance, action.
31:158 Love, Power, and Justice 3 s.h.
Psychological, philosophical, legal issues concerning individual’s role in a complex society.

31:140 Psychology of Interpersonal Relations 3 s.h.
Theories, empirical findings, speculation from social psychology and related disciplines regarding how people form, maintain, and dissolve close interpersonal relationships.

31:152 Health Psychology 3 s.h.
Psychological contributions to understanding etiology, prevention, treatment of physical illness; basic and clinical research that addresses reciprocal effects of behavior and physical health.

31:155 Human Factors Engineering 3 s.h.
Design of man system interactions and development of optimum work environment by applying principles of behavioral science; emphasis on sensory and perceptual processes, motor skills, experimental methodology. Same as 56:142.

31:156 Psychology in Management 3 s.h.
Application of psychological principles to human relationships and supervision; motivation, leadership, communication, group pressures. Same as 56:145.

31:161 Schizophrenia 3 s.h.
Nature of schizophrenia; theories and research in topics such as clinical features, premorbid adjustment, genetic vs. environmental influences, cognitive deficits, pharmacological and psychological treatment. Recommended: 31:13 or equivalent.

31:162 Depression and Mania 3 s.h.
Review of symptoms, treatment, theories about causes of depressive disorders (e.g., major depression, bipolar depression). Recommended: 31:13 or equivalent.

31:163 Abnormal Psychology 3 s.h.
Adult psychiatric disorders (e.g., anxiety disorders, affective disorders, antisocial personality, schizophrenia, substance abuse, etc.); emphasis on theories of etiology and of psychological processes underlying psychopathology.

31:166 childhood Psychopathology 3 s.h.
Major forms of childhood psychopathology; current theoretical approaches and methodological issues in the study of childhood behavior; psychological testing and psychological; psychological processes underlying psychopathology. Recommended: 31:14 or equivalent.

31:170 Behavior Modification 3 s.h.
Basic approaches to modification of clinically distressing behavior; learning theory principles underlying techniques, translation into procedures, experimental evaluation of effectiveness.

31:171 Behavioral Medicine 3 s.h.
Role of psychological factors in physical health and illness; relationship between personality characteristics and physical conditions; behavioral processes in etiology and treatment of disorders; definitions, measurement, psychological responses to prolonged and/or traumatic illness.

31:175 History and Systems of Psychology 3 s.h.
Historical influences on contemporary psychology; emphasis on psychological, physiological and sociological contributions to understanding psychological issues; development of psychology as a science. Prerequisites: an approved statistics course and junior standing or above.

31:180 Current Topics in Psychology 2-3 s.h.
May be repeated.

31:185 Research Practicum in Psychology arr.
Small-group participation in faculty research projects; literature review, planning of studies, data collection, analysis, interpretation, write up. May be repeated. Consent of instructor required.

31:191 Special Readings and Projects arr.
Open only to undergraduate majors in psychology. Consent of department chair and sponsorship of staff member required. May be repeated.

31:195 Honors Seminar in Psychology 3 s.h.
Research areas; leads to choice of topic for honors project. Open only to honors students. Consent of instructor required.

31:199 Honors Thesis Research 1-3 s.h.
Supervised original project; leads to written thesis, oral defense. Open only to honors students. May be repeated.

Primarily for Graduates

31:203 Social Perception and Attribution 3 s.h.
Theory, empirical analysis of perception of persons and attributions; processes; determinants of impression formation, attraction, behavioral prediction.

31:205 Social Influences on Behavior 3 s.h.
Theoretical, empirical analysis of interpersonal influences on self concept, behavior; social comparison, conformity, compliance, obedience.

31:207 Interpersonal Relationships 3 s.h.
Theoretical, empirical analysis of interpersonal attraction, affiliation, cooperation and competition, group formation and process, intergroup relations.

31:208 Psychology of Close Relationships 3 s.h.
Theory, general writing, empirical analysis of variables involved in initiation, maintenance, termination of close relationships; emphasis on social psychological processes, concepts.

31:209 Psychology of stress 3 s.h.
Theory, research on stress and emotion; learned helplessness, lots of a loved one, social support, coping strategies, overload, institutionalization, urban stress.

31:210 Nonverbal Communication 3 s.h.
Theoretical, empirical, methodological analysis of psychological principles relating to nonverbal communication of social information.

31:211 Processes in Social Development 3 s.h.
Theory, research on Social Development from infancy to adulthood; emphasis on temperament, attachment, emotion, aggression, pro-social behavior, peer relationships, moral development. Consent of instructor required.

31:212 Early Perceptual-Cognitive Development 3 s.h.
Knowledge acquisition during first two years of life; development of visual, speech, bimodal perception; imitation; object concept and permanence; early perceptual concepts.

31:213 Developmental Research Methods 3 s.h.
Designs, methods used in developmental research, including observations, experimental paradigms, interviews, or parent and child reports; methods specific to different developmental periods and areas (cognitive, social, emotional, developmental psychology).

31:218 Cognitive Development 3 s.h.
Theoretical and empirical analyses of children’s cognitive development; spatial and numerical concepts, causal reasoning, categorization, metacognition, memory.

31:219 Psychology of Language 3 s.h.
Cognitive processes involved in production and comprehension of natural language by normal adult humans, including processing of words, sentences, conversations, both spoken and written.

31:221 Motivation and Emotion 3 s.h.
Concepts of motivation, emotion as determinants of behavior; instincts, Hutt-Spence Theory, opponent-process theory, two factor theory of avoidance, models of drug addiction and tolerance, biological basis of homosocial and nonhomosocial behaviors.

31:222 Conditioning and Learning 3 s.h.
Methodological, theoretical considerations in analysis of conditioning and learning processes governing human, animal behavior.

31:223 Information Processing in Psychology 3 s.h.
Information-processing approaches to theoretical analysis of complex behavior; theoretical concepts including information theory, mechanical models, computer simulation; application to selected empirical topics.

31:224 Sensory Processes 3 s.h.
Methods, concepts, results of research relating to processes by which an organism obtains information about its environment.

31:225 Learning, Memory, and Cognition 3 s.h.
Historical development, current theories of human symbolic behavior; emphasis on acquisition, retention, use of verbal associations; visual imagery, simple decision making, concept formation, problem solving choice behavior. Same as 103:272.

31:226 Visual Perception 3 s.h.
Experiments, theories relating variation in visual stimulus properties and cortical mechanisms to differential responding in visual recognition and discrimination tasks.

31:227 Introduction to Behavioral Neuroscience 3 s.h.
Basic facts, concepts in behavioral neuroscience; emphasis on relationship, relevance to behavior of concepts, facts and ideas of evolution, neuroendocrinology, homestasis, biological rhythms, neuroanatomy.

31:229 Advanced Topics in Cognition 3 s.h.
Cognitive science, artificial intelligence; emphasis on psychological implications.

31:230 Behavioral Pharmacology 3 s.h.
Behavioral analysis of drug action; emphasis on physiological, biocenchemical mechanisms underlying behavioral processes in experimental animals, humans.

31:234 Developmental Psychology 3 s.h.
Physical, physiological, neural bases of behavior in developing organisms; thermoregulation, sleep, sex, social differentiation, parent-offspring interactions, sensory/motor development.

31:237 Experimental Analysis of Behavior 3 s.h.
Determinants of operant behavior; emphasis on philosophy, methodology of Skinner’s behaviorism; evaluation of application of operant behavior analysis to human affairs.

31:240 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.

31:244 Behavioral Neuroscience 2 s.h.
Basic principles of neurophysiology, neuropsychology, developmental neuroscience, behavioral neuroscience. Offered fall semesters. Consent of instructor required. Same as 132:244, 71:244.

31:248 Psychophysics and Scaling 3 s.h.
Theoretical, empirical literature in psychophysics and scaling; practical applications.

31:250 Introduction to Health and Behavioral Science 3 s.h.
Evolution of behavioral medicine area; survey of major psychological 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. Consent of instructor required.

31:251 Psychobiology of Cardiovascular Disease 3 s.h.
Relationships between psychological systems and behavior; mechanisms of stress related hypertension, ingestive behaviors and hypertension, type A behavior in heart disease, neuropsychological impairment in stroke patients, psychoactive drugs. Consent of instructor required.

31:252 Clinical Behavioral Medicine 3 s.h.
Biopsychosocial framework applied to study, treatment of chronic and acute physical conditions; clinical concepts, procedures.

31:258 Personality 3 s.h.
Major theoretical, empirical issues in personality; role of the unconscious, stability and consistency of behavior, influence of heredity and environment on personality development; nature of traits and validity of trait research.

31:260 Descriptive Psychopathology 3 s.h.
Psychiatric syndromes, including description, etiology, experimental and clinical research; development, function of classification systems. Consent of instructor required.

31:261 Experimental Psychopathology 3 s.h.
Theories of psychological processes underlying etiology of psychopathology; emphasis on schizophrenia, affective disorders, anxiety, Sociopathy, drug abuse.

31:263 Psychological Appraisal I 3 s.h.
Assessment theory and basic psychometric principles in test construction, evaluation, application; ethical, social, Psychological, psychometric issues and controversies in assessment. Consent of instructor required.

31:264 Psychological Appraisal II 3 s.h.
Detailed consideration of clinical use, interpretation of selected psychological assessment techniques; emphasis on research evidence of their validity and utility. Consent of instructor required. Prerequisite: 31:263 or equivalent.

31:265 Neuroscience Seminar 0-1 s.h.

31:268 Clinical Child Psychology 3 s.h.
Assessment, diagnosis, treatment of behavioral disorders of children; treatment approaches include behavioral, psychoanalytic, nondirective, pharmacological.

31:269 Theories and Techniques of Psychotherapy 3 s.h.
Major psychological techniques of behavior change; critical evaluation of theories, techniques.

31:271 Psychoacoustics 3 s.h.
Same as 3:354.
31:272 Psychoacoustics Laboratory 4 s.h.
Same as 3:255.
31:275 Behavioral and Cognitive Therapies 3 s.h.
Major behavioral and cognitive therapies for psychological disorders, including anxiety, depression, schizophrenia, childhood disorders; emphasis on critical evaluation of therapy techniques.
31:276 Advanced Developmental Psychopathology 3 s.h.
Psychiatric syndromes manifested in childhood and adolescence; theoretical approaches, methodology from developmental and clinical psychology as they apply to study of childhood psychopathology. Consent of instructor required.
31:277 Marital and Family Therapy 3 s.h.
Theoretical foundations, clinical procedures, research investigations relative to treatment of families and couples; emphasis on behavioral and systems approaches to intervention; live and videotaped demonstrations of intervention strategies, clinical interviewing practice with couples.
31:290 Instruction in Psychology 1-2 s.h.
Preparation of lectures, exams, homework assignments, term papers; elements of successful teaching.
31:291 Problems in Psychology arr.
Individual study: Consent of instructor required.
Consent of instructor required.
Consent of instructor required.
31:297 Research Projects arr.
Consent of instructor required.
31:301 Seminar: Personality 0-2 s.h.
Historical and contemporary theories; current research on origins, nature, significance of individual differences.
31:303 Advanced Topics in Social Psychology 0-2 s.h.
Recent theory, research.
31:308 Seminar: Clinical Child Psychology 0-2 s.h.
Theoretical, methodological issues related to child clinical psychology. Consent of instructor required.
31:315 Seminar: Social Development 0-2 s.h.
Theoretical, methodological issues focused on social, emotional, personality development.
31:322 Seminar: Language and Spatial Cognition 0-2 s.h.
Relations between spatial cognition, language, categorization; language and spatial knowledge in the deaf, spatial metaphors; structural similarities between the representation of spatial and semantic information, spatial direction giving.
31:332 Seminar: Attention 0-2 s.h.
Human attention, perception, information processing.
31:335 Seminar: Cognitive Neuroscience 0-2 s.h.
Neurological and behavioral investigations of attention, perception, learning, memory, decision making, planning; contemporary models, theories. Consent of instructor required.
31:338 Seminar: Neuroscience and Behavior 0-2 s.h.
31:359 Seminar in Health and Behavioral Science 0-2 s.h.
Recent theoretical issues, experimental findings, research approaches in health and behavioral science. Consent of instructor required.
31:360 Seminar: Clinical Psychology I arr.
May be repeated; Consent of instructor required.
31:380 Ethics and Professions Concerns arr.
Standards, procedures for review of studies with human participants; professional ethics, licensing, teaching of psychology, professional placement.
31:384 Seminar: Professional Development in Higher Education 0-2 s.h.
Assessment of teaching effectiveness; research supervision and mentorship; ethical standards in research; role of service to institution and profession in faculty development.
31:461 Introductory Practicum arr.
Psychodiagnostic work in Department of Psychology clinic under supervision of clinical psychology faculty members. Consent of clinical training committee required.
31:462 Assessment Practicum arr.
Supervised practice in psychological assessment techniques. Consent of clinical training committee required.
31:463 Therapy Practicum arr.
Supervised practice and clinical experience in the application and evaluation of psychological therapies. Consent of clinical training committee required.
31:464 External Practicum arr.
Supervised practice, clinical experience in field setting; psychological assessment techniques and/or application and evaluation of psychological therapies. Consent of clinical training committee required.

**RELIGION**

Director: George W.E. Nickelsburg
Professors emeriti: David R. Belguum, George W. Forell, David E. Klemm, Sidney E. Mead, W. Pachow, James C. Spalding

Associate professors: Helen T. Goldstein, George W. Paterson
Assistant professors: Diana Fritz Cates, Ralph Keen, Janine A. Sawada, Frederick M. Smith
Undergraduate degree: B.A. in Religion; minor in Religion
Graduate degrees: M.A., Ph.D. in 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 education appropriate to the 1990s. The School of Religion 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 school recognizes that religious activity is expressed in countless ways. Therefore, it offers a wide range of courses that explore facets of religion in cultures across the world. Topics and issues include religious texts and thinkers as well as how culture, tradition, and experience intersect. Study of the variety of ways in which religions have formulated values and addressed matters of ultimate concern is pursued through a diversity of academic approaches and methods, including historical, textual, artistic and literary.

**Undergraduate Program**

Each year almost two thousand University students enroll in courses in religion to fulfill part of their General Education Requirements. Students who choose to major in religion may count a maximum of three religion courses approved to meet General Education Requirements as part of the 30 semester hours in religion required for the major. Some students choose religion as a second major to complement their studies in another field.

Religion majors learn the basic skills required in today’s world: critical thinking, clear writing, persuasive use of evidence in arguing one’s point, and understanding and communicating with people who hold other points of view.

**Required Basic Courses**

To graduate with a B.A. in religion, students must take 15 semester hours in foundation studies in historical religious traditions distributed among the following three areas.

**WESTERN RELIGIOUS TRADITIONS**
Six semester hours from the following:

- 32:1 Judeo-Christian Tradition 3 s.h.
- 32:3 Quest for Human Destiny 3 s.h.
- 32:11 Old Testament Survey 2 s.h.
- 32:12 Old Testament Survey 2 s.h.
- 32:15 New Testament Survey 3 s.h.
- 32:20 Religion in American History 2-3 s.h.

**ASIAN RELIGIOUS TRADITIONS**
Six semester hours from the following:

- 32:4 Living Religions of the East 3 s.h.
- 32:8 Asian Civilizations: India 3 s.h.
- 32:9 Asian Civilizations: China 3 s.h.
- 32:185 Buddhist Worlds and World Views 3 s.h.

**THEORETICAL APPROACHES TO RELIGION**
Three semester hours from the following:

- 32:2 Religion and Society 3 s.h.
- 32:10 Introduction to Religious Studies 3 s.h.

**Advanced Requirements**

Students must take 12 semester hours of continuing studies in one of the following nine areas of concentration, grouped in three divisions: historical traditions, thought and culture, and cross-cultural studies. Lists of approved courses for each concentration are available from the School of Religion office. The concentration areas are designed to give students great flexibility in fulfilling requirements for the major in religion.

**HISTORICAL RELIGIOUS TRADITIONS**
Judaism, Christianity, and Islam
Religions of India, China, and Japan
The Bible and its contexts

**RELIGIOUS THOUGHT AND CULTURE**
Theology and ethics
Methods and theories
Religion, literature, and the arts

**CROSS-CULTURAL STUDIES IN RELIGION**
Religion in ancient civilization
Religion in medieval societies
Religion in the modern world

**Senior Seminar**
All students must take 32:196 Senior Majors Seminar for 3 semester hours.

**Honors**

Students with a 3.20 overall grade-point average are eligible to register for the honors program in religion. To complete the religion major with honors, students take 32:197 Honors Tutorial (3 s.h.) and 32:198 Honors Essay (3 s.h.) under supervision of a faculty adviser who must approve the completed honors essay. Copies are...
submitted both to the School of Religion and to the University Honors Program.

Honors majors may apply only 3 semester hours of their work in 32:197 and 32:198 to their area of concentration. Thus, honors majors must complete a total of 33 semester hours to fulfill the requirements for the religion major.

**Minor**

A minor in religion requires 15 semester hours of credit in religion courses with a minimum grade-point average of 2.00. Of the 15 semester hours, at least 12 must be taken at The University of Iowa in courses numbered 32:100 and above.

**Graduate Programs**

The School of Religion prepares a select number of graduate students to become specialists in the study and teaching of religion.

**Master of Arts**

There are two tracks, thesis and nonthesis, toward the M.A. In both, students must earn a minimum of 36 semester hours in the School of Religion, including 32:200 Colloquium: Introduction to the Graduate Study of Religion and 32:205 Methods and Theories in the Study of Religion. Most of these will be earned in courses that fall into one of five areas of concentration: the Hebrew Bible and its early interpretations; Judaism and Christianity in the Greco-Roman world; history of religion and religious thought in the West; theology, ethics, and culture; and history of Asian religions. Students in the thesis program take at least one seminar in this area and may count the thesis for 6 of the semester hours required. Students in the nonthesis program take at least two seminars.

A maximum of 6 semester hours of graduate work in religion may be transferred to the program from another accredited graduate or professional school. The student’s committee must approve a program of study, including course work and requirements for languages and other research tools.

All students are required to take a written M.A. examination that tests competence in the area of concentration.

**Master of Arts in Religion and Health**

Study of the role of religion in illness and health requires a combination of theoretical and clinical investigation. The University of Iowa Hospitals and Clinics provides the primary setting for research and training in this program.

Students may choose a thesis or nonthesis program. In either, they are required to earn 36 semester hours, including 32:200 Colloquium: Introduction to the Graduate Study of Religion and 32:205 Methods and Theories in the Study of Religion. Students in the thesis program take one seminar and may count the thesis for 6 semester hours of credit. Students in the nonthesis program take two seminars. A maximum of 6 semester hours may be transferred from another accredited graduate or professional school.

All students must complete a one-semester unit of 32:245 Clinical Study of Religion or present equivalent supervised experience. The program also includes required courses in religion and personality and at least four courses (for a minimum of 10 semester hours) in one other area of concentration in the School of Religion: the Hebrew Bible and its early interpretations; Judaism and Christianity in the Greco-Roman world; history of religion and religious thought in the West; theology, ethics, and culture; and history of Asian religions.

The student’s advisory committee may require languages or other research tools. All students must take an M.A. examination.

**Doctor of Philosophy**

The broad-based Ph.D. program places a high priority on the academic study of religion in its broad intellectual and cultural contexts. The program is structured to facilitate development of the research skills necessary to undertake effective teaching and to foster the generation of new knowledge. As teaching assistants, Ph.D. students have maximal opportunity to develop teaching skills.

Candidates for the doctorate must complete a minimum of 72 semester hours of graduate course work, of which 9 semester hours must be taken outside the School of Religion. A maximum of 12 semester hours is allowed for the dissertation.

The graduate areas of concentration are the Hebrew Bible and its early interpretations; Judaism and Christianity in the Greco-Roman world; history of religion and religious thought in the West; theology, ethics, and culture; and history of Asian religions.

No later than the middle of the student’s fourth semester of residency, the entire faculty decides whether to grant candidacy to the student, upon the recommendation of the faculty committee of one of the Ph.D. programs. The student must:

- take 32:200 Colloquium: Introduction to the Graduate Study of Religion;
- take 32:205 Methods and Theories in the Study of Religion;
- show evidence of the ability to write scholarly papers; judgment is based on a series of papers, one for each completed semester of residency, which the program faculty has previously judged to represent satisfactory progress toward the degree;
- have a cumulative grade-point average of at least 3.20;
- make satisfactory progress in the language requirements appropriate to his or her program; and
- file a plan of study that lists course work and language and research tools in preparation for the written and oral comprehensive examinations.

Doctoral candidates also must pass an oral examination on the dissertation.

More detailed information on graduate programs in religion is provided in *Graduate Studies in the School of Religion*, available from the department office or the University’s Office of Admissions.

**Financial Aid**

The School of Religion offers two types of departmental financial aid for graduate students: teaching assistantships and research assistantships. The department also may nominate eligible students for University of Iowa Fellowships.

The Gilmore Scholarship has been established for doctoral students interested in the relationship of religion, the visual arts, and humanistic values.

Financial aid awards are made annually on a competitive basis. First-year students ordinarily are appointed only as research assistants.

**Admission**

All applicants for admission to graduate study must meet the general requirements of the Graduate College. In addition, the School of Religion ordinarily requires a combined verbal-quantitative score of 1050 on the Graduate Record Examination (GRE) General Test and a 3.00 grade-point average for admission to the M.A. program, and a combined verbal-quantitative score of 1100 on the GRE General Test and a grade-point average of 3.20 for admission to the Ph.D. program. Applicants must submit three letters of recommendation and a writing sample demonstrating the ability to engage in critical thinking.

**Resources**

In addition to Greek, Latin, and modern European languages, the University offers courses in Japanese, Chinese, Sanskrit, and Hindi. The School of Religion offers Hebrew and other Semitic and Hamitic languages as needed.

The University of Iowa Hospitals and Clinics provides clinical opportunities for students in the M.A. program in religion and health. Individual courses on such topics as death and dying and medical ethics also utilize hospital personnel and facilities.

**Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>32:1</td>
<td>Judaism-CMfrSelection</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>32:2</td>
<td>Religion and Society</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>32:3</td>
<td>Quest for Human Destiny</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>32:4</td>
<td>Living Religions of the East</td>
<td>3 s.h.</td>
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32:8 Asian Humanities: India 3 s.h.
Introduction to four thousand years of South Asian civilization.
GER: foreign civilization and culture, humanities. Same as 39:18.
32:9 Asian Humanities: China 11 3 s.h.
GER: foreign civilization and culture, humanities. Same as 39:19.
32:10 Introduction to Religious Studies 3 s.h.
Approaches to the study of religion. Open only to juniors and
sopers or to others with consent of instructor. GER: humanities.
32:11 Old Testament Survey 2 s.h.
Life, afterlife in biblical Israel.
32:12 Old Testament Survey 2 s.h.
Presence of biblical God in and among humankind.
32:13 Personalities of the Old Testament 3 s.h.
Significant male, female figures of biblical Israel—their ancient
literary and social context; continuing impact.
32:15 New Testament Survey 3 s.h.
Introduction to four thousand years of South Asian civilization.
32:19 Religion in American History 2.3 s.h.
32:13 Introduction to the Intertestamental Period
History, theology of Judaism from 200 B.C.E. to 135 C.E.;
English translations of sources; archaeological evidence.
32:14 Readings in Intertestamental Jewish Texts
Two or three writings.
32:16 Introduction to Rabbinic Literature
Literary genres, historical and cultural context; problems in
interpretation of rabbinic writings of first six centuries of this era.
32:18 Jewish and Islamic civilizations—historical
and cultural context.
32:19 Jewish Mysticism
History of Jewish mystical thought over past 2,000 years.
32:120 The Jewish Experience
Jewish history; development of Judaism; from beginnings in the
Mediterranean basin throughout the world, through the centuries.
32:123 World of the New Testament 3 s.h.
32:20 Religion in American History 2.3 s.h.
Protestant, Catholic, Jew; colonial era to present. Same as 16A:72.
32:21 Biblical Hebrew I 3 s.h.
Grammar and syntax, increasing attention to reading skills.
Prerequisite: 32:101.
32:22 Biblical Hebrew II 3 s.h.
Grammar and syntax, increasing attention to reading skills.
Prerequisite: 32:101.
32:23 Biblical Hebrew III 3 s.h.
Narrative texts from Hebrew Bible; emphasis on translation and
syntax; grammatical analysis, vocabulary building. Prerequisite: 32:101.
32:24 Biblical Hebrew IV 3 s.h.
Grammar and syntax, increasing attention to reading skills.
Prerequisite: 32:101.
32:25 Zayn and Japanese Culture 3 s.h.
Christian Church from origins through development in
Mediterranean world and medieval Europe. Offered spring
semesters. GER: historical perspectives.
32:26 Power and Justice in the Good Life 3 s.h.
Ethical, theological reasoning in competing claims of power and
justice. GER: humanities.
32:27 Classics in Religious Ethics 3 s.h.
Readings from the Greeks to Gandhi; mostly Western.
32:28 Sexual Ethics 3 s.h.
Christian, Jewish, secular perspectives on meaning and value of
human sexuality; perspectives considered with regard to
contemporary sexual ethical issues.
32:30 Comparison of the Western Mystical Traditions 3 s.h.
32:32 Comparison of the Western Mystical Traditions 3 s.h.
32:33 Introduction to Modern Indian Thought 3 s.h.
32:34 Ancient Israel's perspective on God, world, individual through
focus on dominant biblical themes.
32:35 History of the World of the Old Testament
32:36 Historical, intellectual background; focus on patterns of thought,
religion in Near East, relation to Israelite religion.
32:37 Theology of the Old Testament
Ancient Israel's perspective on God, world, individual through
focus on dominant biblical themes.
32:38 Prophecy in Biblical Israel
Literary, historical, theological analysis of prophetic movement in
ancient Israel and its continuing impact.
32:111 Religion and Women 3 s.h.
Sexism and its diavoloiarai in biblical narrative, law, wisdom
texts, Gospel, sources; contemporary impact. GER: humanities.
Same as 131:111.
32:112 Introduction to the Intertestamental Period
History, theology of Judaism from 200 B.C.E. to 135 C.E.;
English translations of sources; archaeological evidence.
32:114 Readings in Intertestamental Jewish Texts
Two or three writings.
32:116 Introduction to Rabbinic Literature
Literary genres, historical and cultural context; problems in
interpretation of rabbinic writings of first six centuries of this era.
32:118 Medieval Jewish philosophers; survey of
study of one specific philosopher.
32:119 Jewish Mysticism
History of Jewish mystical thought over past 2,000 years.
32:120 The Jewish Experience
Jewish history; development of Judaism; from beginnings in the
Mediterranean basin throughout the world, through the centuries.
32:123 World of the New Testament 3 s.h.
32:125 The Gospel of John 2-3 s.h.
32:129 History of Christian Theology 1: Patristic
32:132 Reformation and Its Medieval Backgrounds
32:133 Historical Theology: Roman Catholic
32:134 Nineteenth-Century Catholic Theology 2 s.h.
Restoration period after 1815 to the beginning of the twentieth
century; Catholic Trinitarian School, neo-scholasticism, Newman,
First Vatican Council.
32:135 Twentieth-Century Catholic Theology
32:136 Religious Thought in the Eighteenth Century
32:137 Religious Thought in the Nineteenth Century
32:138 Religious Thought in the Twentieth Century
32:140 Readings: Religion in American History
arr. Same as 16A:120.
32:141 Varieties of American Religion
World views of religious groups (e.g., Mormon, Scientology,
Jehovah's Witness, Black Muslim, Unification Church of
San Myung Moon). Same as 16A:122.
32:142 Puritans in Old and New England
2.3 s.h.
Historical survey; concepts of sacred book, redemption and
salvation, church and state, family, women, Indians, sex. Same as
16A:121.
32:143 Religious Thought in America 1607-1860 2-3 s.h.
Selected American thinkers. Same as 16A:123.
32:144 Religious Thought in America 1860 to Present
Selected American thinkers. Same as 16A:124.
32:151 Ultrareformative and Radical Theologies in
American History
32:156 Philosophy of Religion
Same as 26:334.
32:157 Religious Thought of Soren Kierkegaard 2 s.h.
32:158 Religious Ethics: Moral character and
Religious Faith 3 s.h.
Impact of religious faith on moral character: nature of moral
class character and moral agency, wickedness and self-deception,
moral and religious transformation.
32:161 History of Religious Ethics
Christian, Jewish ethics from Paul to Martin Buber; focus on
the meaning and value of.
32:162 Introduction to Biomedical Ethics
Ethical dimensions of modern life sciences; emphasis on
problems of method.
32:163 Religion and the Occult in Antiquity
32:164 Religion and the Occult in Antiquity
32:165 Anthropology of Religion
Religious activity in folk and tribal settings; application of
theories of origin, functions of religion in human affairs. Same as
131:142.
32:166 Faith and Reason in Islam
Three types of religious thought in Islam: Kalam, Philosophy,
Sufism.
32:167 Islam in the Modern World
32:169 India: Religion and Culture
32:170 Indian Mystical Literature
Same as 39:137.
32:171 Indian Religious Texts
Same as 39:163.
32:172 Comparative Ritual
Practice and theory; rituals from religions, including Hinduism,
Buddhism, Christianity. Indian religions; theories of
interpretation. Same as 39:172.
32:173 Readings in Sanskrit Texts
Philosophical, literary texts in original Sanskrit. May be
repeated.
32:174 Art of India
To 1000 A.D. Same as 1H:115, 39:181.
32:175 Painting of India
Same as 1H:118, 39:168.
32:176 Chinese Religions
Themes; major currents and patterns of belief and practice;
readings from primary sources. GER: foreign civilization and
culture. Same as 39:161.
32:177 Indian Literature 3 s.h.
Same as 39:136.

32:178 The Literature of Daoism 3 s.h.
Readings illustrating pervasive influence of philosophical and religious Daoism m areas of traditional Chinese life; such as political theory, poetry and the arts, alchemy and medicine, sexual custom, combat. Same as 39:140.

32:179 Scripture, Cult and Practice in Chinese Religion 3 s.h.
Same as 39:179.

32:180 Buddhist Sacred Texts 3 s.h.
Mahayana and Theravada texts in translation. Consent of instructor required. Recommended: courses in Asian culture or history. Same as 39:162.

32:181 Buddhist and Hindu iconography 2-3 s.h.
Historical development of religious imagery of Buddhism and Hinduism in India, Central and Southeast Asia, China, Japan. Same as HJ:14.

32:182 Religion in Japan 3 s.h.
Development of Buddhism and non Buddhist religious practices in historical context of traditional Japanese culture; religion in family life; impact of Christianity; creation of nationalistic state ideology. Consent of instructor required. GER: foreign civilization and culture. Recommended: courses in Asian culture or history. Same as 39:170.

32:183 Readings in Japanese Religious Texts 3 s.h.
In original Japanese. May be repeated. Consent of instructor required. Same as 39:170.

32:184 Religious Themes in Japanese Literature 3 s.h.
Same as 39:184.

32:185 Buddhist Worlds and World Views 3 s.h.
Concepts, practices common to the vast pan Asian Buddhist traditions; selected cultural developments within historical contexts. Same as 39:183.

32:186 Buddhism and Chinese Culture 3 s.h.
Cultural transmission, transformation, adaptation through concentrated study of Buddhist biographical writing, various of Buddhist literature in China, structures and functions of Chinese Buddhist monasteries. Same as 39:171.

32:187 Themes in Japanese Religion 3 s.h.
Same as 39:187.

32:188 Zen Buddhism 3 s.h.
Development of Zen Buddhist ideology and ritual practice in context of East Asian Buddhism and m relation to other meditative cults, shamanistic traditions. Consent of instructor required. Recommended: courses in Asian culture or history. Same as 39:170.

32:189 Religious Life in Modern Japan 3 s.h.
Religion and state, family, individual since 1850s; traditional religions in modern times; religious impact of westernization, industrialization, defeat in World War II, success m business. Consent of instructor required. Recommended: 32: 182 or 310, or other courses in Asian culture, history, or religion. Same as 39:189.

32:190 Indian Religion and Social Science 3 s.h.
Study of classical Indian religion according to social scientific principles; ethnohistorical and socio-historical method. Same as 39:190.

32:191 Religion in India 3 s.h.
Movements, doctrines, religious practices m India, both m history and in modern expressions. GER: foreign civilization and culture. Same as 39:167.

32:192 Religion and Personality 3 s.h.
Use of psychological methods, theories in interpretation of religious experience, behavior; influence of religion on development of personality.

32:193 Suffering, Death, and Faith 2-3 s.h.
Role of religion with persons suffering from life-changing and life-threatening illness.

32:194 Alternate Universes: Readings in Hindu Mythology 3 s.h.
English translations of the Sankrit Putinas or "ancient stories"; focus on the influence these collections of myths and ritual have had on worldview of contemporary Hindus. Same as 39:173.

32:195 Individual Study: Undergraduates 3 s.h.
May be repeated.

32:196 Senior Majors Seminar Issues central to academic study of religion. 2-3 s.h.

32:197 Honors Tutorial 2-3 s.h.

32:198 Honors Essay 2-4 s.h.

32:200 colloquium: Introduction to the Graduate Study of Religion 1 s.h.
Orientation to graduate study, profession of teacher scholar.

32:201 Colloquium on Teaching 1 s.h.
Teaching methods, course development, examination construction.

32:202 Proseminar: Biblical Studies 3 s.h.
Biblical and related literature and its contexts; exegetical and historical methods; bibliography, other resources.

32:203 Seminar: Problems in Old Testament Criticism 3 s.h.
Pentateuch, Old Testament poetry, prophetic or wisdom literature.

32:204 Seminar: Problems in New Testament Interpretation 2-3 s.h.
Knowledge of Greek required.

32:205 Methods and Theories in the Study of Religion 3 s.h.
Principal methods, theories in academic study of religion.

32:206 Religion and Culture in the Ancient Near East 3 s.h.
Religio-cultural milieu of biblical Israel; examination of limited artifactual evidence and representative religious and historiographic texts in translation from ancient Egypt, Mesopotamia, Syria, Anatolia.

32:207 Semitic and Hamitic Languages 3 s.h.
Introductory grammar, syntax of an ancient language such as Aramaic, Syriac, Ethiopic, Coptic. May be repeated.

Noncanonical Christian texts of Roman and Byzantine periods; linguistic, literary, theological matters; in original language. May be repeated.

32:210 Seminar: Studies in Christian Origins 1 s.h.
Religion of Jesus, beginning of church; variety of Christian beliefs, practices in first century.

Development of Christianity to late second century; character, relationships of Jewish Christianity, Gnosticism, emerging orthodoxy.

32:213 Seminar: American Religious Thought 3 s.h.
Same as 16:275.

32:214 Seminar: puritanism 3 s.h.
Same as 16:276.

32:219 seminar: Nineteenth Century Catholic Theology: Newman 3 s.h.
May be repeated.

32:220 Proseminar: Introduction to Systematic 3 s.h.
Theological thinking, basic questions such as kinds of theological systems, resources, methods, aims, characters of religious thought.

32:221 Proseminar: Methodology and the History of Religions 3 s.h.
Development of ability to think methodologically; functionalism, phenomenology, personalism, normative approaches; nature of category formation, logic of religio-historical method.

32:222 Seminar in Historical Theology 3 s.h.

32:223 seminar: Reformation Theology 3 s.h.
Theology of one great Protestant reformer of the sixteenth century.

32:224 Seminar: Contemporary Theology 3 s.h.

32:225 Seminar in Recent Catholic Theology 3 s.h.
Contemporary theologian or problem.

32:226 seminar: Religious Ethics 3 s.h.

32:227 Seminar: Jewish Religious Thought: From Maimonides to Derrida 3 s.h.
Continuity, innovation.

32:228 Sacred Geography 3 s.h.
Religious views, practices related to landscape; several distinctly different cultural, ecological settings.

32:229 Feminist Ethics 3 s.h.
Constructive reflection on the nature of the self as relational, dynamics of friendship, ethics of love and justice. Same as 131:229.

32:230 Seminar: Ethics of Aristotle and Thomas Aquinas 3 s.h.
Nature of human action, nature of virtue, content of the good human life according to Aristotle, Thomas Aquinas.

32:231 seminar: Problems in the History of Religions 3 s.h.
Methodological and interpretive problems.

32:232 Seminar: Religion in Modern India 3 s.h.
Modern Indian thinker or movement. Same as 39:267.

32:233 Seminar: Buddhism 3 s.h.
Buddhist thinker or movement. Same as 39:263.

32:234 Seminar: Japanese Religions 3 s.h.
Same as 39:234.

32:235 Seminar: Chinese Religions 3 s.h.

32:236 Religion in Ancient India 3 s.h.
Upasnas, including the Bhadrakaliya and Chandyogya; early literature on yoga, with focus on ideas of self, god, structure of cosmos, nature of transmance. Same as 39:236.

32:237 seminar: East Asian Religion in Cross-Culture Perspective 3 s.h.
Emphasis on China and/or Japan.

32:240 Religion and Black Culture 3 s.h.
Same as 125:290.

32:245 Clinical Study of Religion arr.
Supervised study in hospital setting.

32:250 Reading for Research: Texts in German I 3 s.h.

32:251 Reading for Research: Texts in German II 3 s.h.

32:252 Reading for Research: Texts in Latin I 3 s.h.

32:253 Reading for Research: Texts in Latin II 3 s.h.

32:254 Reading for Research: Texts in Latin III 3 s.h.

May be repeated.

32:261 Readings in Rabbinic Hebrew arr.
May be repeated.

32:262 Readings in History of Christianity arr.
May be repeated.

32:263 Readings in Theology and Religious Thought arr.
May be repeated.

32:264 Readings in Religious Ethics arr.
May be repeated.

32:265 Readings in Asian Religions arr.
May be repeated.

32:266 Readings in the Methodology and the History of Religions arr.
May be repeated.

32:274 Readings in Religion and Health arr.
May be repeated.

32:289 Individual Study: Majors May be repeated.

32:291 Thesis May be repeated.

Rhetoric

Chair: Frederick J. Antczak
Professors: Sharon Crowley, Donovan J. Ochs, Douglas M. Trank

Assistant professor emerita: Margaret B. McDowell
Associate professors: Frederick J. Antczak, Gene H. Krupa, Dennis M. Moore

Associate professors emeriti: William G. Clark, Richard S. Hootman, Lou Kelly, Lois B. Muehl

Assistant professors: Barbara Biesecker, Ralph Cintron, Takis Poulakos, Carol Severino, Mary Trachsel

Assistant professor emerita: Cleo Martin
The Rhetoric Department offers courses that fulfill the General Education Requirement in rhetoric; it also provides individual instruction and seminars. Rhetoric faculty members advise graduate students, teach advanced courses that promote the rhetorical understanding and professional development of graduate students from diverse disciplines.

General Education Requirement courses in rhetoric help students:
- read with understanding and enjoyment, and write and speak about reading with personal authority and analytical skill;
- use writing and speaking to discover and explain, question and defend ideas;
- take into account fundamental rhetorical concepts such as audience, purpose, and appropriateness in devising effective communication.

Rhetoric General Education Requirement courses are sometimes organized around a special topic, but the primary emphasis is always on rhetorical practice and analysis.

All undergraduates—including transfer students—must satisfy the rhetoric requirement in one of several ways:

- pass 10:1 Rhetoric I and 10:2 Rhetoric II (total of 8 s.h.);
- pass 10:3 Accelerated Rhetoric (4 s.h.);
- score high on the speech exemption test and pass 10:4 Writing and Reading (3 s.h.);
- score high on the essay exemption test and pass 10:6 Speaking and Reading (3 s.h.);
- score high on both the speech and essay exemption tests; or
- some combination of the above, with appropriate course work accepted for transfer credit.

During their first semester at the University, students should enroll in the course indicated on their degree evaluations (unless a delay is required). Students must enroll in a rhetoric course each semester until the requirement has been satisfied.

Once enrolled in a rhetoric General Education Requirement course, a student may not drop.

Placement is ordinarily determined by American College Testing scores and any available transfer credit. Students who question their placement should bring their degree evaluations to the Rhetoric Department office, 71 EPB, during registration.

Students registered in 10:1 can test into 10:3 by achieving a high score on a two-part essay examination. Students registered in 10:3, 10:4, or 10:6 can satisfy all or part of the rhetoric General Education Requirement by taking an essay and/or speech examination. No academic credit is awarded for these examinations, which usually are administered on the first two nights of the semester. Further information is published in the Schedule of Courses each semester.

Students who have undergone formal evaluation by the Office of Services for Persons with Disabilities and are found to be learning disabled in reading, writing, or speaking should request reasonable accommodations in order to complete the rhetoric requirement. Accommodations may be arranged by the Office of Services for Persons with Disabilities in consultation with the Rhetoric Department.

Satisfactory completion of the rhetoric requirement is prerequisite to the humanities GER course 8G:1 The Interpretation of Literature.

Courses

For Undergraduates

General Education

10:1 Rhetoric I 4 s.h.
Speaking, writing, and critical reading; emphasis on exposition; competence in analyzing, organizing, developing ideas and in adapting discourse to readers and listeners. GER: rhetoric.

10:2 Rhetoric II 4 s.h.
Oral and written communication; focus on argument, persuasion, research, competence in research procedures-locating and evaluation of information and diverse points of view, analysis and responsible use of evidence, reasoned interpretation of substantive matters. GER: rhetoric.

10:3 Accelerated Rhetoric 4 s.h.
The 10:12 sequence in one semester. GER: rhetoric.

10:4 Writing and Reading 3 s.h.
Accelerated course: GER: rhetoric. Prerequisite: fulfillment of speaking requirement.

10:6 speaking and Reading 3 s.h.
Accelerated course: GER: rhetoric. Prerequisite: fulfillment of writing requirement.

Labs

10:8 Individual Instruction in Reading 2 s.h.
Focus on needs, interests of student. Open only to students who have not fulfilled the rhetoric requirement. Consent of Reading Lab director required.

10:9 Individual Instruction in Writing 2 s.h.
Focus on needs, interests of student. Open only to students who have not fulfilled the rhetoric requirement. Consent of Writing Lab director required.

10:89 Introduction to College Reading and Writing 4 s.h.
Intensive work in preparation for 10:1. Corequisite: two hours per week in Writing Lab.

Special

10:13 Rhetorical Process 3 s.h.
Rhetorical analyses of writings, speeches, advertisements, and so forth; two performances, one written, one spoken.

10:103 Rhetoric and Academic Inquiry 3 s.h.
Close reading, rhetorical analysis of disciplined expectations that academic fields have for their presentation of data, reasons, and arguments.

10:130 Issues in Rhetoric: Television and Society 3 s.h.
Rhetorical force that societal values acquire as they are represented by television; television’s rhetorical force examined through theories of persuasion from the rhetorical tradition. Offered through Saturday and Evening Class Program only.

10:131 Classical Rhetoric and Greek Culture 3 s.h.
Origins, development of the art of rhetoric from Sophocles to Aristotle, its significance to Greek culture from fifth to fourth century B.C.

10:133 Rhetorics of Liberalism 3 s.h.
Paradoxical rhetoric liberalism; possibilities and limits of liberalism’s commitment to persuasion, social change. Same as 36C:133.

10:160 Issues in Rhetoric and Culture 3 s.h.
Twentieth-century rhetorical theory, criticism; how contemporary cultural practices shape our sense of self, our place in society.

10:199 Special Projects arr.
Students majoring in Russian are urged to choose elective courses in economics, geography, history, or political science. 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.

Honors

Russian majors of junior or senior standing with a grade-point average of at least 3.20 both in Russian and overall 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 semester hours. Students may take up to 9 semester hours of honors in Russian.

Minor

A minor in Russian requires 15 semester hours with a minimum grade-point average of 2.00. Of these, 12 must be taken at The University of Iowa in advanced courses. The department recommends that students seeking a minor in Russian focus their preparation on 100-level Russian as preparation for graduate work in Slavic languages and literatures, comparative literature, English, or other humanistic disciplines.

Graduate Program

Offered with or without thesis, the M.A. program in Russian offers two major emphases, literary or language study. The focus in literary studies is on the development of Russian literature, both as a national phenomenon and as a part of European culture. Students are expected to analyze writers’ styles, perceive literary techniques, recognize literary influences, and develop the ability to soundly criticize form, content, and language of works in all genres. Students who elect a language studies emphasis focus on the historical development of Russian and do advanced study of grammar, contemporary phonology, morphology, syntax, and stylistic.

Candidates for the M.A. must have completed the equivalent of the undergraduate major in Russian. Deficiencies in previous training may be made up by taking appropriate courses. Candidates are required to complete a minimum of 30 semester hours of graduate work, with or without thesis. Ideally, the program should include courses in related fields, such as comparative literature, history, political science, philosophy, and other languages. Students in the thesis program may earn 4-8 semester hours of credit for thesis preparation. Prior to scheduling the M.A. examination and submitting the thesis (where applicable), candidates must pass a comprehensive Russian language examination; they also must demonstrate a reading knowledge of either French or German.

Financial Aid

Aid is available to graduate students in the form of tuition scholarships and teaching and research assistantships; it is awarded annually on a competitive basis. Teaching assistantships usually are not awarded to first-year students, although exceptions occasionally are made on the basis of advanced language skills. Applications are considered only from students who have been admitted to the Graduate College. Inquiries should be addressed to the departmental office.

Elementary and Secondary Teaching Licensure

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 Department of Russian have the option of earning a K-12 endorsement to teach Russian, along with the bachelor’s degree. For information about the foreign language teacher education program and graduate programs in foreign language education, contact the College of Education, Division of Curriculum and Instruction.

Students who plan to use a Russian minor to teach at the elementary and/or secondary level must contact the College of Education concerning requirements.

Summer and Study Abroad Programs

The department strongly encourages undergraduate and graduate students to participate in intensive programs of language study, both in the United States and in Russia. In recent years, more and more students have studied in summer, semester, and academic-year programs at St. Petersburg State University under the auspices of the Council on International Educational Exchanges, as well as in American Council of Teachers of Russian programs at a variety of Moscow and St. Petersburg institutes that specialize in teaching Russian as a foreign language. Other students have accelerated and refined their Russian language skills in various intensive summer programs at major American universities, including the program at The University of Iowa.

Inquiries should be directed to the Russian Department office.

Course Work for Nonmajors

A number of classes are open to all University students and are offered in English. These
include survey courses in Russian and Soviet literatures, culture, a monograph course on Tolstoy and Dostoevsky, and courses on women in Russian society and Russia today.

**Special Activities**

Russian Circle is a student organization open to both undergraduates and graduate students; it meets regularly for social and educational activities and provides students with a valuable opportunity to develop conversational skills and to share experiences with other members of the University community. Participation in the Foreign Language House in Hillcrest Residence Hall is encouraged. The house serves as a focal point for many Russian Circle functions, including weekly meals with faculty and guest speakers.

A number of outstanding students are inducted annually into Dobro Slowo, the National Slavic Honor Society, and are honored at a commemorative gathering.

**Language Media Center**

The University’s Language Media Center provides facilities for language learning, teaching, and research. Equipment in the center includes standard and short-wave radios, tape and cassette recorders, record players, soundproof recording mikes, drill rooms, and computing and video facilities. An electronic classroom, a soundproof workroom, and a library of tape, disc, and cassette recordings are also available.

**Courses**

**For Undergraduates and Graduates**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
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</thead>
<tbody>
<tr>
<td>41:1000</td>
<td>Cooperative Education Internship 0 s.h.</td>
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<tr>
<td>41:11</td>
<td>First-Year Russian I GER: foreign language. 4 s.h.</td>
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<tr>
<td>41:2</td>
<td>First-Year Russian II GER: foreign language. 4 s.h.</td>
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<tr>
<td>41:3</td>
<td>Second-Year Russian I GER: foreign language. 4 s.h.</td>
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<tr>
<td>41:4</td>
<td>Second-Year Russian II GER: foreign language. 4 s.h.</td>
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<tr>
<td>41:101</td>
<td>Intensive Russian Equivalent of 41:1 or 41:2 in one semester. GER: foreign language. Consent of instructor required.</td>
<td>6 s.h.</td>
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</tr>
<tr>
<td>41:102</td>
<td>Intensive Russian Continuation of 41:101 or 41:2 in one semester. GER: foreign language. Consent of instructor required.</td>
<td>6 s.h.</td>
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<tr>
<td>41:108</td>
<td>Special Readings May be repeated. Prerequisite: 16 s.h. of language instruction.</td>
<td>arr.</td>
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<tr>
<td>41:109</td>
<td>Beginning Composition and Conversation Prerequisite: 41:108 or equivalent.</td>
<td>4 s.h.</td>
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<tr>
<td>41:110</td>
<td>Beginning Composition and Conversation II Prerequisite: 41:109 or equivalent.</td>
<td>4 s.h.</td>
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<tr>
<td>41:111</td>
<td>Third-Year Russian I Prerequisite: 41:9 or equivalent.</td>
<td>4 s.h.</td>
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<tr>
<td>41:112</td>
<td>Third-Year Russian II Prerequisite: 41:111 or equivalent.</td>
<td>4 s.h.</td>
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**Primarily for Graduates**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>41:201</td>
<td>Advanced Grammar I Difficult areas of Russian word formation, morphology, government, tense/aspect usage, other syntactic and stylistic problems; pragmatic, contextual approach, allowing for simultaneous treatment of several linguistic issues (e.g., verbal government and conjugation). Primarily for graduates.</td>
<td>3 s.h.</td>
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<tr>
<td>41:202</td>
<td>Advanced Grammar II Continuation of 41:201. Primarily for graduates.</td>
<td>3 s.h.</td>
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<tr>
<td>41:203</td>
<td>Russian Morphology</td>
<td>3 s.h.</td>
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<tr>
<td>41:205</td>
<td>Russian Syntax</td>
<td>3 s.h.</td>
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<td>41:206</td>
<td>Russian Stylisty</td>
<td>3 s.h.</td>
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<tr>
<td>41:211</td>
<td>Russian Romanticism</td>
<td>3 s.h.</td>
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<tr>
<td>41:212</td>
<td>Modern Russian Literature 1880-1917</td>
<td>3 s.h.</td>
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<tr>
<td>41:215</td>
<td>Russian Poetry</td>
<td>3 s.h.</td>
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<td>41:216</td>
<td>Russian Folklore</td>
<td>3 s.h.</td>
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<tr>
<td>41:231</td>
<td>Soviet Literature</td>
<td>3 s.h.</td>
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<tr>
<td>41:244</td>
<td>Problems in Russian Literary Criticism</td>
<td>3 s.h.</td>
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<tr>
<td>41:249</td>
<td>Prospects in Research Methods</td>
<td>2 s.h.</td>
<td></td>
</tr>
<tr>
<td>41:250</td>
<td>Prospects in Research Methods</td>
<td>2 s.h.</td>
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</tbody>
</table>

**Russian, East European, and Eurasian Studies**

Codirectors: Vicki Hesli [Political Science], Steven Hoch [History], Margaret Mills [Russian], Ray Parrott [Russian], William Reisinger [Political Science].

Professors: Hanno Hardt [Journalism and Mass Communication], Vadim Kreyd [Russian], Gerald Nordquist [Economics], Ray Parrott [Russian], Jaroslav Pelenksy [History], John Reitz [Law], Donald Smith [Journalism and Mass Communication], Martin Tracy [Social Work].

Graduates of the Russian, East European, and Eurasian Studies program (REEES) are prepared for a wide variety of professions requiring specialization in Russian, East European, and Eurasian Studies.

The Bachelor of Arts in Russian, East European, and Eurasian Studies is a multidisciplinary program that builds on the strengths of the University’s Department of Russian. The key faculty in the social sciences and humanities, and an institutional emphasis on interdisciplinary programs. Currently participating in the program are 16 faculty members from the Departments of Economics, History, Political Science, and Russian; Schools of Journalism and Mass Communication of the College of Social Work; and the College of Law. Students in the program seek training for a wide variety of professions requiring specialization in Russian, East European, and Eurasian Studies.

For more than four decades, the former Soviet bloc countries have greatly affected the lives of Americans. Throughout the Cold War era, U.S.-Soviet relations were the lodestone of American foreign policy and shaped many domestic policies in the United States as well as in the eastern bloc. The momentous economic, political, and social changes that began sweeping Central and Eastern Europe and the former Soviet Union at the turn of the 1990s continues to make this area pivotal to U.S. interests.
The large number of governmental agencies that annually interview job candidates for positions in translation and interpretation, research, information analysis, and policy formulation almost invariably give preference to applicants who couple a well-rounded background in area studies with strong language proficiency. For this reason, the REEES major at Iowa requires three years of college-level training, or the equivalent, in the Russian language rather than the two-year requirement found in comparable programs nationwide. This unique feature of the Iowa major provides its graduates with a competitive edge in career opportunities and appointments.

Curriculum

Students pursuing the Bachelor of Arts in Russian, East European, and Eurasian Studies must meet the liberal education requirements (see the College of Liberal Arts introductory section of the Catalog) and earn at least 33 semester hours of credit in the program. The major requires:

- completion of the interdisciplinary course 41S:100 Introduction to the Commonwealth of Independent States (3 s.h.);
- achievement of third-year college-level proficiency in the Russian language (up to 24 semester hours of study, depending upon the student’s prior training in the language);
- completion of nine additional courses (27 s.h.) from a core group including two courses each in history and political science, one area-related course in economics, and one area-related course in either journalism and mass communication or Russian; and
- 41S:190 Senior Project (3 s.h.); students enroll for the Project in the spring semester, with one REEES faculty member; arrangements are discussed at an organizational meeting late in the fall semester preceding registration.

The existing core courses for Russian, East European, and Eurasian Studies represent regularly offered undergraduate and graduate courses.

Sample Course of study

<table>
<thead>
<tr>
<th>FRESHMAN YEAR</th>
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<tbody>
<tr>
<td><strong>Fall Semester</strong></td>
</tr>
<tr>
<td>6E:1 Principles of Macroeconomics</td>
</tr>
<tr>
<td>41:1 First-Year Russian 1</td>
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<tr>
<td>41 S: 100 Introduction to the Commonwealth of Independent States</td>
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<tr>
<td>General education electives</td>
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<td><strong>Spring Semester</strong></td>
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<tr>
<td>6E:2 Principles of Macroeconomics</td>
</tr>
<tr>
<td>16E:177 imperial Russia 1801-1917</td>
</tr>
<tr>
<td>41:2 First-Year Russian 11</td>
</tr>
<tr>
<td>General education electives</td>
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<tr>
<td><strong>Sophomore Year</strong></td>
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<tr>
<td><strong>Fall Semester</strong></td>
</tr>
<tr>
<td>16E:176 Imperial Russia 1598-1801</td>
</tr>
<tr>
<td>16E:178 Soviet Union 1917-1953</td>
</tr>
<tr>
<td>41:3 Second-Year Russian I</td>
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<tr>
<td>General education electives</td>
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<tr>
<td><strong>Spring Semester</strong></td>
</tr>
<tr>
<td>6E:164 Economics in Transition</td>
</tr>
<tr>
<td>16E:179 Soviet Union 1953-1991</td>
</tr>
<tr>
<td>41:4 Second-Year Russian II</td>
</tr>
<tr>
<td>General education electives</td>
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<tr>
<td><strong>Junior Year</strong></td>
</tr>
<tr>
<td><strong>Fall Semester</strong></td>
</tr>
<tr>
<td>19:155 Mass Media and Society</td>
</tr>
<tr>
<td>30: 141 Soviet and Post-Soviet Government and Politics</td>
</tr>
<tr>
<td>41:111 Third-Year Russian I</td>
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<tr>
<td>General education electives</td>
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<tr>
<td><strong>Spring Semester</strong></td>
</tr>
<tr>
<td>19:156 Comparative Communication Systems (area-related)</td>
</tr>
<tr>
<td>30: 142 Politics in Post-Communist Eastern Europe and Asia</td>
</tr>
<tr>
<td>41:112 Third-Year Russian II</td>
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<tr>
<td>General education electives</td>
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<tr>
<td><strong>Senior Year</strong></td>
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<tr>
<td><strong>Fall Semester</strong></td>
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<tr>
<td>6E:125 International Economics</td>
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<tr>
<td>16E:175 Muscovite Russia 1280-1598</td>
</tr>
<tr>
<td>16E: 185 Russian Culture</td>
</tr>
<tr>
<td>General education electives</td>
</tr>
<tr>
<td>Organizational meeting for Senior Project (registration for spring semester)</td>
</tr>
<tr>
<td><strong>Spring Semester</strong></td>
</tr>
<tr>
<td>30: 168 Foreign Policies of the Former Soviet Bloc</td>
</tr>
<tr>
<td>41: 182 Soviet Literature since Stalin</td>
</tr>
<tr>
<td>41S:190 Senior Project</td>
</tr>
</tbody>
</table>

Honors

The program leading to a B.A. degree with honors is open to students with a minimum cumulative grade-point average of 3.20. To graduate with honors, students must maintain a grade-point average of at least 3.50 in the Russian, East European, and Eurasian Studies program and a cumulative grade-point average of at least 3.20. Honors students must take 12 semester hours of course work with a grade of B or higher in each course. In consultation with the honors adviser, students choose courses and honors seminars and/or projects in economics, history, journalism and mass communication, political science, and Russian, as appropriate. The last 3 semester hours maybe earned by completing an honors research project directed by faculty members from at least two REEES disciplines.

Students interested in seeking a B.A. degree with honors should contact the University Honors Program and the REEES program honors adviser before they begin their junior year.

Joint Programs

Joint programs leading to a double major in Russian, East European, and Eurasian Studies and another discipline can be managed without difficulty. Double majors are appropriate in all the program’s constituent disciplines, especially in the Russian language or in economics. Other combinations are possible as well. In most cases, at least two courses count toward requirements in each major.

Supplementary Study Programs

The REEES program encourages all participants to explore opportunities for internships with governmental departments and agencies, nonprofit organizations and institutions, and businesses. Internships not only enrich the student’s learning from course work but also may lead to enhanced employment opportunities after graduation. In some cases, academic credit may be arranged for an internship.

Study Abroad

Students who wish to enrich their education through study abroad are strongly encouraged to do so. The REEES faculty stands ready to assist qualified students in selecting foreign study programs and institutions best suited to their educational objectives and needs. There are numerous programs available to students who desire to pursue both language and cultural training in Bulgaria, the Czech and Slovak republics, the former East Germany, Hungary, Poland, and Romania. The best study abroad programs in Russia are described in the Russian Department section of the Catalog. Students are increasingly able to apply directly for admission to almost all institutions of higher learning throughout Eastern Europe and Central Asia as well as Russia.

REEES Area Courses

Course descriptions are available in the appropriate departmental sections of the Catalog.

**ECONOMICS**
- 6E:001 Principles of Macroeconomics 3-4 s.h.
- 6E:002 Principles of Macroeconomics 3-4 s.h.
- 6E:125 International Economics 3 s.h.
- 6E:163 Comparative Economics 3 s.h.
- 6E:164 Economics in Transition 3 s.h.
- 6E:197 Honors Seminar (area related) 3 s.h.

**HISTORY**
- 16:51 Colloquium for History Majors (area related) 3 s.h.
- 16:51 Colloquium for History Majors (European) (area-related) 3 s.h.
- 16E:174 Medieval Russia 3 s.h.
- 16E:175 Muscovite Russia 1280-1598 3 s.h.
- 16E:176 Imperial Russia 1598-1801 3 s.h.
All law courses require instructor’s consent.

POLITICAL SCIENCE

30:41 Introduction to the Politics of Russia, Eastern Europe, and Eurasia 3 s.h.
30:141 Soviet and Post-Soviet Government and Politics 3 s.h.
30:142 Politics in Post-Communist Eastern Europe and Asia 3 s.h.
30:147 Ethnicity and Nationalism in the Former USSR 3 s.h.
30:149 Problems in Comparative Politics (area-related) 3 s.h.
30:156 Politics of Ethnic and Cultural Conflict 3 s.h.
30:168 Foreign Policies of the Former Soviet Bloc 3 s.h.
30:183 Honors Seminar on Comparative Politics 3 s.h.
30:184 Honors Seminar on International Politics 3 s.h.

RUSSIAN

All courses are conducted in English.

41:151 Russian Literature in Translation 1800-1860 3 s.h.
41:152 Russian Literature in Translation 1860-1917 3 s.h.
41:153 Tolstoy and Dostoevsky 3 s.h.
41:160 Women in Russian Society 3 s.h.
41:181 Soviet Literature to 1954 3 s.h.
41:182 Soviet Literature Since Stalin 3 s.h.
41:185 Russian Culture 3 s.h.
41:186 Russia Today 3 s.h.
41:199 Honors 3 s.h.

International and Comparative Studies. 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 consult REEES advisers for information on other available scholarships.

Special Activities

The Russian House offers a multicultural living environment to undergraduates, graduate students, and visiting professors engaged in the study of Russian. Residents are encouraged to use the Russian language when “at home” in the Russian House. Students also may wish to join the newly founded East European Cultural Society, which organizes and participates in activities that focus on cultural exchange.

The REEES Program puts together a rich public programming agenda each year. Scholars of national and international prominence are invited to address the University community and to interact with faculty, staff, and students. Each year, in collaboration with an academic department, REEES sponsors a symposium on issues related to the former Soviet Union and/or Eastern Europe. Past topics include reconstructing the history of imperial Russia, and economic, legal, and political dilemmas of privatization in post-communist Russia.

Undergraduate Programs

The undergraduate program in science education represents a transdisciplinary major in science 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

Bachelor of Science

The B.S. in science education requires a minimum of 56 semester hours earned in selected courses in College of Liberal Arts science departments, science applications courses, and courses in the history, philosophy, and sociology of science. Students may choose from six emphasis areas within the science education major: biological sciences, earth science, chemistry, physics, physical science, and general science.

The requirements for the major with each of the six emphasis areas are as follows.

Biological Sciences Emphasis

At least 25 semester hours must be earned in 100-level courses.

Science

2:1 Introduction to Botany 4 s.h.
2:10 Principles of Biology I 4 s.h.
Electives (in botany, microbiology, or zoology, including work in genetics, ecology, and physiology) 15 s.h.
4:13-14 Principles of Chemistry I-II 6 s.h.
4:16 Principles of Chemistry Lab I 2 s.h.
4:121 Organic Chemistry I 3 s.h.
29:11 College Physics 4 s.h.
Chemistry electives 5 s.h.
12:5 Introduction to Geology 4 s.h.
or
Approved geology elective 4 s.h.

Scholarships

Students are encouraged to apply for a Stanley Undergraduate Scholarship for International Research/Fieldwork through the Center for
Application of Science

97:103 Societal and Educational Applications of Biological Sciences 3 s.h.
97:102 Societal and Educational Applications of Earth Sciences and Environmental Sciences 3 s.h.
or
97:105 Societal and Educational Applications of Physical Sciences 3 s.h.
or
97:106 Societal and Educational Applications of Chemical Concepts 3 s.h.
or
97:140 Problems in Integrating the Teaching of Environmental Science 3 s.h.

Transfer courses from areas such as engineering, agriculture, and technical schools may be substituted for 97:102 or 97:103 or 97:105 or 97:106 with the adviser’s approval.

History/Philosophy/Sociology of Science

97:128 Meaning of Science 2-3 s.h.
97:130 Science in Historical Perspective 2-3 s.h.

Earth Science Emphasis

At least 25 semester hours must be earned in 100-level courses.

Science

2:12 Evolution and the History of Life 4 s.h.
12:5 Introduction to Geology 4 s.h.
12:6 Lectures in Evolution and the History of Life (maybe substituted for 12:4) 2 s.h.
12:8 Introduction to Environmental Geology 4 s.h.
12:109 Advanced Historical Geology: Iowa 3 s.h.
29:11 College Physics I 4 s.h.
29:12 College Physics II 4 s.h.
or
12:18 Environmental Geophysics 3 s.h.
4:13-14 Principles of Chemistry I-II 6 s.h.
4:16 Principles of Chemistry Lab I 2 s.h.
12:149 Elements of Geochemistry (may be substituted for 4:14) 3 s.h.
29:61 General Astronomy 4 s.h.
44:101 Climatology 3 s.h.
Earth science electives 3 s.h.

Application of Science

97:102 Societal and Educational Applications of Earth Sciences and Environmental Sciences 3 s.h.
97:103 Societal and Educational Applications of Biological Sciences 3 s.h.
or
97:105 Societal and Educational Applications of Physical Sciences 3 s.h.
or
97:106 Societal and Educational Applications of Chemical Concepts 3 s.h.
or
97:140 Problems in Integrating the Teaching of Environmental Science 3 s.h.

Transfer courses from applied areas such as engineering, agriculture, and technical schools may be substituted for 97:102 or 97:103 or 97:105 or 97:106 with the adviser’s approval.

History/Philosophy/Sociology of Science

97:128 Meaning of Science 2-3 s.h.
97:130 Science in Historical Perspective 2-3 s.h.

Chemistry Emphasis

At least 25 semester hours must be earned in 100-level courses.

Science

2:11 Introduction to Botany 4 s.h.
or
2:10 Principles of Biology I 4 s.h.
4:13-14 Principles of Chemistry I-II 6 s.h.
4:16 Principles of Chemistry Lab I 2 s.h.
4:101 Elementary Quantitative Analysis 4 s.h.
4:121 Organic Chemistry I 3 s.h.
4:125 Inorganic Chemistry 2 s.h.
Chemistry elective 6 s.h.
Earth science elective 3 s.h.
29:1 1-12 College Physics 8 s.h.
and Physics electives 7 s.h.
or
29:17-18 Introductory Physics I-11 8 s.h.
and 29:29 Physics 111 4 s.h.
and Physics electives 4 s.h.

Application of Science

97:106 Societal and Educational Applications of Chemical Concepts 3 s.h.
97:102 Societal and Educational Applications of Earth Sciences and Environmental Sciences 3 s.h.
or
97:103 Societal and Educational Applications of Biological Sciences 3 s.h.
or
97:105 Societal and Educational Applications of Physical Sciences 3 s.h.
or
97:140 Problems in Integrating the Teaching of Environmental Science 3 s.h.

Transfer courses from applied areas such as engineering, agriculture, and technical schools may be substituted for 97:102 or 97:103 with the adviser’s approval.

History/Philosophy/Sociology of Science

97:128 Meaning of Science 2-3 s.h.
97:130 Science in Historical Perspective 2-3 s.h.

Chemistry Emphasis

At least 25 semester hours must be earned in 100-level courses.

Science

2:11 Introduction to Botany 4 s.h.
or
2:10 Principles of Biology I 4 s.h.
4:13-14 Principles of Chemistry I-II 6 s.h.
4:16 Principles of Chemistry Lab I 2 s.h.
4:101 Elementary Quantitative Analysis 4 s.h.
4:121 Organic Chemistry I 3 s.h.
4:125 Inorganic Chemistry 2 s.h.
Chemistry elective 6 s.h.
Earth science elective 3 s.h.
29:1 1-12 College Physics 8 s.h.
and Physics electives 7 s.h.
or
29:17-18 Introductory Physics I-11 8 s.h.
and 29:29 Physics 111 4 s.h.
and Physics electives 4 s.h.

Application of Science

97:106 Societal and Educational Applications of Chemical Concepts 3 s.h.
97:102 Societal and Educational Applications of Earth Sciences and Environmental Sciences 3 s.h.
or
97:103 Societal and Educational Applications of Biological Sciences 3 s.h.
or
97:105 Societal and Educational Applications of Physical Sciences 3 s.h.
or
97:140 Problems in Integrating the Teaching of Environmental Science 3 s.h.

Transfer courses from applied areas such as engineering, agriculture, and technical schools may be substituted for 97:102 or 97:103 with the adviser’s approval.

History/Philosophy/Sociology of Science

97:128 Meaning of Science 2-3 s.h.
97:130 Science in Historical Perspective 2-3 s.h.

Physics Emphasis

At least 25 semester hours must be earned in 100-level courses.

Science

29:11-12 College Physics 8 s.h.
or
29:17-18 Introductory Physics I-11 8 s.h.
and 29:29 Physics 111 4 s.h.
4:13-14 Principles of Chemistry I-II 6 s.h.
4:16 Principles of Chemistry Lab I 2 s.h.
4:121 Organic Chemistry I 3 s.h.
12:5 Introduction to Geology 4 s.h.
29:11 College Physics 4 s.h.
29:12 College Physics 4 s.h.
Science electives 15 s.h.

Electives must be chosen so there are at least 21 semester hours in either biological sciences, chemistry, physics, or geology.
Two of the following:

97:102 Societal and Educational Applications of Earth Sciences and Environmental Sciences 3 s.h.
97:103 Societal and Educational Applications of Biological Sciences 3 s.h.
97: 105 Societal and Educational Applications of Physical Sciences 3 s.h.
97:106 Societal and Educational Applications of Chemical Concepts 3 s.h.

History/Philosophy/Sociology of Science

97:128 Meaning of Science 2 s.h.
97:130 Science in Historical Perspective 2 s.h.

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 order to be considered for admission to the TEP, students must have completed a minimum of 30 semester hours of course work with a minimum cumulative grade-point average of 2.50. A limited number of applicants are accepted into the TEP, so having a 2.50 grade-point average does not ensure admission. Admission decisions are based on grade-point averages in science courses and other criteria relevant to teaching.

Procedures and deadlines for TEP applications are described under “Curriculum and Instruction” in the College of Education section of the Catalog. Interested students must apply to the College of Education for admission to the Teacher Education Program.

TEP students must complete all College of Liberal Arts General Education Requirements, the requirements for a science education major, and the following professional education courses.

7F: 180 Human Relations for the Classroom Teacher 3 s.h.
7P:15 Educational Psychology and Measurement 3 s.h.
7S:100 Foundations of Education 3 s.h.
7S:151 Science Methods 1: Elementary School Seminar and Practicum 2 s.h.
7S:152 Science Methods H: Resources, Research, Teaching Strategies, and Curriculum Development for K-12 Science 3 s.h.
7S:153 Science Methods 11: Middle/Junior High School 2 s.h.
7S:189 Elementary School Special Subject Area Student Teaching 3 s.h.
97:128 Meaning of Science 2 s.h.
97:130 Science in Historical Perspective 2 s.h.

In addition, they must take the following basic requirements in their chosen minor area.

BIOLICAL SCIENCES

2:1 Introduction to Botany 4 s.h.
2:10 Principles of Biology I 4 s.h.
97:103 Societal and Educational Applications of Biological Sciences 3 s.h.
Biological Sciences electives 9 s.h.

CHEMISTRY

4:13-14 Principles of Chemistry I-II 6 s.h.
4:16 Principles of Chemistry Lab I 2 s.h.
97:106 Societal and Educational Applications of Chemical Concepts 3 s.h.
Chemistry electives 10 s.h.

PHYSICS

29:11-12 College Physics 8 s.h.
Physics electives 10 s.h.
97:105 Societal and Educational Applications of Physical Sciences 3 s.h.

GENERAL SCIENCE

2:1 Introduction to Botany 4 s.h.
4:13 Principles of Chemistry I 3 s.h.
12:5 Introduction to Geology 4 s.h.
29:11 College Physics 4 s.h.
Applications elective (97:102 or 97:103 or 97:105 or 97:106) 3 s.h.
Science Electives 6 s.h.

EARTH SCIENCE

12:5 Introduction to Geology 4 s.h.
29:61 General Astronomy 4 s.h.
Geology and astronomy electives 11 s.h.
97:102 Societal and Educational Applications of Earth Sciences and Environmental Sciences 3 s.h.

Minors in Science Teaching

Six added endorsements in science are available for persons with teaching majors in other academic areas: biological sciences, chemistry, physics, general science, earth science, and physical science. All require 33 semester hours of credit.

Students who want to pursue a science teaching minor and to qualify for University of Iowa recommendation for teaching licensure should consult a faculty member in science education.

All science teaching minors must take the following.

7S:151 Science Methods I: Elementary School Seminar and Practicum 2 s.h.
7S:152 Science Methods II: Resources, Research, Teaching Strategies, and Curriculum Development for K-12 Science 3 s.h.
7S:153 Science Methods III: Middle/Junior High School 2 s.h.
7S:189 Elementary School Special Subject Area Student Teaching 3 s.h.
97:128 Meaning of Science 2 s.h.
97:130 Science in Historical Perspective 2 s.h.

In addition, they must take the following basic requirements in their chosen minor area.

BIOLICAL SCIENCES

2:1 Introduction to Botany 4 s.h.
2:10 Principles of Biology I 4 s.h.
97:103 Societal and Educational Applications of Biological Sciences 3 s.h.
Biological Sciences electives 9 s.h.

CHEMISTRY

4:13-14 Principles of Chemistry I-II 6 s.h.
4:16 Principles of Chemistry Lab I 2 s.h.
97:106 Societal and Educational Applications of Chemical Concepts 3 s.h.
Chemistry electives 10 s.h.

PHYSICS

29:11-12 College Physics 8 s.h.
Physics electives 10 s.h.
97:105 Societal and Educational Applications of Physical Sciences 3 s.h.

GENERAL SCIENCE

2:1 Introduction to Botany 4 s.h.
4:13 Principles of Chemistry I 3 s.h.
12:5 Introduction to Geology 4 s.h.
29:11 College Physics 4 s.h.
Applications elective (97:102 or 97:103 or 97:105 or 97:106) 3 s.h.
Science Electives 6 s.h.

EARTH SCIENCE

12:5 Introduction to Geology 4 s.h.
29:61 General Astronomy 4 s.h.
Geology and astronomy electives 11 s.h.
97:102 Societal and Educational Applications of Earth Sciences and Environmental Sciences 3 s.h.

Special Rules

Since the Science Education Program may involve many faculty advisers and several colleges and departments, some special rules and regulations apply to science education students. They include the following.

• At least 10 semester hours 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.
• Science courses taken in other colleges of the University (e.g., Colleges of Engineering and Medicine) will not be accepted in lieu of the required course work for the major unless one of the science departments of the College of Liberal Arts certifies in writing to the Office of the Registrar that such a course is equivalent to the one offered in that department.
• 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.

Honors

To graduate with honors, students must maintain a 3.20 grade-point average and complete 97:99 Honors Research Project in addition to other science education requirements.

Graduate Programs

The Science Education Program offers graduate studies leading to the Master of Arts in Teaching, Master of Science, Educational Specialist, and Doctor of Philosophy. These programs are described under “Secondary Education” in the College of Education section of the Catalog. The Master of Science with specialization in elementary school science
education is described under “Early Childhood and Elementary 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, philosophy and sociology of science, and evaluation and assessment of science instruction and programs.

Special Programs
A wide range of funded programs provides ample opportunity for students to be involved in innovative development and research in science education. Of special importance is the Science Education Center’s commitment to improvement of science programs, toward which it works with teachers from Iowa and throughout the country. Special inservice programs guide teachers in adapting innovative methods, STS, and laboratory centered programs for gifted and talented students. The Science Education Center has been a leader in in-service work with teachers, supervisors, and administrators; a common area for small-group discussions and individual work; and a lounge. The Science Education Center is located in Van Allen Hall near the center of the University campus.

Courses
The following are special courses offered by the Science Education Program to supplement the undergraduate emphasis areas in science education and to provide science options for elementary education majors.

Primarily for Undergraduates
97:00 Cooperative Education Internship 0 s.h.
97:20 Fundamentals of Science 2 S.h.
Science topics and laboratory investigations from physical, life, earth sciences; focus on problem solving and process skills in science.
97:99 Honors Research Project arr.

For Undergraduates and Graduates
97:102 Societal and Educational Applications of Earth Sciences and Environmental Sciences arr.
Major ideas and principles of earth and environmental sciences; emphasis on common applications in today’s world.
97:103 Societal and Educational Applications of Biological Sciences arr.
Basic conceptual themes of biology, how they have been derived; emphasis on a current social issue related to biology.
97:105 Societal and Educational Applications of Physical Sciences arr.
Major ideas of physics and how they have been derived; emphasis on how such ideas affect modern society.
97:106 Societal and Educational Applications of Chemical Concepts arr.
Principles of chemistry as applied in industry, communication, daily living.
97:107 Textile Science 3 S.h.
Textile properties, fiber science, yarn and fabric construction, textile testing and standards, dyeing, finishing.
97:108 Experimental Textile Science 3 s.h.
Projects conducted in the laboratory; methodology of textile science research. Consent of instructor required.
97:110 Earth Science for Solving Issues 2-3 s.h.
Earth science concepts used in resolving community issues.
97:111 Life Science for Solving Issues 2-3 s.h.
Life science concepts, resolving issues in local communities.
97:112 Planet Earth 3 s.h.
Plate tectonics; Earth and other planets in solar system; Earth’s oceans, interior, atmosphere, natural resources; Earth’s future.
97:113 Race to Save the Planet 3 S.h.
Today’s environmental issues, revolution; solutions, constructive ideas, new approaches worldwide; environmental affairs from Neolithic agricultural revolution to present.
97:114 Physical Science for Resolving Issues 2-3 s.h.
Physical science concepts, resolving issues in local communities.
97:115 Introduction to Museology 3 s.h.
97:119 Directed study arr.
97:128 Meaning of Science 2-3 s.h.
Critical examination of scientific enterprise from social, ethical, cultural, epistemological viewpoints.
97:130 Science in Historical Perspective 3 s.h.
Science and its related contemporary social issues from perspective of historical development.
97:140 Problems in integrating the Teaching of Environmental Science 3 s.h.
Environmental education resources in the community-human, governmental, natural; integrated (holistic) view of environmental education of K-12 teaching.
97:150 Resolution of Issues: Life Science 2-3 s.h.
Use of life science to explain, augment understanding of, and propose resolutions for local and regional issues; integration of concepts from other science disciplines.
97:151 Resolution of Issues: Physics 2-3 s.h.
Use of physical science to explain, augment understanding of, and propose resolutions for local and regional issues; integration of concepts from other science disciplines.
97:152 Resolution of Issues: Earth and Space Science 2-3 s.h.
Use of earth and space science to explain, augment understanding of, and propose resolutions for local and regional issues; integration of concepts from other science disciplines.
97:153 Resolution of Issues: Chemistry 2-3 s.h.
Use of chemistry to explain, augment understanding of, and propose resolutions for local and regional issues; integration of concepts from other science disciplines.
97:154 A World View of Science 2-3 s.h.
Multiple dimensions of science, nature of scientific inquiry, perceptions about science, relationship of science to technology.

Social Studies
Coordinator: Margaret Rogers
Assistant professors: Bruce Fehr, Margaret Rogers
Undergraduate degree: B.A. in Social Studies
Graduate degrees: M.A. in Social Studies, Ph.D. in Education

Undergraduate Program
The major in social studies is an interdisciplinary, nonprofessional major. It provides an excellent foundation for careers in law, social work, religion, urban planning and development, and government service at all levels.

General Program
Major requirements for the B.A. in social studies total 60 semester hours of credit earned in departments cooperating in the social studies education program.

Students choose Plan A or Plan B. Both require 60 semester hours of course work.

PLAn A
U.S. history or world history 15 s.h.
American government/political science 15 s.h.
In addition, students complete 15 semester hours in each of any two areas chosen from anthropology, economics, geography, psychology, and sociology.
Students complete 30 semester hours in one area chosen from American government political science, anthropology, economics, geography, psychology, sociology, U.S. history, or world history. They also complete 15 semester hours in each of any two of the remaining disciplines.

There is no separate honors program in social studies. Students who qualify for the University Honors Program are encouraged to do honors work in the social science department in which they wish to concentrate their work.

A global studies certificate may be obtained in conjunction with the social studies major. See “Global Studies” in this section of the Catalog.

**Teacher Licensure**

Students who want to obtain a teaching license in history or other social science areas must declare a major in the academic field they want to teach and earn a total of 30 semester hours in that field. They also must complete 15 semester hours in each of two fields related to history or social science. Majors and related fields may be selected from the following: U.S. history, non-U.S. (world) history, anthropology, economics, sociology, geography, political science, or psychology. Courses must conform to departmental requirements for the major. In most instances, students are assigned an adviser in their major area as well as in social studies.

Additional information on social studies teacher licensure programs is available from the office of the Division of Curriculum and Instruction, College of Education.

**Graduate Programs**

**Master of Arts**

The department offers the Master of Arts with or without thesis. Graduates of the M.A. program are classroom teachers and chairs of social studies departments in junior and senior high schools. Some serve as curriculum consultants for school districts, while others are staff members in community colleges. A few have found the degree to be excellent preparation for professional work in correctional and penal institutions. For a few, the program has provided access to civil service positions at various levels of government.

Students choose from two programs. Program A provides an opportunity for interdisciplinary work in history, social science, or related areas for classroom teachers and others interested in acquiring greater competence in their subject area. Program B is for individuals who have their bachelor’s degree in history or one of the other social sciences and who wish to obtain a teaching certificate in the process of completing the master’s degree. Both programs are described in the College of Education section of the Catalog under “Curriculum and Instruction.”

**Doctor of Philosophy**

Graduates of the Ph.D. program hold administrative posts in institutions of higher education, serving as presidents, provosts, or deans of faculty or graduate studies. Some are department chairs in colleges of education or curriculum directors in large school districts. Many are in teacher education programs in colleges and universities, while others are college instructors in their areas of academic concentration.

Requirements and admission criteria for the Ph.D. program in Social Studies Education are described in the College of Education section of the Catalog under “Curriculum and Instruction.”

**Facilities**

Social studies students have access to the facilities and faculties of the cooperating departments and the College of Education. Special agencies and services also are available, such as University Hospital School, the Iowa Center for Education in Politics, the Bureau of Educational Research, the Institute of Public Affairs, the Iowa Educational Information Center, the Curriculum Laboratory, the Statistical Consulting Center, the computer laboratory, and Weeg Computing Center.

Faculty members who serve as social studies advisers and coordinators are experienced classroom teachers whose advanced degrees have been earned in history, the social sciences, and education. They are active in professional organizations, in consulting work, and in working with schools in curriculum revision.

**Social Work**

Director: Patricia Kelley

Professors: Lorraine Dorfman, H. Wayne Johnson, Patricia L. Kelley, Martin B. Tracy, Thomas H. Walz

Professors emeriti: Ralph E. Anderson, Frank Z. Click

Adjunct professors: Woodrow W. Morris, Beverlee C. Tracy

Associate professors: Catherine F. Alter, Jim Hall, Edward J. Saunders, William M. Theisen

Associate professors emeriti: W. Stanley Good, Katherine A. Kruse


Assistant professors: Amy Butler, Theora Evans-Dodd, Carolyn Hurtley, Julia Holmes, Robert Jackson, Salone Raheim, Judith Rinehart

Assistant professors emerita: B. Eleanor Anstey, A. Louise Mays, E. Jean Williams

Adjunct assistant professors: Larry Allen, James Cone, Wendy Delutlbaum, Diane Dornburg, John F. Else, Greg Jensen, Paul Lambakis, Miriam Landsman, Kathy Morgan, Linda Neuman, Robert Oberbiller, Michael O’Melia, Anila Richards, Rebecca Sirvo, Dorothy Seyfried, Janet Simons, Bonnie Theisen, Nicholas Tormey, Patsy Tracy, Steve Trefz, Nancy Wallace, Bonnie Williams

Adjunct instructors: Nansee Blum, Ev Brightman, Victoria Bruner, Lois Buntz, Paul Danforth, Barbara Ehlers, John Fairweather, Robert Freeman, Betty Grandquist, Dan Grinstead, Heather Henderson, Mary Hubbard, Lance Kinseth, Theresa Kulpker, Paul Lambakis, Jean Mann, Billie Marchik, Pat Meyers, Hermine McIeran, Barbara Miller, Pam Moore, Jeanne Neibitt, Linda Peterson, Anita Patterson, Joy Sutter, Sally Titus-Cunningham, Lisa Walz, John Zaleski

Undergraduate Program

The Bachelor of Arts program prepares students for beginning professional social work practice as generalists. The goals of the program are to prepare students for employment in social services using B.A. graduates, such as public welfare, child welfare, group services, health, mental health, elderly services, and corrections; to provide a base for graduate study in social work or allied professions; and to prepare students for informed community participation in social welfare issues.

The program is accredited by the Council on Social Work Education.

**Selective Admission**

A limited number of students are admitted to the major. Applications are processed each December. Admission to the undergraduate program in social work requires:

- completion of 42:22 Introduction to Social Work with a grade of C or higher (can be taken the sophomore year);
- a cumulative grade-point average of at least 2.50; and
- completion of the application process.

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.

Admission is limited by available instructional resources and opportunities for field placement. Meeting these requirements does not guarantee admission.

More information is available from the School of Social Work admissions coordinator.

**Curriculum**

Undergraduate students majoring in social work must satisfy the College of Liberal Arts General Education Requirements. The General Education Requirement in natural sciences should include 2:21 Human Biology. The minimum requirements for a B.A. in social work include 35 semester hours in social work courses, 12 semester hours in one other department (see “Other Courses,” below), and 12 semester hours in social science courses. The following courses are required for the major.

**Freshman/Sophomore Years**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>30:1</td>
<td>Introduction to American Politics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>31:1</td>
<td>Elementary Psychology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>31:2</td>
<td>General Psychology</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

**Junior/Senior Years**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>34:1</td>
<td>Introduction to Sociology: Principles</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>42:22</td>
<td>Introduction to Social Work</td>
<td>3-4 s.h.</td>
</tr>
</tbody>
</table>
Graduate Program

The Master of Social Work program prepares social workers for leadership in the profession and for advanced social work practice in one of two concentrations. The program’s general focus is on family systems and social change, both domestic and international. Its common goals, to be met through a set of foundation requirements, are to enable all students to understand the dynamics of human development and change; to learn how to enhance the responsiveness of human service between society and the individual; and to acquire intervention skills for working with individuals, families, small groups, organizations, and communities in public and private agencies and institutions.

The program is accredited by the Council on Social Work Education (CSWE).

The Master of Social Work includes 25 semester hours of foundation-level courses and 35 semester hours of advanced-level courses. Students who have a B.S.W. from a CSWE accredited program receive 15 semester hours of advanced standing and earn the degree with 45 semester hours. A limited number of students are admitted to a 36-hour, full-time program. All students must earn a minimum of 36 hours after admission to the M.S.W. program.

Up to 14 semester hours of partial advanced standing is possible for students who have completed courses in a CSWE-accredited program but who do not have the degree. Students with equivalent foundation course content taken in departments or programs other than accredited social work programs must pass a qualifying exam for the particular foundation course in order to receive partial advanced standing. Nine to 12 semester hours of graduate transfer credit may be allowed for previous graduate work.

The school operates a year-round, sequential program that begins in the fall semester for full-time students who need the full 60 semester hours. The program continues through the summer, which is a full semester. Full-time students who complete the entire 60 semester hours after admission generally earn the M.S.W. the spring semester of their second year. Those who require 45 semester hours enter the program in the second semester (January). Students in the 36-semester-hour program begin their course work in the third semester (May). The 36-semester-hour program is available only for full-time students.

Part-time students go through the program at a slower pace. Students who need the full 60 semester hours complete the program in four years. A special intensive summer program has been designed to enable students from Des Moines and the Quad Cities to attend classes in Iowa City.

Students must maintain at least a 3.00 cumulative grade-point average; must be promoted each semester in compliance with the Student Advancement Policy; and must successfully complete a master’s comprehensive examination, an integrative paper involving evaluation of practice, prepared in conjunction with a practicum seminar in the final semester.

Students may elect a thesis option for credit and use the oral defense as their final examination.

The following is an outline of the full-time 60-semester-hour program.

FIRST YEAR FOUNDATION

**Fall Semester**

- 42:140 Human Behavior in the Social Environment 3 s.h.
- 42:141 Fundamentals of Social Work Practice 3 s.h.
- 42:142 Interpersonal Skills Laboratory 2 s.h.
- 42:144 Introduction to Social Work Practice Research 1 s.h.
- 42:147 Social Work Processes 3 s.h.

**Spring Semester**

- 42:140 Human Behavior in the Social Environment 3 s.h.
- 42:141 Fundamentals of Social Work Practice 3 s.h.
- 42:142 Interpersonal Skills Laboratory 3 s.h.
- 42:143 Social Welfare Policy and Practice 3 s.h.
- Elective 3 s.h.

**Total** 13 s.h.

**SECOND YEAR CONCENTRATION**

**Fall Semester**

- 42:240 Family Systems Theories 3 s.h.
- 42:260 Integrated Practice Theories 3 s.h.
- 42:270 Advanced Research 3 s.h.
- 42:292 Advanced Practicum in Family Centered Practice I and II 3 s.h.
- 42:295 Advanced Practicum in Integrated Practice 5-6 s.h.
- 42:299 Advanced Practicum Seminar in Family Centered Practice I 1 s.h.
- 42:297 Advanced Practicum Seminar in Integrated Practice I 1 s.h.

**Total** 12-13 s.h.

**Spring Semester**

- 42:251 Family Therapy 3 s.h.
- 42:261 Integrated Social Work Practice 3 s.h.
- 42:252 Family Policy: Domestic and International 3 s.h.
- 42:262 Social Policy and Integrated Practice: Domestic and International 3 s.h.
- 42:292 Advanced Practicum in Family Centered Practice I and II 3 s.h.
- 42:295 Advanced Practicum in Integrated Practice 5-6 s.h.
Concentrations

After admission, students choose between two concentrations: family systems or interdisciplinary systems.

Family Centered Practice

This concentration prepares students to become clinical social work practitioners, working with individuals and families experiencing problems that have impaired personal or family functioning, such as mental illness, family violence, abuse and neglect, substance abuse, relationship problems, or poor parenting skills. The goals of clinical social work are to increase competence of these individuals and family members, to support family functioning, and to decrease the need for various types of institutionalization. This concentration is designed to enable students to work intensively with individuals and families directly, as well as to work with the larger systems on their behalf. The term “family” is broadly defined to include step families, single-parent families, same-sex couples, adult child-parent families, and traditional forms of families. Thus, sensitivity to a variety of family structures is emphasized.

Graduates of this concentration work with a variety of populations across the age span in mental health, in traditional family services as well as intensive family-based services, in child welfare agencies, and in a variety of other settings. The theoretical basis for this concentration is the family systems perspective, which emphasizes interpersonal and social forces over intrapsychic factors in explaining human behavior and change. This view emphasizes mobilizing strengths in the system, rather than diagnosing pathology, in creating change.

Integrated Practice

The integrated practice concentration teaches a model of advanced practice that aims to meet the multiple needs of individuals and families through culturally sensitive assessment, planning, intervention, and evaluation in multiple systems. These skills are needed for a broad set of interventions (direct practice, planning and program development, team building, networking, and client information management) used by social workers doing family-centered case management and community practice.

This concentration is designed for students who will work in settings where advanced generalist interventions are necessary, such as community-based and family-based agencies, rural settings, and large complex organizations (hospitals, schools, and correctional facilities). In these settings, social workers function as team members and team leaders and often must coordinate activities across different departments and agencies.

The integrated practice concentration is based on the concept of person-in-environment and is an extension of multysystemic practice. The theoretical foundations of the concentration are social network and social systems theory (family and organizational systems), and empowerment models, as well as mid-range theories of communication, power, conflict, political economy, and decision theory. As they apply to changing the circumstances of oppressed/distressed individuals and families. The policy framework for the concentration includes both a comparative analysis of policy and program, and an understanding of the reciprocal relationships between problems of individuals and families and those of the systems in which they are enmeshed.

Off-Campus Centers

The full-time program is available in Iowa City and Des Moines. At the end of the first calendar year, some students stay in the Iowa City-Cedar Rapids area for the remainder of their program, including practicum, and some are assigned to Des Moines or the Quad Cities for practicum. Students may need to relocate.

The Des Moines Center, 115 miles west of Iowa City, is located in Iowa’s state capital and largest city, Des Moines. The Quad Cities Center is located on the Mississippi River in Davenport, 60 miles east of Iowa City. Full-time students who have a practicum assignment in the Quad Cities usually commute to Iowa City for required courses during the second year of the program. Some elective courses are available in the Quad Cities.

Part-Time Program

The School of Social Work also has a part-time program in three locations: Iowa City, Des Moines, and the Quad Cities. In Iowa City and Des Moines, students are admitted each fall semester. In the Quad Cities, a group of part-time students is admitted every three years; the next group will start in August 1997.

School of Social Work faculty members teach required courses in all centers and are available for student advising.

The off-campus programs have been evaluated by CSWE and The University of Iowa Graduate Council as providing a comparable program to that available on the Iowa City campus.

Part-time students complete two courses each spring and fall semester for three or four years. Electives may be taken concurrent with fall and spring semester courses and in the summer. A full range of summer courses is available in Iowa City, and some courses are available in Des Moines. The format for some Iowa City summer courses is intensive, short-term, and split session, enabling students from other centers to take campus courses.

Joint Degree Programs

The school has formal agreements with the College of Law and the Department of Urban and Regional Planning for joint degrees. Students must be accepted to each department through its regular admission process. Up to nine semester hours in each program are applied to requirements of the other, thus reducing the time it would usually take to pursue two degrees. Individual arrangements may be made with other departments. Students have pursued joint degrees with the College of Business Administration, College of Education, American Studies Program, School of Religion, School of Journalism and Mass Communication, and others. Students are encouraged to take courses in other departments whether or not they are pursuing joint degrees.

Cooperative Programs

In cooperation with the Counselor Education Program in the College of Education, a curriculum has been designed around the requirements of the American Association of Marriage and Family Therapists (AAMFT). Graduates of accredited M.S.W. programs are eligible for associate membership upon fulfilling certain curriculum requirements at the graduate level. Courses are not automatically accepted; graduates need to demonstrate that they meet requirements, usually by sending course outlines.

The School of Social Work participates in the Aging Studies Certificate Program through the College of Liberal Arts. Students can earn the certificate concurrent with the M.S.W. program; they must apply independently to the coordinator of the Aging Studies Program.

The school also participates with the College of Education to provide curricula that meet requirements for school social work certification in Iowa. Students can work toward certification concurrent with the M.S.W. program. Students apply for certification to the assistant to the dean in the College of Education.

Special Projects, Travel/Study Seminars

Students may become involved in special projects such as the National Resource Center on Family Based Services and the School of Social Work gerontology programs.

The school also offers students the opportunity to participate in travel/study seminars. Urban, rural, national, and international seminars are available.

Admission

The criteria for admission for full-time and part-time study in the 60- and 45-semester-hour M.S.W. programs are:

- a bachelor’s degree from an accredited college or university, with a reasonable distribution of courses in the social sciences and humanities;
- competence with word processing and spreadsheet application on personal computers;
- a 3.00 or higher grade-point average for the junior and senior years of undergraduate study, or for 12 semester hours of letter-graded graduate course work (exceptions noted below);

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- competence with word processing and spreadsheet application on personal computers;
- a 3.00 or higher grade-point average for the junior and senior years of undergraduate study, or for 12 semester hours of letter-graded graduate course work (exceptions noted below);
a Graduate Record Examination GRE score; the minimum GRE score is either a combined verbal and quantitative score of 900 or an average of 500 for the verbal, quantitative, and analytical portions;
three positive letters of recommendation, including one regarding academic abilities and one or more regarding social service or other work experience; and
a personal statement addressing criteria specified by the School of Social Work.

Previous experience in the human services (volunteer, field, or employment) is desired.
Previous enriching life experience (cross-cultural and international experience and background, and minority status) also are granted consideration.

Foreign applicants must score at least 600 on the Test of English as a Foreign Language (TOEFL).

Applicants who are especially strong candidates on the basis of other criteria may be admitted even if their grade-point average is below 3.00. Since the school seeks to maintain a heterogeneous student body, it makes special efforts to admit students who represent a diversity of racial, ethnic, and socioeconomic backgrounds. Students with disabilities also are encouraged to apply.

Applications are accepted beginning September 1 and must be completed by February 1 to be considered for the next academic year. Students in the 45-semester-hour program begin in January and are considered part of the same class and must meet the same application deadlines as students who begin the preceding semester. Applications for the 36-semester-hour program must be completed by January 1.

Additional criteria for admission to the full-time, 36-semester-hour program include:

- a bachelor's degree from a CSWE-accredited social work program;
- a 3.00 or higher grade-point average for the junior and senior years of undergraduate study;
- a Graduate Record Examination GRE score; the minimum GRE score is either a combined verbal and quantitative score of 900 or an average of 500 for the verbal, quantitative, and analytical portions;
- extensive experience after receipt of a bachelor's degree; and
- completion of a basic statistics course and proficiency in the use of microcomputers (credits received in these two areas are not applied toward the M.S.W. degree).

A complete statement of graduate admission policies is available upon request.

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**Financial Aid**

Financial aid for students varies from year to year. All students seeking financial assistance should apply for aid through The University of Iowa Office of Student Financial Aid and should maintain close contact with the school’s financial aid administrator regarding availability of funds from the School of Social Work. Aid received through the Office of Student Financial Aid does not preclude students from consideration for aid through the School of Social Work.

**Courses**

Few courses are offered every semester; consult the current Schedule of Classes for availability of specific courses.

**Primarily for Undergraduates**

*Courses with numbers preceded by asterisks meet requirements of the M.S.W. program.*

- **42:22 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 60 hours volunteer work. Sophomore standing or above or consent of instructor required. same as 34:22.

- **42:144 Introduction to Social Work Research** 4 s.h. Skills appropriate to evaluation of practice, participation in social work research; emphasis on formulating research questions; research design and methodology; sampling techniques; sanctions; data collection; coding and computerized statistical analyses; presentation of findings. Open only to undergraduate social work students. Prerequisite: 42:22 or graduate standing or consent of instructor.

- **42:171 Social Work Processes** 3 s.h. Practice strategies for working with communities, small groups, families, individuals in community, organizational contexts; volunteer work. Prerequisite: 42:141 or consent of instructor.

- **42:189 Field Experience Seminar** 1 s.h. Experiences from a variety of placements; link between previous courses and 42:193, which is co requisite.

- **42:191 Individual Study** arr. Project related to student interest. May be repeated.

- **42:192 Honors in Social Work** Research. May be repeated. Open only to honors program students.

- **42:193 Field Experience** arr. Supervised experience in selected social welfare organizations; understanding and use of knowledge and skill common in generalist practice; evaluation of practice. Senior standing in social work or consent of instructor required. Prerequisites: 42:22, 42:140, 42:141, 42:142, and 42:171, or consent of instructor. Corequisite: 42:189.

**For Undergraduates and Graduates**

*Courses with numbers preceded by asterisks meet requirements of the M.S.W. program.*

- **42:00 Cooperative Education Internship** 0 s.h. Corequisite: 42:193 or 42:290 or 42:292 or 42:295 or 42:296.

- **42:93 Intercultural Communication** 3 s.h. Same as 36C:93.

- **42:108 Basic Aspects of Aging** 3 s.h. Biological, social, and psychological aspects; major topics include health, economic health, economic status, social participation, health, and social services.

- **42:112 Human Sexuality** 1-3 s.h. Physiological, psychological aspects; parameter defined by students, instructor. Same as 96:112, 7C:112.

- **42:117 Interdisciplinary Programs for Disabled** 3 s.h. Same as 7U:117.

- **42:129 Substance Use and Abuse** 2 s.h. Chemical dependency for helping professions; biological, physiological, psychological, legal, sociocultural aspects; treatment methods. Junior standing or above or consent of instructor required.

- **42:140 Human Behavior in the Social Environment** 3-4 s.h. Behavior and development in context of social, ecological systems; social systemic theories, personality and life span development theories, theories of psychosocial dysfunction. Open only to social work students. Prerequisite: 42:22 or graduate standing or consent of instructor.

- **42:141 Fundamentals of social Work Practice** 3 s.h. Professional practice; functions, roles, skills, conceptual frameworks, values, ethic; focus on integrated approach to practice, including assessment, intervention, evaluation of interventions, termination with individuals, families, groups; emphasis on empirically based practice. Open only to social work students. Prerequisite: 42:22 or graduate standing. Corequisite: 42:140.

- **42:142 Interpersonal Skills Laboratory** 1-2 s.h. Practice of interpersonal skills required in the helping relationship. Open only to social work students. Prerequisites: 42:22 and 42:140, or graduate standing, or consent of instructor. Corequisite: 42:141.

- **42:143 Social Welfare Policy and Practice** 3 s.h. Framework for analyzing specific social welfare programs, policies, alternatives; special attention to impact of social welfare programs on women, minorities, international focus. Graduate standing in social work or consent of instructor required. Prerequisites: economics course, 42:22 and 42:140; or consent of instructor.

- **42:147 Racism and Discrimination** 3 s.h. Theoretical, historical perspectives on racism, sexism, other forms of discrimination; application to social work practice with antidiscrimination strategies.

- **42:183 Issues in Criminal Justice and Corrections** 2 s.h. Contemporary programs, organizational structures, administrative processes in criminal justice, particularly corrections; related social policy issues. Junior standing or above required.

- **42:184 Multidisciplinary Perspectives on Aging** 3 s.h. Social, behavioral, health-related perspectives on aging; public and private, traditional and innovative programs for meeting service needs of elderly, functional assessment of older persons.

- **42:185 Social Policy and the Elderly** 3 s.h. Public social policies, their effect on wellbeing of elderly, including women and minorities; U.S. policies, those of other nations, Junior or higher standing required. Prerequisites: 42:143 and introductory course on aging (34:130, 42:184, 96:129), or consent of instructor.

- **42:186 Comparative Social Policy** 3 s.h. U.S. social policies and programs, those of other countries; historical development, current status of income maintenance, health, education, social service. Junior standing or above required.

- **42:190 Field Work in Gerontology** arr. Opportunities for students in various disciplines to relate their areas of study to elderly, aging, interdisciplinary relationship, approaches to meeting needs of elderly. Prerequisite: 34:130 or 42:184 or 96:129 or consent of instructor.

- **42:194 Social Work Practice in Health Care Settings** 2 S.h. Introduction to organization, provision of social work services in health care setting; practice issues such as models of intervention, ethical questions, impact of cultural diversity on health care. Prerequisite: 42:141 or consent of instructor.

- **42:195 Selected Topics** 1-2 s.h. Ongoing faculty research areas.

- **42:196 Family Violence** 2-3 s.h. Child abuse and neglect, domestic violence, elderly abuse; causes, policy aspects, identification, reporting, treatment, prevention.

- **42:198 Social Work Practice with Developmentally Disabled** 2 s.h. Problems, programming needs of disabled, their families; practice issues, including individual needs assessment and program planning family dynamics, service needs.


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**Continuing Education**

Nondegree students may enroll for selected courses and workshops through the Saturday and Evening Class Program in Iowa City and the School of Social Work centers in Des Moines and the Quad Cities. There are limits on the graduate course work that may be applied to the master’s requirements for students who later enroll in the program.
Primarily for Graduates

- 42:145 Organization and community practice 3 s.h.
- Models underlying 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. Admission to social work or consent of instructor required.

- *4:146 Microcomputer Laboratory 1.5 s.h.
- Microcomputers in social work practice; skill in use of hardware, software for a variety of applications in social service settings. Open only to social work students.

- 42:148 Social Work Research Methods 3 s.h.
- Skills appropriate to evaluation of practice and participation in social work research, on formulating research questions; research design and methodology sampling techniques; protection of human subjects; descriptive statistics; computerized data analysis. Admission to M.S.W. program or consent of instructor required.

- 42:204 Human Services Administration 2 s.h.
- 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.

- 42:211 Individual and Family Development Life span 3 s.h.
- Infancy through senescence; families from their beginnings through their later years; theoretical, methodological issues. Graduate standing required.

- 42:216 Group Leadership in Human Sexuality 0-3 s.h.
- Principles of group dynamics, group process; leadership skills for small, task-oriented discussion groups on human sexuality. May be repeated. Prerequisite: 42:112 or consent of instructor. Same as 7C:216, 96:216.

- 42:219 Aging and the Family 2-3 s.h.
- Family Law 3 s.h.
- 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: 42:143 or consent of instructor.

- 42:222 Social Policy Issues in Health Care 3 s.h.
- Policy model used to analyze major health policy issues in the United States; health care systems; socioeconomic-political contexts; tendencies, strategies, prospects for change; significance to social work profession. Prerequisite: 42:143 or consent of instructor.

- 42:223 Cross-Cultural Social Work 2-3 s.h.
- Issues, issues in practice with culturally different populations, including U.S. ethnic groups, women, homosexuals, disabled, recent immigrants. Prerequisite: 42:147 or consent of instructor.

- 42:228 Theories of Personality and Psychopathology 2 s.h.
- Theories and their relevance to social work practice with diverse populations. Graduate standing in social work or consent of instructor required. Prerequisite: 42:140 or consent of instructor.

- 42:229 working with Groups 2 s.h.
- Theory, practice of group work, group process, leadership styles and skills; fundamental theory, skills necessary to form, facilitate a small group. Prerequisite: completion of foundation courses or consent of instructor.

- 42:232 Therapy with Couples 2 s.h.
- Married, other couples as social systems; theories of functional, dysfunctional, couples; techniques of intervention. Prerequisite: completion of foundation courses or consent of instructor. Same as 7C:232.

- 42:233 school social work Practice 2 s.h.
- School as a social institution, activities of school social worker, theoretical, practice issues; current issues in field.

- 42:235 Intervention with Individuals 2 s.h.
- Theories, practice skills, focus on object relations theory and therapy, as a bridge between systemic perspective and working with individuals. Prerequisite: completion of foundation courses and 42:250, or consent of instructor.

- 42:237 social work Practice with Children, Youth, and Families 2 s.h.
- 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.

- 42:250 Family Systems Theories 3 s.h.
- Communication, family systems theories compared to other theories of personal change. Skill development in analyzing problems and theories, implementing change strategies, developing of hypotheses. Prerequisite: completion of foundation courses or consent of instructor.

- 42:251 Family Therapy 3 s.h.
- Techniques for assessment, intervention in family therapy and for evaluation of practice; theoretical bases for intervention. Prerequisite: 42:250 or consent of instructor. Same as 7C:251.

- 42:252 Family Policy: Domestic and International 3 s.h.
- Development, current status of family: forms, functions, relation to other institutions; analyses of social policies affecting families; comparative, international focus required. Prerequisite: completion of foundation courses or consent of instructor.

- 42:260 Integrated Practice Theories 3 s.h.
- Theories that contribute to understanding of complex interactions between human, organizational, environmental systems; organizational, community, social networking, family systems theories. Prerequisite: completion of foundation courses or consent of instructor.

- 42:261 integrated Social Work Practice 3 s.h.
- Practice theories, skill development, ethical issues; direct family centered practice, planning and program development, team building, networking, client reformulation management. Prerequisite: 42:260 or consent of instructor.

- 42:262 Social Policy and Integrated practice: Domestic and International 3 s.h.
- Systematic policy analysis framework applied to major health, education, employment policies and programs; impact of these programs with community services; impact of policies on women and minorities; international emphasis. Prerequisite: 42:260 or graduate standing or consent of instructor.

- 42:270 Advanced Research 2-3 s.h.
- Skills applied to topics such as needs assessment, program evaluation, policy analysis, evaluation of social work practice. Open only to social work students. Prerequisite: 42:144 or equivalent.

- 42:271 Individual Study arr.
- Project related to student interest. May be repeated. Graduate standing required.

- 42:272 Thesis 2 s.h.
- Prerequisite: 42:273 or 42:274.

- 42:273 Women, Men, and Global Social Change 3 s.h.
- International social change as understood by those affected by it; emphasis on discursive social economic, and political aspects of change in the United States and selected areas of Africa, Asia, Latin America. Prerequisite: 42:143 or consent of instructor.

- Social consequences of economic and political transformations; impacts of rural-urban migration; gender and ethnicity as the products and consequences of systems transformation. Same as 44:274, 7D-300, 34:274.

- 42:275 Development Policy and Planning in the Third World 3 s.h.
- Cross-cultural, interdisciplinary analysis of urbanization and development problems in developing nations. Same as 34:275, 44:275, 102-275, 113-275, 7F-275.

- 42:277 Organizational and Community Planning 2 s.h.
- Principles, ideology, values of technocratic and developmental models of planning; emphasis on skills as needs assessment, goal setting and strategizing, grant writing, assessment of planning process and outcomes. Prerequisite: completion of foundation courses or consent of instructor.

- 42:278 Personnel and Financial Management 2 s.h.
- Human, financial resources required by communities and organizations for the delivery of social services; skill development in personnel and financial management, microcomputer applications, evaluation of management outcomes. Prerequisite: completion of foundation courses or consent of instructor.

- Prerequisite: completion of foundation courses or consent of instructor.

- Prerequisite: completion of foundation courses or consent of instructor.

- 42:284 Treatment Approaches to Substance Abuse and Dependency 3 s.h.
- Same as 44:285.

- 42:285 Travel/Study Seminar arr.
- Prerequisite: 42:143 or consent of instructor.

- 42:286 Social Welfare Seminar 1 s.h.
- Community mental health, public welfare, rural social work, social work with minority and international populations, occupational social work. Graduate standing and consent of instructor required.

- 42:290 Foundation Practicum in Social Work 3 s.h.
- Individuals, families, small groups, organizations, communities, communication skills, problem solving process, professional values and ethics applied at all system levels. Open only to M.S.W. students. Prerequisite: 42:291.

- 42:291 Foundation Practicum Seminar 1 s.h.

- 42:292 Advanced Practicum in Family Centered Practice I and II arr.
- Two semester field course; implementing family centered practice theory and skills in interventions with individuals and families.

- 42:293 Advanced Practicum Seminar in Family Centered Practice I 1 s.h.
- Two semester field course; implementing family centered practice theory and skills in interventions with individuals and families. Prerequisite: completion of foundation courses or consent of instructor. Corequisite: 42:292.

- 42:294 Advanced Practicum Seminar in Family Centered Practice II 1 s.h.

- Two semester field course; implementing integrated social work theories and interventions with work with individuals, families, organizations, formal and informal networks. Prerequisite: completion of foundation courses or consent of instructor. Corequisite: 42:295 or 42:296.

- Prerequisite: completion of foundation courses or consent of instructor.

- 42:297 Advanced Practicum Seminar in Integrated Practice 1 s.h.
- Two-semester course integrating social work knowledge, skills, values, and professional identity within context of advanced practice and direct multi-systemic interventions. Prerequisite: completion of foundation courses or consent of instructor. Corequisite: 42:295 or 42:296.

- 42:298 Advanced Practicum Seminar in Integrated Practice I 1 s.h.

- 42:298 arr.
Undergraduate Program

The undergraduate major in sociology provides a liberal arts education. The program is not oriented to a specific career field, but completion of baccalaureate study in sociology provides background for employment in fields such as social services, criminal justice, personnel, applied social research, community organizations, and teaching social science in secondary schools. The program also provides a foundation for graduate or professional study in social work, urban planning, law, criminal justice, social policy, and similar areas. Finally, the degree prepares students to work toward advanced degrees in sociology, which qualify them for college or university teaching and academic, private, and governmental research positions.

Undergraduate students majoring in sociology may elect either a Bachelor of Arts or a Bachelor of Science degree program. Students interested in higher degrees and professional careers in the social sciences are advised to seek the Bachelor of Science. It is recommended that students pursuing the B.S. maintain a cumulative grade-point average of 3.00 or higher.

The Department of Sociology has recently revised the structure of its undergraduate programs. The new requirements described below apply to all students declaring a sociology major beginning fall semester 1993.

Students who declared a sociology major before fall semester 1993 have the option of completing the major under the old requirements, listed in the 1992-94 General Catalog. Eligible students who wish to complete the sociology major under the old requirements must do so by August 1995. No degrees in sociology completed under the old requirements will be awarded after August 1995.

Bachelor of Arts

The B.A. requires 27 semester hours of course work in sociology including the following courses.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>34:1</td>
<td>Introduction to Sociology: Principles</td>
<td>3</td>
</tr>
<tr>
<td>34:9</td>
<td>Sociological Theory</td>
<td>3</td>
</tr>
<tr>
<td>34:10-11</td>
<td>Theory, Research, and Statistics</td>
<td>6</td>
</tr>
<tr>
<td>34:195</td>
<td>Senior Seminar</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

Students need to be aware of how the courses for the major are sequenced. They should complete the No-semester theory, research, and statistics course early, as preparation for the other sociology courses. Students also must complete two 100-level sociology courses (excluding 34:198 Directed Individual Study) after completing 34:9, 34:10, and 34:11. Then they must take 34:195 Senior Seminar.

Bachelor of Science

The B.S. program prepares students for graduate training in sociology. It requires 24 semester hours in sociology, including the following courses.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>34:1</td>
<td>Introduction to Sociology: Principles</td>
<td>3</td>
</tr>
<tr>
<td>34:9</td>
<td>Sociological Theory</td>
<td>3</td>
</tr>
<tr>
<td>34:11</td>
<td>Theory, Research, and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>(34:10 is optional, but it or an introductory course in statistics must be completed before 34:11.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34:195</td>
<td>Senior Seminar</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

Students need to be aware of how the courses for the major are sequenced. They should complete their two statistics courses (34:10 or other introductory statistics course, and 34:11) early, as preparation for the other sociology courses. Students also must complete two 100-level sociology courses (excluding 34:198 Directed Individual Study) after completing 34:9, 34:10, and 34:11. Then they must take 34:195 Senior Seminar.

Four additional courses are required, as follows:

<table>
<thead>
<tr>
<th>Semester Hours</th>
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<tbody>
<tr>
<td>14-15</td>
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</table>

Electives 12 s.h.

Students need to be aware of how the courses for the major are sequenced. They should complete their two statistics courses (34:10 or other introductory statistics course, and 34:11) early, as preparation for the other sociology courses. Students also must complete two 100-level sociology courses (excluding 34:198 Directed Individual Study) after completing 34:9, 34:10, and 34:11. Then they must take 34:195 Senior Seminar.

Four additional courses are required, as follows:

<table>
<thead>
<tr>
<th>14-15 Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>22M:25 Calculus I</td>
</tr>
<tr>
<td>22M:26 Calculus II</td>
</tr>
<tr>
<td>22S:120 Probability and Statistics</td>
</tr>
</tbody>
</table>

All candidates for the M.A. must complete the following with grades of B or higher:

- 34:201 History of sociological Theory 3 s.h.
- 34:202 Sociological Theory 3 s.h.
- 34:214 Introduction to Sociological Data Analysis 3 s.h.
- 34:215 Sampling, Measurement, and Observation Techniques 3 s.h.
- 34:216 Linear Models in Sociological Research 3 s.h.

Joint Program in Sociology and Law

Students may obtain a Master of Arts in sociology and a Juris Doctor by fulfilling the basic requirements of both programs. They may apply up to 12 semester hours of graduate credit earned to satisfy the requirements of either degree, toward both the M.A. in sociology and the 90 semester hours required for the J.D.

This cross creding, approved at the discretion of the Department of Sociology and/or the College of Law, allows students to receive the
J.D. and the M.A. by taking less course work than would be necessary if the two degrees were pursued independently. This program is highly individualized, allowing students to explore various aspects of the relationship between law and society.

Doctor of Philosophy

The Ph.D. degree in sociology requires a minimum of 72 semester hours of graduate-level course work, including the post-M.A. course 34:218 Categorical Data Analysis in Sociological Research and 3 elective semester hours in methods/statistics. Most of the course work for the Ph.D. is taken in the student’s major and minor areas. Candidates also must pass comprehensive examinations and write a dissertation.

All doctoral candidates are examined in the basic tool areas of sociology—theory, history of sociology, methodology, and statistics—and in one major and one minor area chosen from the areas represented by the faculty, such as social psychology, deviance and criminology, family, social stratification, sociology of work, organizations, political sociology, theory, and methods and statistics. A description of faculty interests is available upon request.

A detailed statement of regulations for graduate study also is available upon request. Prospective doctoral candidates should examine this statement carefully.

Special Workshops

The department organizes a series of workshops each semester on new and interesting research methods not covered in the standard methods sequence. Each workshop informs students about the problems for which the method is applicable, gives an introduction to its theory, and shows how the method is actually used in research setting. Topics covered in recent years include LISREL, meta-analysis, simulation techniques, event history analysis, and time-series analysis.

A biweekly theory workshop on tools and methods used in theoretical analysis attracts both faculty members and graduate students. Workshop participants critique a paper, which has been distributed a week before the session.

Training for Teaching Assistants

All new students are expected to attend a week-long orientation for teaching assistants before the beginning of classes. In addition, a practicum on teaching (34:382) is required for those who wish to teach their own courses.

Admission

Admission to graduate study in sociology usually requires a minimum undergraduate grade-point average of 3.00 and a total score of 1100 from the quantitative plus verbal sections of the Graduate Record Examination GRE General Test. Foreign students whose native language is not English should submit scores from the TOEFL exam. In addition to fulfilling the Graduate College requirements for admission (see the Graduate College section of the Catalog), the applicant must complete a departmental application statement and use its personal reference forms in obtaining three letters of recommendation.

Applications should be submitted at least two months before the start of the academic session for which admission is requested. The deadline for applying for departmental financial support is February 1, although evaluation of applications begins in 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. 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 are no foreign language requirements for either the M.A. or Ph.D. in sociology. Inquiries concerning admission should be directed to the chair of the admissions committee, Department of Sociology.

Financial Aid

The Department of Sociology offers four types of awards to graduate students: teaching assistantships, research assistantships, University of Iowa fellowships, and graduate Opportunity at Iowa Fellowships. Resident tuition is charged to out-of-state students who receive awards. Students who receive one-half-time assistantships work 20 hours each week for faculty members on either teaching or research assignments. The department also may offer tuition scholarships to some students.

Research Facilities

Center for the Study of Group Processes

The department’s 18-room small-group laboratory includes eight computer-controlled subject rooms with audiovisual and psychophysiological recording capabilities, two large-group rooms with an adjoining observation room, an audiovisual control room, an instrument shop, and other flexible research office spaces.

Survey

The Social Science Survey Research Center offers facilities, staff, and data archives for conducting surveys and secondary data analysis. Computer-aided telephone surveys can be conducted, and an annual Midwest opinion survey is ongoing.

Computer Facilities

The department operates a remote computer terminal and personal computer cluster adjacent to graduate student offices. Both terminals and personal computers can access main-frame computers that provide all of the popular statistical and mathematical computing programs.

COURSES

For Undergraduates Only

Courses open to freshmen without prerequisites: 34:1, 34:2, and 34:120. All other undergraduate courses are open to freshmen with stated prerequisites.

34:000 Cooperative Education Internship 0 s.h.
Registration during work assignment periods; permanent record of internships. Open only to sociology majors. May be repeated. Consent of advisor and admission to Cooperative Education Program required.

34:1 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 and interrelationships of basic social institutions, such as family, education, religion, economy, GER: social sciences.

34:2 Social Problems 3 s.h.
Emergence and distribution of selected social problems; alternative solutions; social problems may include population, inequality, female-male relationships, racism, and crime: GER: social sciences.

34:9 Sociological Theory 3 s.h.
Theoretical perspectives in sociology: construction, evaluation of sociological explanations. Prerequisite: 34:1 or consent of instructor.

34:10 Theory, Research, and Statistics 3 s.h.
Introduction to basic scientific concepts; emphasis on theoretical thinking, the statement of researchable propositions, and the logic and meaning of proof. Open to the research process; general issues associated with designing social research, including problems of sampling and measurement, analysis, presenting research data, and interpreting research findings. Open only to sociology majors. Prerequisite: 34:1.

34:17 Theory, Research, and Statistics 3 s.h.
Continuation of 34:10, which is prerequisite. Open only to sociology majors.

34:100 Honors Proseminar 2 s.h.
Discussion of sociological topics with other honors students and faculty; helps students develop a topic for honors papers. Open only to sociology honors students. Offered spring semesters.

34:195 Senior seminar 3 s.h.
Skill training, guidance in writing a paper that integrates theoretical and substantive knowledge; contemporary social problems. Prerequisites: 34:9, 34:10, and 34:11, and two additional 100-level sociology courses; or consent of instructor.

34:196 Field Experience arr.
Supervised field experience relating to sociology; primarily for students participating in Washington Center internship. Consent of adviser required. Open only to sociology majors of junior standing or above.

34:198 Directed Individual Study 1-3 s.h.
May be repeated. Consent of instructor required.

34:199 Honors Research 1-3 s.h.
Research projects under faculty supervision. Consent of instructor required.

Advanced Courses

Social Theory

34:200 Graduate Proseminar 1 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, and consideration of student interests and concerns. Two-semester course beginning in fall.

34:201 History of Sociological Theory 3 s.h.
Examination of ideas of major nineteenth- and twentieth-century social thinkers (e.g., Marx, Weber, Durkheim, Simmel, Mauss). Graduate standing or consent of instructor required.
34:202 Sociological Theory 3 s.h.
Contemporary theoretical issues and nature of theory, place of theory in research, strategies of theory construction. Graduate standing or consent of instructor required.

34:203 Seminar: Sociological Theory 3 s.h.
Selected problems in sociological theory. Maybe repeated. Prerequisite: 34:201 or consent of instructor required.

Statistics and Research Methods

34:184 Applied Sociology 3 s.h.

34:212 Introduction to Analytic Methods 3 s.h.
Essential mathematical and logical background for understanding contemporary social science analytic techniques. Graduate standing or consent of instructor required.

34:214 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 consent of instructor.

34:215 Sampling, Measurement, and Observation Techniques 3 s.h.
Research design; sampling designs and techniques; questionnaire construction, interviewing techniques; participant and non-participant observation; coding and preparation of data for analysis; measurement techniques, reliability, and validity. Prerequisite: 34:214 or consent of instructor.

34:216 Linear Models in Sociological Research 3 s.h.
Statistical techniques associated with general linear model; emphasis on multiple regression, its generalizations, corresponding computer programs. Prerequisites: 34:214 or consent of instructor.

34:217 Theory and Research Design 3 s.h.
Theory building and problem formulation; operationalization and redefinition of theoretical variables; choice of strategic research sites; experimental, quasi-experimental, and survey research designs; development and testing of causal models. Prerequisite: 34:216.

34:218 Categorical Data Analysis in Sociological Research 3 s.h.
Models for analysis of categorical data, including logistic, logit, related discrete data models. Advanced graduate standing and consent of instructor required.

34:219 Seminar in Research Methods and Data Analysis 3 s.h.
May be repeated. Advanced graduate standing and consent of instructor required.

34:380 Modular Topics in Methods and Statistics arr.
Modules of varying length and credit may be repeated. Graduate standing and consent of instructor required.

Social Psychology

34:120 Principles of Social Psychology 3 s.h.
Introduction to theory and research in small groups; interpersonal and intergroup processes.

34:121 Sociology of Mental Illness 3 s.h.
Studies of social psychology of mental health, mental illness, and the psychiatric hospital as a social institution, their methodology, research interpretation. Prerequisite: 34:120 or 34:120.

34:122 The Paranormal Society 3 s.h.
Skeletical perspectives in analyses of paranormal phenomena and pseudo-sciences; need for explicit theories, extraordinary evidence, and elimination of “normal” explanations before extraordinary phenomena are accepted as legitimate. Prerequisite: 34:120 or consent of instructor.

34:123 Mass Communication 3 s.h.
Forms of communication (oral, written, and electronic) and their interrelation with social structure and processes. Prerequisite: 34:120 or consent of instructor.

34:124 Social Processes: Interpersonal Relations 3 s.h.
processes of status, friendship, love, justice, and deviance examined by comparing and contrasting role-playing, common-sense explanations, abstract theory; how processes support and interfere with one another. Consent of instructor required for graduate students. Prerequisite: 34:120 or 31:15 or consent of instructor.

34:125 Small-Group Analysis 3 s.h.
Analysis of social interaction in groups; group problem solving; group decision making; leader-subordinate relations and place of small groups in large organizations. Prerequisite: 34:120 or graduate standing or consent of instructor.

34:126 Collective Behavior and Social Movements 3 s.h.
Social stress, crowd behavior, social movements treated as a form of social change. Prerequisite: 34:120.

34:127 Social Forms and Interaction 3 s.h.
Elementary social forms and processes; special emphasis on the study of interaction in various social contexts. Prerequisite: 34:120.

34:129 Development and Control of Aggression 3 s.h.
Analysis of social factors that contribute to the development of interpersonal aggression; circumstances culminating in aggression; social requirements for reducing aggression. Prerequisite: 34:120.

34:131 Social Psychology of Bargaining 3 s.h.
Use of social psychological theory and research to analyze bargaining strategies, negotiations, and conflict resolution. Prerequisite: 34:120 or consent of instructor.

34:132 Social Psychology of Alcohol Use and Community Problems 2-3 s.h.
Alcohol use and abuse and community reaction analyzed in terms of the alcoholic process and recovery. Prerequisite: 34:120.

34:220 Contemporary Approaches to Social Psychology 3 s.h.
Review and critical analysis of current theoretical approaches to methods of social psychology. Graduate standing or consent of instructor required.

34:221 Seminar: Selected Topics in Social Psychology 3 s.h.
Selected theoretical and methodological issues. May be repeated. Graduate standing or consent of instructor required.

34:291 Seminar: Collective Action and Social Movements 3 s.h.
Comparative, historical analysis of variations in social movements, their impact on social change.

Deviance, Delinquency, Crime, and Law

34:140 Criminology 3 s.h.
Nature and causes of crime; the criminal justice process, correctional treatment, crime prevention. Prerequisite: 34:1 or consent of instructor.

34:141 Juvenile Delinquency 3 s.h.
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: 34:1 or consent of instructor.

34:143 Women, Crime, and Deviance 3 s.h.
Sociological understanding of females as participants in and victims of crime and deviance, treatment of females in law and the criminal justice system; topics include traditional approaches to female crime and deviance, types of deviant behavior in women, female victimization, types and determinants of legal decisions regarding women. Prerequisite: 34:1 or consent of instructor.

34:144 Sociology of Corrections 3 s.h.
Analytical survey of history, structure, and function of American correctional process, analysis of American correctional process, analysis of corrections system. Prerequisites: 34:140 or 34:1 or consent of instructor.

34:146 Deviance and Control 3 s.h.
Basic theories of deviance and analysis of social control settings and mechanisms, with emphasis on the relationship between social control efforts and social deviance. Prerequisite: 34:140 or 34:1 or consent of instructor.

Analysis of intervention strategies in crime and delinquency; emphasis on problems in theory, method, and evaluation of intervention techniques. Prerequisite: 34:140 or 34:141 or consent of instructor.

34:175 Internship in Criminal Justice and Corrections 1-4 s.h.
Supervised field work in a criminal justice or correctional agency, with formal internship in theory and technique. Offered only satisfactory/unsatisfactory. May be repeated. Open only to sociology majors or junior standing or above. Prerequisite: 34:140 or 34:141.

34:200 Seminar: Criminological Theories 3 s.h.
Theories of crime causation and its relationships to the cultures in which they have functioned. Graduate standing or consent of instructor required.

34:244 Seminar: Selected Topics in Deviance and Control 3 s.h.
Analysis of current research; emphasis on theoretical contributions and methodological foundations. May be repeated. Graduate standing or consent of instructor required.

Family, Life-Style, Children, Aging

34:108 Women and Society 3 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. Prerequisite: 34:1 or 34:120. Same as 131:108.

34:130 Aging and Society 3 s.h.
social age structure; age status and age-sex roles; correlates of aging; continuities and discontinuities during the life cycle; intergenerational relations; social policy regarding aging and the aged. Prerequisite: 34:1 or 34:120.

34:159 Families in Comparative Perspective 3 s.h.
Family systems in comparative and historical perspective; comparison of the American family with families in both modern and premodern societies. Prerequisite: 34:1 or 34:120.

34:161 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: 34:1 or 34:120.

34:230 Sociology of the Family 3 s.h.
Review and evaluation of significant research traditions; identification of theoretical problems and data sources. Graduate standing in a social science or consent of instructor required.

34:233 Aging and Human Development 3 s.h.
General overview of age and aging as a social phenomenon; age stratification, social change, the life courses, the aged as a social problem; selected topics, theoretical and methodological issues. Graduate standing in a social science or consent of instructor required.

34:269 Seminar: Selected Topics in Family Sociology 3 s.h.
Selected theoretical and methodological issues. May be repeated. Graduate standing in a social science or consent of instructor required.

Social Institutions, Social Change

34:222 Introduction to Social Work 4 s.h.
Social welfare as a social institution; settings and methodologies of social work practice; profession of social work; historical development of American social welfare and social work; minimum of 60 hours volunteer work. Sophomore standing or consent of instructor required. Same as 42:22.

34:151 Sociology of the Third World 3 s.h.
Analytical and measurement of development/underdevelopment ideological perspectives on the Third World; the modern world system; selected issues in the study of social change in Asia, the Middle East, Latin America, and Africa. Prerequisite: 34:1 or an introductory course in economics or anthropology, or consent of instructor. Same as 131:151.

34:155 Public Opinion 3 s.h.
Role of public opinion in making public policy; formation and change of political attitudes and opinions; political ideology; measurement of public opinion; understanding opinion polls. Prerequisite: 34:1 or consent of instructor. Same as 30:171.

34:160 American Society 3 s.h.
American society in comparative perspective: its structure and integration; approaches to study of large, complex modern societies; institutional interrelationships, institutions as agencies of social control, institutional disorganization as an effect of social change. Prerequisite: 34:1 or consent of instructor.

34:163 Comparative Sociology 3 s.h.
Comparison of different societies or nations; focus on competing analyses of a selected topic (e.g., the rise of capitalism). Prerequisite: 34:1 or consent of instructor.

34:167 Sociology of Science 3 s.h.
The diverse ways in which science is practiced and studied; how scientists construct scientific knowledge and what constitutes bad science.

34:181 Sociology of Popular Culture 3 s.h.
Analysis of the sociological bases, impact, and implications of popular culture; interrelationships of popular culture and major social institutions; popular culture and social change; social bases of taste; cultures and publics. Prerequisite: 34:1 or consent of instructor.
Community and Population

34:154 Society and Politics in East Asia 3 s.h.
Japan, China, South and North Korea, and Taiwan; major theoretical issues in social change and development through East Asian experiences in the modern era.

34:172 Immigration to the United States 3 s.h.
Central phenomena of immigration to the United States; decision by foreign national to move here; subsequent decision to remain here; extent and pace of adjustment to this country.

34:275 Development Policy and Planning in the Third World 3 s.h.
Cross-cultural and interdisciplinary analysis of problems associated with urbanization and development in the developing nations. Graduate standing in the social science required. Same as 70:275, 42:275, 44:275, 102:275, 113:275.

34:279 Seminar: Urbanization arr.
Problems arising from the increase in urban population and the relative decline in rural population; emphasis on Iowa and the Midwest. Graduate standing and consent of instructor required. Same as 70D:301, 30:324, 42:337.

Social Class, Inequality, Race, Organizations

34:150 Political Sociology 3 s.h.
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: 34:1 or consent of instructor.

34:155 Race and Ethnic Relations 3 s.h.
Multidisciplinary study of intergroup relations, with emphasis on historical, sociological, and social psychological issues in the study of American minority groups. Prerequisite: 34:1 or 113:3 or consent of instructor. Same as 113:155, 129:114.

34:156 Gender Inequality 3 s.h.
Gender relations in contemporary perspective; emphasis on social origins of gender categories, implications of gender status for collective and individual behavior; topics include inequalities in interpersonal behavior, the family and work organizations, family violence, sexual harassment, and rape. Prerequisite: 34:1 or 34:120.

34:164 Organizations and Modern Society 3 s.h.
Approaches to the sociological study of economic and non-economic organizations; the role of power and authority within the organization, and between the organization and its environment. Prerequisite: 34:1 or 34:120 or consent of instructor.

34:165 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: 34:1 or 34:120 or consent of instructor.

34:166 Social Inequality 3 s.h.
Major theoretical perspectives for understanding inequality in economics, power, and 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.

34:250 seminar: Political Sociology 3 s.h.
Selected topics in political sociology. Graduate standing or consent of instructor required.

34:253 Social Stratification 3 s.h.
Classical and contemporary theories of stratification; current research on the causes and magnitude of inequality in economics, power, and prestige; social mobility; critical issues in stratification. Graduate standing required.

34:255 Seminar: Social Stratification 3 s.h.
Selected theoretical and substantive issues. Graduate standing or consent of instructor required.

34:257 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. Graduate standing or consent of instructor required.

34:268 Seminar: Occupational Structure and Social Mobility 3 s.h.
Conceptualization and measurement of social mobility; cross cultural comparisons and trends in mobility; current research on U.S. mobility with emphasis on race and sex differences. Graduate standing or consent of instructor required.

Social consequences of economic and political transformations; Impacts of rural-urban migration; gender and ethnicity as the products and consequences of systems transformation. Same as 70D:300, 42:274, 44:274.

34:285 Complex Organizations 3 s.h.
Productivity, effectiveness, innovation, coordination, conformity, and satisfaction. Graduate standing or consent of instructor required.

34:286 Methods of Organizational Research 3 s.h.
Graduate standing or consent of instructor required.

Teaching

34:382 Seminar: Practicum on Teaching Sociology 3 s.h.
Supervised preparation for teaching sociology courses; literature on teaching; course objectives, alternative teaching techniques; preparation of course syllabus, lectures, discussions, exams. Advanced graduate standing and consent of instructor required.

Independent Reading and Research

34:383 Readings and Research Tutorial arr.
May be repeated. Consent of supervising faculty member required.

34:385 Master’s Thesis arr.

34:386 Ph.D. Dissertation arr.

SPANISH AND PORTUGUESE

Chair: Raul Curto

Professors: Roselyn M. Frank, Oscar Hahn

Professors emeriti: R. Thomas Douglass, Julio Duran-Ceda, Oscar Fernandez, E.W. Ringo, Joseph Szertics

Associate professors: George DeMello, Walter Dobran, Maria A. Duarte, Nora Gonzalez, Coleman Jeffers, Paula M. Kemptchinsky, Philip W. Klein, Thomas E. Lewis, Kathleen Newman, Adriana Mendez Rodenas, Mario Santizo, Diana Velez, Irene Wherrett

Adjunct associate professor: Sue E. Otto

Assistant professors: Judith E. Liskin-Gasparro, Mercedes Nino-Murcia, Francisco J. Sanchez, Leslie Schrie

Adjunct assistant professors: Gay Allan, Ozzie Diaz-Duque

Undergraduate Programs

Bachelor of Arts in Spanish

Elementary and intermediate courses in Spanish interrelate five performance goals-listening, reading, speaking, writing, and cultural knowledge-in a staged progression that has an overall goal of developing oral proficiency. Emphasis is given to the acquisition of Spanish language skills in communicative contexts, the enrichment of vocabulary through an introduction to Hispanic culture, and the development of grammatical accuracy in speaking and writing. Elementary and intermediate Spanish courses meet daily and are taught in Spanish.

The undergraduate major in Spanish may be completed with an emphasis in Spanish language and linguistics, Latin American studies, or Spanish and Spanish-American literature and culture. The Latin American studies track of the Spanish major requires study of Portuguese language and Brazilian literature and culture, in addition to study of Spanish language and Spanish-American literature and culture.

Language and Linguistics Track

Designed for students interested in pursuing in-depth study of Spanish language and linguistics, and for those who want to prepare themselves for graduate work in Spanish linguistics, careers in secondary education, or a variety of business careers, the language and linguistics track requires a minimum of 34 semester hours of credit in course work, as follows.

35:107 Advanced Spanish Language 4 s.h.
35:111 Introduction to Hispanic Linguistics 3 s.h.

Spanish, Spanish-American, Portuguese, or Brazilian literature or culture 6 s.h.

At least 15 semester hours must be taken from the courses listed below; at least two of the three groups of courses must be represented.

LANGUAGE

35:103 Written and oral Expression in Spanish 3 s.h.
35:105 Cultural and Communicative Skills in Spanish 3 s.h.
35:108 Problems in Spanish Grammar 3 s.h.
35:109 Senior Spanish Language I 4 s.h.
35:110 Senior Spanish Language II 3 s.h.
35:116 Technical Communication 3 s.h.
35:118 Business Spanish 3 s.h.
35:120 Techniques of Spanish-English Translation 3 s.h.

LINGUISTICS

35:122 Spanish Phonology 3 s.h.
35:133 Structure of the Spanish Language 3 s.h.
35:119 Introduction to Bilingualism 3 s.h.
35:126 Foundations in Sociolinguistics 3 s.h.
35:171 Spanish Syntax 3 s.h.
35:178 Culture and Language in the Andes 3 s.h.
35:188 History of the Spanish Language 3 s.h.
PORTUGUESE

38:100 Accelerated Elementary Portuguese 5 s.h.
38:118 Foundations in Sociolinguistics 3 s.h.
38:119 Topics in Portuguese Linguistics 3 s.h.
38:122 Topics in Portuguese Language 3 s.h.

The remaining 6 semester hours of elective course work must be taken at the 100 level in either the Department of Spanish and Portuguese or the Department of Linguistics.

No more than 6 of the 34 semester hours required for the language and linguistics track may be taken in English.

Latin American Studies Track

The Latin American studies track is designed for students interested in pursuing interdisciplinary study of Spanish-American and Brazilian literature on the basis of knowledge of both Spanish and Portuguese, and for those who want to prepare themselves for graduate work in the humanities or social sciences, for study at professional schools such as law, journalism, or business, or for a variety of business careers. It requires a minimum of 35 semester hours of credit in course work, as follows.

38: 100 Accelerated Elementary Portuguese 5 s.h.
Additional Spanish or Portuguese language or linguistics 3 s.h.
Spanish-American or Brazilian culture 6 s.h.
Spanish-American literature 6 s.h.
Brazilian literature 3 s.h.
Latin American Studies Seminar or another approved undergraduate seminar 3 s.h.

Electives that are approved courses in the Latin American Studies Program 9 s.h.

No more than 9 of the 35 semester hours required in the Latin American studies track may be taken in English.

Students completing the Latin American studies track of the undergraduate major in Spanish also may count their work toward completion of the Latin American Studies Certificate Program. Contact an undergraduate adviser or the chair track of the undergraduate major in Spanish for more information.

Literature and Culture Track

The literature and culture track is designed for students interested in pursuing in-depth study of Spanish and Spanish-American literature, history, and contemporary society, and for those who want to prepare themselves for graduate work in literature, study at professional schools such as law, journalism, or business, or for a variety of business careers. It requires a minimum of 34 semester hours of course work, as follows.

35: 107 Advanced Spanish Language 4 s.h.
Additional Spanish or Portuguese language or linguistics 6 s.h.
Spanish and Spanish-American literature and culture 24 s.h.

Among the 24 semester hours taken in literature and culture, at least 6 semester hours must be taken in the Spanish area and 6 semester hours in the Spanish-American area.

No more than 3 of the 34 semester hours required in the literature and culture track may be taken in English.

Elementary and Secondary Teaching Licensure in Spanish

Students in the Department of Spanish and Portuguese have the option of earning a K-12 endorsement to teach Spanish, along with the bachelor’s degree. For information about the foreign languages teacher education program and graduate programs in foreign language education, contact the College of Education, Division of Curriculum and Instruction.

Honors in Spanish

Admission to the honors program in Spanish requires a minimum 3.20 cumulative grade-point average and a minimum 3.20 average in Spanish. Graduation with honors in Spanish requires, in addition to the semester hours for the various major tracks described above, 3 semester hours earned in 35:198 Honors: Research and Thesis, plus another 3-semester-hour course to be designated in consultation with the department honors adviser. Included are an honors report in Spanish and a meeting with a faculty committee, conducted in Spanish.

Transfer Credit for Spanish Majors

A maximum of 12 semester hours of credit in approved courses may be transferred from other institutions toward the requirements for the major in Spanish.

Minor in Spanish

A minor in Spanish requires 15 semester hours of course work in Spanish with a minimum grade-point average of 2.00, of which must be taken at The University of Iowa or in a University of Iowa foreign study program in courses numbered 100 and above. Students may not elect 35: 101, 35: 102, 35: 115, or 35: 117 to fill requirements for the minor.

No more than 3 semester hours may be applied toward the minor from departmental courses taught in English. Courses elected for the minor may not be taken pass/fail.

Foreign Study Programs in Spanish

The department participates in seven study-abroad programs. Its summer programs include the State Board of Regents Hispanic Institute (Valladolid, Spain) and the CIC Summer Program in Mexico.

Included in its semester or year-long programs are the CIEE Language and Area Studies Program (Alicante, Spain), the CIEE Language and Society Program (Seville, Spain), and the CIEE Liberal Arts Program (Seville, Spain), the CIEE Business and Society Program (Seville, Spain), and the University Studies in the Basque Country Consortium (San Sebastian, Spain).

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 adviser. Credit earned in study-abroad programs other than the seven listed above counts as transfer credit and is subject to the 12 semester-hour maximum allowed for the major.

Bachelor of Arts in Portuguese

Beginning courses in Portuguese are for students without previous foreign language study or experience. Classes are small, providing for a great deal of individual attention in an informal language learning environment. Courses emphasize speaking, comprehending, and reading basic Brazilian Portuguese; they incorporate cultural material in the form of films and music.

The B.A. in Portuguese requires the following courses or their equivalents, for a total of 27 semester hours of work beyond the second-year level. Courses listed under “Prerequisites” below may not be counted toward the 27 semester hours.

PRE REQUISITES

38:1-2 Elementary Portuguese I-II 8 s.h.
38: 100 Accelerated Elementary Portuguese 5 s.h.
38: 11 Intermediate Portuguese I 4 s.h.
and 38: 12 Intermediate Portuguese II 4 s.h.
or 38:101 Accelerated Intermediate Portuguese 5 s.h.

REQUIRED COURSES

38:105 Brazilian Literature I 3 s.h.
38:106 Brazilian Literature II 3 s.h.
38: 107 Introduction to Portuguese Literature 3 s.h.
38:112 Topics in Luso-Brazilian Literature 3 s.h.
38:114 Culture and Civilization of the Portuguese-Speaking World 3 s.h.
38:119 Topics in Portuguese Linguistics 3 s.h.
38:122 Topics in Portuguese Language 3 s.h.

Total 21 s.h.

ELECTIVES

Other courses in the above group or other nonregular offerings in Portuguese (seminars, conversation); approved courses in related areas (e.g., art, anthropology, comparative literature, geography, history, Latin American studies, linguistics, sociology) 6 s.h.
Minor in Portuguese

A minor in Portuguese requires 15 semester hours of course work in Portuguese with a minimum grade-point average of 2.00, 12 of which must be taken at The University of Iowa or in a University of Iowa foreign study program in courses numbered 101 and above. Courses elected for the minor may not be taken pass/fail.

International Business Certificate

The Colleges of Liberal Arts and Business Administration offer a joint program leading to a 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 related area studies. It 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 wide range of electives in the program permits students to tailor areas of specialization to their interests and to complement majors in both liberal arts and business administration.

Contact the Office of Academic Programs in the College of Business Administration for more information.

Latin American Studies Certificate

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, and literature of Latin America. Work in the program leads to a certificate or minor in Latin American studies.

To receive the certificate, students must have sufficient competence in Spanish or Portuguese to do background readings in the language before enrolling in the required senior seminar. For further information on the Latin American Studies Program, see “Latin American Studies Program” in this section of the Catalog.

Courses for Undergraduate Nonmajors

Undergraduate students in other disciplines may meet part of the College of Liberal Arts General Education Requirements in humanities and foreign civilization and culture with 35:20 Contemporary Latin American Narrative and 38:20 Contemporary Brazilian Narrative, in which the readings are in English. 38:114 Culture and Civilization of the Portuguese-Speaking World satisfies the General Education Requirement in foreign civilization and culture. The department offers several other literature, film, and cultural survey courses that are taught in English and are of general interest.

Graduate Programs

Master of Arts in Spanish

Candidates for the M.A. must have completed the equivalent of the undergraduate Spanish major with at least a 3.00 grade-point average in course work for the major. Deficiencies may be remedied with the appropriate course work.

The following course work is required.

- 35:200 Foreign Language Teaching Methods 3 s.h.
- Spanish language and linguistics (200 level) 6 s.h.
- Spanish literature 6 s.h.
- Spanish-American literature 6 s.h.

Fifteen semester hours of elective courses at the 200 level or the advanced 100 level, no more than 6 semester hours of which may be taken outside the department; the required minimum is 36 semester hours for the M.A.

Maximum Study Loads

Maximum course registration is 15 graduate semester hours during fall or spring semesters and 8 graduate semester hours during summer sessions. One-quarter- and one-third-time teaching assistants are permitted to register for the maximum study loads. One-half-time teaching assistants may register for not more than 12 semester hours in fall or spring semesters, and for not more than 6 semester hours during summer sessions. Additional semester hours may be taken only with Graduate College approval.

Transfer Credit

A maximum of 9 semester hours of graduate credit in approved courses may be transferred from other institutions toward the 36-semester-hour requirement for the M.A.

Teaching Certification

Exclusive of the student teaching requirement, graduate students may take the courses necessary for secondary teaching certification while completing M.A. requirements in the department.

Examinations

The M.A. comprehensive examination is administered in both written and oral parts. The written portion consists of a two-hour examination in each of three areas; an oral examination follows, usually lasting one and one-half hours. The candidate may choose to be examined in one linguistics and two literature areas, one literature and two linguistics areas, or three literature areas. If more than one literature area is represented, at least one must be in Spanish literature and at least one must be in Spanish-American literature. One film area may be substituted for either a linguistics or literature area. The examining committee is composed of four departmental faculty members.

Doctor of Philosophy in Spanish

Two doctoral programs are available. The first is dedicated to Hispanic literatures. Before the comprehensive examination, candidates 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 (a Portuguese-Brazilian program is especially recommended); complete the equivalent of a year of college Portuguese; and complete the equivalent of one year of college-level study of another approved foreign language. This language must be Latin for those who will write the dissertation on a pre-1700 topic.

The second doctoral program provides for specialization in Spanish linguistics. Before taking the comprehensive examination, candidates must complete the equivalent of one year of college Latin, the equivalent of three years of college Portuguese, and the equivalent of two years of college-level study of a third approved foreign language.

Program I: Literature Track

The following course work is required.

- M.A. courses or equivalent transfer credits 36 s.h.

A course in literary theory, 200 level or above 3 s.h.

Two 300-level seminars 6 s.h.

35:299 Thesis 3 s.h.

Eight elective courses at the 200 level or the advanced 100 level, no more than three (9 s.h.) of which may be taken outside the department, bringing the total semester hours to the required minimum of 72 in the Ph.D. program.

Program II: Linguistics Track

The following course work is required.

- M.A. courses or equivalent transfer credits 36 s.h.

Department of Linguistics

103:110 Articulator and Acoustic Phonetics 3 s.h.

103:111 Syntactic Analysis 3 s.h.

103:112 Phonological Theory and Analysis 3 s.h.

103:121 Syntactic Theory 3 s.h.

Department of Spanish and Portuguese

One course in advanced Spanish syntax 3 s.h.

One course in advanced Spanish phonology 3 s.h.

One course in comparative Romance linguistics 3 s.h.

One course in Spanish dialectology 3 s.h.

Two additional courses in linguistics (may be taken in the Department of Linguistics) 6 s.h.

Two 300-level seminars in Spanish linguistics 6 s.h.

35:299 Thesis 2 s.h.

Total semester hours required 74 s.h.
Comprehensive Examination

The purpose of the Ph.D. comprehensive examination is to determine whether the candidate has gained sufficient breadth and depth of research knowledge in Hispanic literatures or in Spanish linguistics to enter the profession as a teacher-scholar. The Ph.D. comprehensive examination is administered in both written and oral parts. The written portion consists of a three-hour examination in each of four areas, detailed below; an oral examination follows, usually lasting two hours. The examining committee is composed of five departmental faculty members. The four examination areas for each track are as follows.

Literature Track

A broad area in Spanish literary history; a reading list is determined by the student and the advisory committee. A broad area in Spanish-American literary history; a reading list is determined by the student and the advisory committee.

Two specialized areas of the candidate’s choosing; these areas might involve further and more specialized exploration of particular periods, genres, or movements within Spanish, Spanish-American, and/or Luso-Brazilian literary and cultural history; or they might involve in-depth study of specific problems in Hispanic literary criticism or in literary theory. Areas involving cinema also may be included. The candidate is given wide latitude in formulating the reading lists for these areas according to his or her research and teaching interests.

Linguistics Track

Contemporary Spanish syntax; a reading list is determined by the student and the advisory committee. Contemporary Spanish phonology; a reading list is determined by the student and the advisory committee.

Two specialized areas of the candidate’s choosing; these areas might involve exploration of a specialized topic in one of the two core areas listed above; or it might involve study of a particular topic in comparative Romance philology, history of the Spanish language, Spanish dialectology, Portuguese linguistics, applied linguistics, language acquisition, bilingualism, sociolinguistics, or linguistic theory. Candidates are given wide latitude in formulating reading lists for these areas according to individual research and teaching interests.

After the Ph.D. Comprehensive Examination, the candidate prepares a dissertation prospectus, which must be approved by the candidate’s dissertation committee.

Financial Aid

Teaching and research assistantships are available to qualified graduate students. Usually, two years of support are available for the completion of a master’s degree, and three years beyond the receipt of the M.A. for the Ph.D. As long as their studies and performance meet department standards, graduate students will continue to receive support over a reasonable period of time, but usually not for more than six years. Students who want financial support should apply directly to the department office.

Facilities

The Language Media Center provides facilities for language learning, teaching, and research. These include standard and shortwave radios, tape recorders, record players, soundproof recording rooms, two drill rooms with 68 dual-channel tape recorders providing a simultaneous master duplicate and student record, an electronic classroom, a soundproof workroom, 16mm and 8mm projection equipment and facilities, videocassette players and monitors, and a library of tape, videotape, and disc recordings. The department offers its majors a specific course in language laboratory procedures.

Courses

Spanish – Primarily for Undergraduates

Entering freshmen who studied Spanish in high school and wish to continue studying the language are required to take the Spanish Placement Test, which is offered at regular intervals on campus. Transfer students who have taken college Spanish at other institutions are urged to take the placement test.

Effective fall 1992, students may not repeat courses in elementary Spanish for which high school transcript credit is presented. Students whose placement test scores do not indicate readiness for an intermediate or higher level Spanish course should register for 35:5 Elementary Spanish Review, if they wish to continue study of Spanish toward completion of the General Education Requirement in foreign language.

Students may not, except with the department chair’s approval, take an elementary course for credit after having completed a higher-level course for which the elementary course or its equivalent is a prerequisite.

Under the provisions of the Foreign Language Incentive Program, entering students who take the foreign language placement examination and are placed in fourth- or fifth-semester courses also may receive additional credit for third semester or third- and fourth-semester courses if specific conditions are met. Contact the Liberal Arts Office of Academic Programs or refer to the College of Liberal Arts section of the Catalog for more information.

35:000 Cooperative Education Internship 0 s.h.
35:1 Elementary Spanish I 4 s.h. Emphasis on oral and written comprehension; conducted in Spanish. Open only to students with no previous study of Spanish. GER: foreign language.
35:2 Elementary Spanish II 4 s.h. Continuation of 35:1; emphasis on oral and written skills. GER: foreign language. Prerequisite: 35:1 or equivalent.
35:5 Elementary Spanish Review 5 s.h. Intensive review of material presented in 35:12. GER: foreign language. Open only to freshmen and new transfer students. Prerequisite: previous study of Spanish.
35:8 Spanish for Health Professionals I 3-4 s.h. Intensive conversation; basic vocabulary used in Spanish speaking patients; sociocultural aspects of Hispanic culture; emphasis on speaking proficiency. May be taken in place of 35:1 to satisfy GER: foreign language.
35:9 Spanish for Health Professionals II 4 s.h. Continuation of 35:8, which is prerequisite. GER: foreign language.
35:10 Hispanic Institute: Study/life in Spain 1 s.h. Acclimation to life in Spain, reside and outside the classroom, through discussions, role playing, related activities Prerequisite: 35:12 or equivalent.
35:11 Intermediate Spanish I 3-4 s.h. Review of first year Spanish grammar; emphasis on oral and written communicative skills; conducted in Spanish. GER: foreign language. Prerequisite: 35:2 or equivalent.
35:12 Intermediate Spanish II 3-4 s.h. Continuation of 35:11. GER: foreign language. Prerequisite: 35:12 or equivalent.
35:13 Accelerated Intermediate Spanish 6 s.h. The 35:11-12 sequence in m. semester. GER: foreign language. Consent of coordinator required. Prerequisite: 35:2 or equivalent.
35:20 Contemporary Latin American Narrative 3 s.h. Themes and narrative techniques in major texts of 1960-1970; overview of cultural, sociopolitical aspects; conducted in English; readings in English. GER: foreign civilization and culture, humanities. Prerequisite: 8G:1.
35:53 Special Work 1-3 s.h.

Spanish-for Undergraduates and Graduates

35:100 Regents Hispanic Institute 3 s.h. Regents Study Abroad Program in Valladolid, Spain.
35:101 Accelerated Elementary Spanish 0-4 s.h. Complete first year course. Open only to graduate students.
35:102 Accelerated Intermediate Spanish 0-4 s.h. Complete second year course. Open only to graduate students. Prerequisite: 35:2 or equivalent.
35:103 Written and Oral Expression in Spanish 3 s.h. Communication-oriented course designed to help third-year students develop the four basic linguistic skills: oral comprehension, speaking, reading, writing. Prerequisite: 35:12 or equivalent.
35:105 Cultural and Communicative Skills in Spanish 3 s.h. Oral proficiency, conversation skills; reading and writing; contemporary Hispanic culture through videos from the Spanish speaking world. Prerequisite: 35:12.
35:107 Advanced Spanish Language 4 s.h. Detailed points, especially troublesome to English-speakers; reading, composition, grammar, oral presentation, vocabulary. Prerequisite: 35:12 or equivalent.
35:108 Problems in Spanish Grammar 3 s.h. Readings, discussion, vocabulary building, grammar analysis, written practice; focus on difficult topics such as adjective placement, relative pronouns, gustar construction, reflexive constructions. Prerequisite: 35:107 or equivalent.
35:109 Senior Spanish Language I 4 s.h. Syntactic, lexical aspects; vocabulary; structure of Spanish language. Prerequisite: 35:108 or equivalent.
35:110 Senior Spanish Language II 3 s.h. Syntactic elements of Spanish language and its underlying theory. Prerequisite: 35:109 or equivalent.
35:111 Introduction to Hispanic Linguistics 3 s.h. Elementary linguistic theory applied to analysis of Spanish language; systematic study of sound patterns, sentence construction, word formation; semantics, historical linguistics, sociolinguistics, psycholinguistics. Prerequisite: 35:107 or equivalent.
35:112 Spanish Phonology 3 s.h. Articulatory description and phonetic transcription of Spanish sounds; how individual sounds are interrelated. Prerequisite: 35:107 or equivalent.

230 Liberal Arts . Spanish and Portuguese
35:113 Structure of the Spanish Language 3 s.h.
Linguistic analysis of Spanish in terms of generative grammar with focus on morphology, syntax, usage; their interrelationship in an explanatory system. Prerequisite: 35:111.

35:115 Methods: Secondary School Foreign Language 3 s.h.
Methods and materials demonstration; practice of teaching techniques; organization of teaching. Prerequisite: 35:109 or equivalent. Same as 9:150, 13:120, 20:119, 75:816.

35:116 Technical Communication 3 s.h.
Principles, practices as applied to reports, brochures, newsletters, oral presentations; emphasis on technical report writing, audience analysis. Prerequisite: 35:107 or equivalent.

35:117 Topics in Foreign Language Instructional Technology 2 s.h.

35:118 Business Spanish 3 s.h.
Clear, concise business writing; emphasis on linguistic and cultural proficiency. Prerequisite: 35:107 or equivalent.

35:119 Introduction to Bilingualism 3 s.h.
Spanish-English bilingualism in the United States; current research on language usage, maintenance, attitudes, shift, transfer, loss; code-switching. Prerequisite: 35:111 or equivalent.

35:120 Techniques of Spanish-English Translation 3 s.h.
Journalistic, literary, technical texts. Prerequisite: 35:107 or equivalent ability.

35:121 Readings in Spanish Literature and Culture 3 s.h.
Tools for improving reading skills; basic concepts for textual understanding; historical overview of literary works. Prerequisite: 35:12 or equivalent.

35:122 Introduction to Literary Analysis 3 s.h.
Close readings of literary texts; basic concepts of narrative and poetic analysis. Prerequisite: 35:12 or equivalent.

35:123 Screening Latin America 3 s.h.
Film and video appreciation; film criticism, historical overview of Latin American cinema and television. Same as 13:113.

35:124 Hispanic Institute: Culture 3 s.h.
Socioliterature; genre, authorial context, race, gender, social classes. Prerequisite: 35:12 or equivalent.

35:125 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. Prerequisite: 35:12 or equivalent.

35:126 Foundations in Sociolinguistics 3 s.h.
Dialects, speech communities, variation, choosing a code, solidarity and politeness, language and sex, language planning; taught in Spanish. Same as 38:118.

35:127 Sociolinguistics 3 s.h.
Continuation of 35:126; discourse analysis, popular language, language maintenance and language shift, levels of address, and Spanish in the United States. Same as 38:120.

35:130 Spanish-American Civilization 3 s.h.
Pre-Columbian, colonial, modern periods; socioeconomic structure, form of government, culture. Prerequisite: 35:12.

35:131 Contemporary Spanish-American Fiction 3 s.h.
Major twentieth-century short-story writers and novelists (Asturias, Borges, Cortazar, Fuentes, Garcia-Marquez, etc.) through representative works. Prerequisite: 35:12 or equivalent.

35:132 Spanish-American Poetry I 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 Raban Dario, Pablo Neruda, Cesar Vallejo, Octavio Paz, J.L. Borges.

35:133 Spanish-American Drama 3 s.h.
Short history; leading twentieth century Spanish American dramatists, including Florencio Sanchez, Villarruta, Ugoli, Rene Marques, Cuzan, Egon Wolff, Vodanorio, Jorge Diaz.

35:134 Spanish-American Short Story 3 s.h.
Works by nine-tenths and twentieth-century Spanish-American male and female writers; emphasis on reading strategies, historical, cultural, literary backgrounds.

35:135 Contemporary Latin American Novel and short story 3 s.h.
Close readings of Latin American novelists from the last twenty years; emphasis on reading strategies, cultural, literary, historical backgrounds.

35:136 Contemporary Latin American News Colloquium 2 s.h.
Current issues, national and regional, emphasis on political, socioeconomic themes; contemporary affairs as reported in Latin American press, other media. Same as 130:126.

35:137 Introduction to Chicano literature and culture 3 s.h.
Sociological, historical, political, demographic, linguistic, literary, artistic aspects of heterogeneous Chicano cultures in the United States; textual analysis of corridos, ballads, oral traditions, dance forms integrated with films and recordings.

35:138 Survey of Twentieth-Century Puerto Rican Literature 3 s.h.
Social, cultural, literary developments from 1898; role of Puerto Rican diaspora in literature and "Newyorkian" writing in context; island and mainland authors.

35:139 Spanish-American Poetry II 3 s.h.
Prerequisite: 35:12 or equivalent.

35:140 Mass Communication in Spanish America 3 s.h.
Nature of communicative process in Spanish America and the Basic Hispanic, Latin American communication and democratic communication systems; Spanish-language video, film.

35:141 Hispanic Institute: Language 3 s.h.
Grammar essentials; verbally word times in indicative and subjunctive moods; written exercises, short compositions, conversational activities. Prerequisite: 35:12 or equivalent.

35:142 Introduction to Latin American Studies 3 s.h.
Overview of geography, history (political, economic, social), political, religious, social, economic background; important cultural, literary movements.

35:143 The Daring Ones: Cuban-American Literature 3 s.h.
Same as 48:196.

35:144 Introduction to Basque Language and Culture 3 s.h.
Introduction to Basque language and culture.

35:145 Latin American Cinema 3 s.h.
Same as 36F:107.

35:148 National Literatures and Cinemas 3 s.h.
Literary and film histories of selected nations, such as Argentina, Cuba, Mexico, Peru, Chile, Spain. May be repeated.

35:150 Spanish Civilization 3 s.h.
Political, religious, social, economic background; important cultural, literary movements.

35:151 Renaissance and Golden Age Literature 3 s.h.
Representative works of prose, drama, poetry. Prerequisite: 35:12 or equivalent.

35:152 Modern Spanish Literature 3 s.h.
Important trends from Romanticism to generation of 1927. Prerequisite: 35:12 or equivalent.

35:157 Survey of Spanish Literature I 3 s.h.
Introduction to basic texts from Medieval to eighteenth century Spain.

35:159 Hispanic Fiction to Film 3 s.h.
Four major literary works, as written and as film: Garcia Lorca's Bodas de sangre, Merimee's Carmen, Delibes' Los santos inocentes, Puig's Buena de la mara.

35:160 Invitation to Modern Spanish Poetry 3 s.h.
Basic Hispanic terminology, introduction to key poetic works of Gustavo Adolfo Becquer, Ruben Dario, Antonio and Manuel Machado, Juan Ramon Jimenez, Federico Garcia Lorca.

35:161 Masterpieces of Modern Spanish Literature 3 s.h.
Works of the last thirty years of the nineteenth century, up to the outbreak of the Spanish Civil War, Realism, Naturalism; Generation of 1898, Generation of 1913, Generation of 1927.

35:165 Contemporary Spain 3 s.h.
Interdisciplinary, multimedia study of twentieth, century Spain; history and culture from Civil War to present through televisual, cinematic, historiographical, literary lenses.

35:169 Spanish-American Literature of Fantasy 3 s.h.
Principal manifestations from nineteenth-century origins to culmination in twenty-century masterpieces; analysis of
Spanish - Primarily for Graduates

35:200 Foreign Language Teaching Methods 3 s.h.
Bibliographical tools, resources, professional organizations; comparison of first- and second-language acquisition; language proficiency versus language achievement in the four skills; history/overview of methods; techniques (small-group work, error correction, drills); equipment (overheads, video, computers); teaching difficult grammar areas.

35:202 Advanced Grammar for Teachers 3 s.h.
Syntax problems; subjective/indicative, relative pronouns, uses of se, use and omission of article; aver, aver, adjective position, verbal aspect; theory, practical exercises.

35:203 Topics in Graduate Spanish Language 3 s.h.
Phonetics and phonology; modem linguistic analyses applied to selected topics in Spanish syntax; students compile extensive bibliography on aspect of Spanish language to serve as basis for research paper.

35:204 Graduate Spanish Linguistics 3 s.h.
Theoretical approach to selected topics of syntax. Prerequisite: 35:203 or equivalent.

35:207 Topics in Comparative Romance Linguistics 3 s.h.
Comparisons of phonology, morphology, syntax, lexicon of main Romance languages; historical and present-day perspective; linguistic theory and Latin. May be repeated. Same as 20:201, 103:262.

35:209 Spanish Phonology 3 s.h.
Modern approaches to synchronic phonology as applied to Spanish; focus on traditional descriptive problems, recent generative analyses. Prerequisite: course in phonology and linguistics.

35:210 Advanced Spanish Syntax 3 s.h.
Theoretical aspects.

35:211 Language Acquisition Theories Applied to Spanish Language Acquisition. Survey of current linguistic theoretical models to acquisition of Spanish, both as a native and as a second language; similarities, differences between first and second language acquisition research areas.

35:215 Advanced Spanish-English Translation 3 s.h.
Translation of Spanish colloquial, literary, journalistic, technical texts. Open only to graduate and advanced upper-division Spanish majors.

35:219 Contemporary Translation Theory Survey 3 s.h.
Translation problems seen by theorists such as Walter Benjamin, George Steiner, Andre Lefevere, Paul DelMaan, Jacques Derrida and Jose Ortega y Gasset. Same as 8W:219, 48:219.

35:220 Spanish Dialectology 3 s.h.

35:221 Spanish-American Dialectology 3 s.h.
Dialect issues; regional and social dialects, dialect zones, peninsular dialect base, indigenous influences, emphasis on syntax; theory, practical application through analysis of representative regional Spanish varieties, including phonology, morphology, and syntax.

35:222 Graduate Literary Analysis 3 s.h.
European, North American criticism; structuralism, poststructuralism; formalist, feminist, Marxist concepts of art's place in society, postmodern era; questions of historiography in Spanish literature; theory, practice in Spanish, Spanish American literatures.

35:230 Spanish-American Romanticism 3 s.h.
Beginnings of Spanish American national literatures; decisive function of romanticism; first great era of Spanish American literature, beginnings of modern period.

35:232 Spanish-American Drama Theatre from pre-Columbian era up to and emphasizing contemporary theater.

35:233 Spanish-American Poetry of the Twentieth Century 3 s.h.
Principal works of vanguard poets and characteristics of their poetry; Vicente Huidobro, Cesar Vallejo, Pablo Neruda, Jorge Luis Borges, Olalia Garay Parga. Same as 81:233.

35:234 Spanish-American Modernist Poetry 3 s.h.
European and Spanish American forerunners of modernism; modernistic poetic motifs in verse and prose; early modernists; Ruben Dario and power of modernism; death and transfiguration of the swan.

35:235 Spanish-American Post-Modernist Poetry 3 s.h.
Principal characteristics, place in Spanish-American poetry; Enrique Gonzalez Martinez, Carlos Peza Veliz, Jose Maria Eguren, Ramon Lopez Velarde, Jose Juan Tablada, Gabriela Mistral.

35:238 Spanish-American Poetry 1950-Present 3 s.h.
Development after Octavio Paz, Ernesto Cardenal, German Bienll, Enrique Lihn, J.E. Pacheco.

35:239 Spanish-American Love Poetry 3 s.h.
Development of the love theme in Spanish-American lyric poetry and its relationship to esthetic ideas during romantic, modernist, avant-garde periods; Dario, Herrera y Reissig, Agustini, Huidobro, Neruda, Paz, Cardenal.

35:242 Spanish-American Novel: The Boom 3 s.h.
Period following 1962; main currents of nonrealism; disintegration of narrative and reality; all important contemporary developments in the novelistic genre.

35:243 Post-Boom Narrative in Spanish America 3 s.h.
Contemporary of the love theme and its radical critique of realism; historical narrative, other traditional fictional forms; topics from post-boom narrative in Spanish America and its link to a postmodernist aesthetic; contemporary narrative, Mikhail Bakhtin's theories of parody and the carnivalesque, polyphonic novel developed in Problems of Dostoevsky's Poetics and The Oeuvre: Ideology and Irony.

35:244 Short Story in Spanish America 3 s.h.
Development of genre and context of literary movements; writings from Argentina, Peru, Chile, Uruguay, Cuba Mexico, Columbia, Puerto Rico; comparison with themes and forms of U.S. short stories.

35:245 Spanish-American Short Story of Fantasy 3 s.h.
Stories of Tuvet Todorov, Irene Bessiere on literature of fantasy; diachronic study of literature of fantasy, from Juan Montalvo's "Gaspar Blas commander" to work of Bioy Casares, Julio Cortazar; other authors including Ruben Dario, L Lugones, A. Nervo, J.L. Borges, A. Carpenter, C. Fuentes, C. Garcia Marquez.

35:246 Difference in Latin American Literature: The Representation of Gender Arrangement 3 s.h.
Construction of female identity in Latin American narratives, essays, poems, films; possibilities and impossibilities of the feminine in Latin American literature. Same as 113:246.

35:247 Readings: Latin American History 3 s.h.
Questions that have preoccupied major Latin American paradigms of sixteenth and seventeenth centuries; constitutional organization, secularization of society, colonial heritage, race and nationality, the Indian, "Latin democracy," cultural identity, social revolution, economic development and development. Same as 16:2B8.

35:250 Medieval Spanish Literature I 3 s.h.
Representative works: El Poema del Cid, El Romanzo Viejo, Mafioso de Nuestra Senora, El Conde Lucanor, El Libro de Buen Amar.

35:251 Medieval Spanish Literature II 3 s.h.
Fourteenth and fifteenth-century. Prerequisite: 35:250.

35:252 Medieval, Renaissance, and Golden Age Spanish Poetry 3 s.h.
Principal movements, genres, figures: Jorge Manrique, lyrical ballad, "Middle Ages," Garcilaso, Fray Luis de Leon, San Juan de la Cruz (Renaissance); Fernando de Herrera (transitional period); Gongora, Lope de Vega, Quevedo (baroque).

35:253 Lyric Poetry of the Golden Age 3 s.h.
Representative texts of great Renaissance, Baroque poets: Garcilaso de la Vega, Fray Luis de Leon, San Juan de la Cruz, Gongora, Lope de Vega, Quevedo.

35:254 Drama of the Golden Age 3 s.h.
Theater, spectacle, public entertainment; social conditions of Baroque theater in Spain; ideological, moral themes; Lope de Vega's model for mass-oriented art; depiction of ideal society; heroes, transgressors; role of women.

35:255 Fiction of the Golden Age 3 s.h.
Critical analysis on social, moral, political function of fiction; subjectivity, dialogue, position of narrator in the novel; role of the reader.

35:256 The Picaroscopic Novel 3 s.h.
Spanish Renaissance, Baroque from perspective of the narratives of deception, moral crisis, aesthetic, social dimensions of a literary work; intertextuality, subjectivity; Lazarrino, Guzman de Allarache; works by Quevedo, Cervantes, Salas Barbabullo, Cano de Sorzano.

35:257 Cervantes' Don Quixote 3 s.h.
Careful reading in context of history of narrative literature.

35:258 Nineteenth-Century Spanish Novel 3 s.h.
Significant novels, literary schools, movements.

35:259 Contemporary Spanish Fiction 3 s.h.

35:261 Twentieth-Century Spanish Poetry 3 s.h.
Principal poets and their works, 1900 to present.

35:262 Jimenez, Garcia Lorca, and the Generation of '27 3 s.h.
Poetry and poetic theory of Juan Ramon Jimenez, Federico Garcia Lorca, Rafael Alberti; Pedro Salinas, Jorge Guillen.

35:263 Twentieth-Century Spanish Drama 3 s.h.
Principal playwrights, trends to present day; works by Benavente, Garcia-Lorca, Caoona, Bueno Valles, Sastre.

35:264 Spanish Short Story 3 s.h.
Theory and history; development during middle ages; oral and written literature; emphasis on Golden Age, nineteenth century, generation of 1898.

35:266 Spanish Novel 1939-Present 3 s.h.
Principal figures, trends from post Civil War period to present.

35:267 Twentieth-Century Spanish Essay 3 s.h.
Representative essays 1988 to present; philosophical, political, literary movements.

35:269 Topics in Spanish American Literature 3 s.h.
May be repeated.

35:280 Intellectual Backgrounds in its Literary Periods 3 s.h.

35:281 Introduction to Contemporary Literary Theory 3 s.h.
Major currents, how theories construct literary text; structuralist, semantic, psychoanalytic, Marxist, reader response, feminist, deconstructive criticism. Same as 48:217, 8:277.

35:282 Analysis and Interpretation of Poetic Texts 3 s.h.
Methodological LOGIQUE for analysis, interpretation of poetry written in Spanish; selected works.

35:283 Literary Polemics in Spanish America 3 s.h.
Principal literary debates in Latin America from birth of national literatures to present; social, political significance of the different polemics, as quest for individual, Latin American identity.

35:284 Types of Modern Criticism 3 s.h.
A contemporary literary theory, such as semiotics, Marxist literary theory, reconstruction, feminism. Same as 8:284, 48:284.

35:285 Topics in Latin American Cultural History 3 s.h.
Literary, film histories of nations or regions; focus on role of art's place in society, postmodern era; question of historiography in Spanish literatures to present; social, political significance of the different polemics, as quest for individual, Latin American identity.

35:286 Topics in colonial Spanish American Literature 3 s.h.
May be repeated.
### Speech Pathology and Audiology

**Course Requirements**

The B.A. in speech and hearing science requires a minimum of 30 semester hours, as follows:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:115 Introduction to Speech and Hearing Processes and Disorders</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>3:110 Phonetics: Theory and Applications</td>
<td>2 s.h.</td>
<td></td>
</tr>
<tr>
<td>3:111 Basic Acoustics for Speech and Hearing</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>3:112 Anatomy and Physiology of Speech Production</td>
<td>4 s.h.</td>
<td></td>
</tr>
</tbody>
</table>
3:113 Introduction to Hearing Science 4 s.h.
3:116 Basic Neuroscience for Speech and Hearing 3 s.h.
3:117 Psychology of Language 3 s.h.
3:118 Language Development 3 s.h.
7P:143/22S:102 Introduction to Statistical Methods 3 s.h.
or
7P:25 Elementary Statistics and Inference 3 s.h.
31:1 Elementary Psychology 3 s.h.
or
31:3 General Psychology 4 s.h.
103:100 Introduction to Linguistics 3 s.h.

Group A
One of the following:
31:13 Introduction to Clinical Psychology 3 s.h.
31:105 Personality 3 s.h.
31:16 Psychology of Gender 3 s.h.
31:163 Abnormal Psychology 3 s.h.
34:130 Aging and Society 3 s.h.
42:108 Basic Aspects of Aging 3 s.h.
113:136 Aging: A Cross-Cultural Perspective 3 s.h.

Group B
One of the following (courses marked with an asterisk are preferred):
*31:14 Introduction to Child Development 3 s.h.
31:103 Development of Children’s Social Behavior 3 s.h.
*31:114 Cognitive Development of Children 3 s.h.
7P:106 Child Development 3 s.h.
31:166 Childhood Psychopathologies 3 s.h.
31:170 Behavior Modification 3 s.h.

Students seeking a B.A. also must complete or have had the equivalent of college algebra and trigonometry, college physics dealing with light and sound, and a college course in the biological sciences.

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.

Honors
The 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 senior year have completed at least 10 semester hours of course work that can be counted toward a major in the department and have earned at least a 3.20 grade-point average in all major course work and all course work at the University.

At any time during their undergraduate study, students who have earned a minimum grade-point average of 3.20 and who did not enter the University as honors students may apply to the University Honors Program and the department’s honors program upon recommendation of the department honors adviser. For graduation with honors, students must be members of the Honors Program in the College of Liberal Arts and must complete both 3:97 Honors Seminar and 3:98 Honors Thesis.

Graduate Programs

Master of Arts
The M.A. program in speech-language pathology and audiology may be a professional program to prepare the student for immediate placement in clinical service positions, or it may be a general program of graduate study leading to additional study for the Ph.D. degree. The program of study for an M.A. with professional emphasis is designed to ensure that upon graduation the student will meet requirements for immediate professional employment.

M.A. candidates usually have a background of undergraduate courses in speech and hearing science, psychology of language, and human behavior essentially equivalent to an undergraduate major in this field at The University of Iowa.

Before registering in the program, entering M.A. candidates receive descriptive materials about basic science core courses considered to be required preparation for the M.A. program, and core courses required for the M.A. for which comparable courses taken at the undergraduate level may be accepted. Decisions about incorporating background course work in these areas are made by the faculty adviser in consultation with the student and the instructors of the basic science or clinical core courses.

The M.A. program with professional emphasis prepares clinicians in speech-language pathology or audiology who are able to function independently in a variety of clinical settings. Persons completing an M.A. program with professional emphasis meet all academic and practicum requirements for clinical certification by the American Speech-Language-Hearing Association and for licensure by the state of Iowa.

All M.A. students must complete at least 4 semester hours of work related to research. This may be accomplished by any combination of enrollment in seminars (at 2 semester hours 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 are not required to complete a thesis, although all students demonstrating research aptitude and interest are encouraged to do so. All candidates preparing for the M.A. without thesis are required to take final written comprehensive examinations.

M.A. with Research Emphasis (General Program)
The general M.A. program for students intending to continue to the Ph.D. usually includes a substantial portion of the courses in the professional M.A. program. Students in the general M.A. program also are required to present a thesis and successfully complete a final oral examination.

The M.A. with research emphasis requires a minimum of 38 semester hours of graduate credit. It typically takes two years to complete the required course work and thesis research.

M.A. with professional Emphasis
A typical M.A. program with professional emphasis usually takes two 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 must take the following.

*3:100 Counseling Theories and Techniques 3 s.h.
*3:116 Basic Neuroscience for Speech and Hearing 3 s.h.
*3:135 Principles of Diagnosis 1-3 s.h.
*3:136 Principles of Intervention 1-3 s.h.
*3:140 Manual Communication 1 s.h.
*3:145 Speech-Language Pathology I: Phonological Disorders, Developmental Language Disorders, and Stuttering 1-3 s.h.
*3:146 Speech-Language Pathology II: Neurological Disorders, Voice Disorders, Cleft Palate, and Related Disorders (speech-lanuage pathology majors only) 1-3 s.h.
*3:185 Hearing Loss and Audiometry 4 s.h.
3:244 Rehabilitative Audiology 4 s.h.
3:300 Professional Practice of Audiology and Speech-Language Pathology 0 s.h.
3:510 Seminar: Introduction to Research in Speech and Hearing 0 s.h.
Advanced seminars or research 4 s.h.

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

*An equivalent undergraduate course may be accepted as meeting requirements.

Speech-Language Pathology Requirements
In addition to the core requirements, all students preparing to be speech-language pathologists must take a minimum of 14 semester hours from the following.

3:201 Principles of Voice Production 3 s.h.
3:202 Methods of Teaching Voice 3 s.h.
3:206 Speech and Language Disorders of Young Children: Birth to Five Years 2 s.h.
3:207 Speech and Language Disorders of Older Children: Five to Eighteen Years 2 s.h.
3:208 Communication Problems of Developmental Disorders and Disabilities 2 s.h.
The requirements and recommended electives for each track are listed below. In addition, practicum experiences are structured to fit the needs of students within each track.

**School Track**

Required (total of 10 semester hours):
- 3:206 Speech and Language Disorders of Young Children: Birth to Five Years 2 s.h.
- 3:207 Speech and Language Disorders of Older Children: Five to Eighteen Years 2 s.h.
- 3:282 Phonological Development and Disorders 2 s.h.
- 3:283 Stuttering 2 s.h.
- 7E:104 Remedial Methods in Speech and Hearing 2 s.h.

Recommended:
- 3:208 Communication Problems of Developmental Disorders and Disabilities 2 s.h.
- 3:209 Language Disorders: Multicultural Issues 2 s.h.
- 3:260 Designing Assistive Devices 1-3 s.h.
- 3:350 Preceptorship in Augmentative Communication 1 s.h.

**Hospital and Health Agencies Track**

Required (total of 11 semester hours):
- 3:212 Voice Disorders 2 s.h.
- 3:231 Communication Problems Associated with Head and Neck Cancer 1 s.h.
- 3:233 Neurogenic Disorders of Language 2 s.h.
- 3:234 Neurogenic Disorders of Speech 2 s.h.
- 3:237 Cleft Palate and Related Disorders 2 s.h.

Recommended:
- 3:208 Communication Problems of Developmental Disabilities 2 s.h.
- 3:260 Designing Assistive Devices 1-3 s.h.
- 3:282 Phonological Development and Disorders 2 s.h.
- 3:283 Stuttering 2 s.h.
- 3:350 Preceptorship in Augmentative Communication 1 s.h.

**Vocology Track**

Required (total of 9 semester hours):
- 3:201 Principles of Voice Production 3 s.h.
- 3:212 Voice Disorders 2 s.h.
- 3:213 Voice Training and Rehabilitation 2 s.h.
- 3:221 Instrumentation for Voice Analysis 2 s.h.

Recommended:
- 3:202 Methods of Teaching Voice 3 s.h.
- 3:231 Communication Problems Associated with Head and Neck Cancer 1 s.h.
- 3:234 Neurogenic Disorders of Speech 2 s.h.
- 3:237 Cleft Palate and Related Disorders 2 s.h.
- 3:283 Stuttering 2 s.h.

Audiology Requirements

In addition to the core requirements, all students preparing to become audiologists must take the following.
- 3:219 Fundamentals of Laboratory Instrumentation 3 s.h.
- 3:240 Hearing Aids 1 3 s.h.
- 3:241 Differential Diagnosis in Audiology 2 s.h.
- 3:242 Hearing Aids 11 3 s.h.
- 3:246 Clinical Audiology 2 s.h.
- 3:247 Medical Audiology 3 s.h.

Advanced courses selected from:
- 3:345 Pediatric Audiology 2 s.h.
- 3:248 Hearing Aids: Advanced Clinical Techniques 2 s.h.
- 3:290 Advanced Objective Audiometry 2 s.h.
- 3:291 Central Auditory Disorders 2 s.h.
- 3:292 Advanced Rehabilitative Audiology 2 s.h.
- 7E:104 Remedial Methods in Speech and Hearing 2 s.h.

Additional practicum, research, and elective courses

Students planning to work as audiologists in a school setting must take 7E: 104 Remedial Methods in Speech and Hearing along with appropriate practicum experiences.

Requirements for Employment

A number of states, including Iowa, require a state license in speech-language pathology or audiology for persons who work in settings other than the public schools. Students who meet the requirements listed above for the M.A. with professional emphasis also meet the academic requirements for the license in Iowa, as well as in most other states.

**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 school audiologists in Iowa and most other states.

- A master’s degree with professional emphasis in speech-language pathology or audiology
- Completion of the requirements in speech-language pathology or audiology and the professional education sequence, including 7E: 104 Remedial Methods in Speech and Hearing and 7E: 192 Special Area Student Teaching as a speech-language pathologist or audiologist; courses 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)

(General education courses, e.g., introduction to psychology, sociology, history, literature, and humanities, are not credited as meeting the professional education sequence.)

- 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)

**Doctor of Philosophy**

The Ph.D. program provides flexible, comprehensive training for the scholar-researcher 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 program reflects the broad interests and diverse backgrounds of its multidisciplinary faculty, whose members have 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 the field of 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 are no required courses 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 this department 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.)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>S.H.</th>
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<tbody>
<tr>
<td>3:201</td>
<td>Principles of Voice Production</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>3:218</td>
<td>Psycholinguistics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>3:219</td>
<td>Fundamentals of Laboratory Instrumentation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>3:220</td>
<td>Advanced Laboratory Instrumentation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>3:224</td>
<td>System and Signal Theory for Speech and Hearing Sciences</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>3:230</td>
<td>Speech Perception</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>3:250</td>
<td>Acoustics and Biomechanics of Speech</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>3:252</td>
<td>Physiology of Speech Production</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>3:254</td>
<td>Psychoacoustics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>3:255</td>
<td>Psychoacoustics Laboratory</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>3:256</td>
<td>Physiology of Hearing</td>
<td>4 s.h.</td>
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</table>

In addition to the above courses, seminars offered in 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 (3:590 Research) during each semester of residence and to register for and participate in 3:515 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 and Appointments

The Department of Speech Pathology and Audiology has requirements for admission and graduate appointments 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 chair.

#### Application Form

All applicants for admission to graduate study in the Department of Speech Pathology and Audiology must complete the Graduate College application form. In addition, they must complete the departmental information form, available from the department chair.

#### Admission to the M.A. Program

The department bases M.A. admission on applicants’ credentials relative to those presented by other applicants for the same term. While an undergraduate grade-point average above 3.00 does not ensure admission, the department admits few applicants with undergraduate grade-point averages below 3.00.

Completed applications must be received no later than February 1 for enrollment in the next summer session or fall semester. Later applications will be considered only in special circumstances. Applications to begin study in the spring semester will be considered only under special circumstances and only if they are received no later than the preceding November 1.

#### Admission to the Ph.D. Program

Completed applications should be received at least two months prior to the beginning of the term for which application is made—approximately April 1 for summer session, July 1 for fall semester, November 1 for spring semester. However, applicants who want to be considered for graduate appointments must file the admission application by the deadline for appointment applications specified below. Applicants usually are notified of action on their admission within six weeks after applications are complete.

#### Application for Graduate Appointments

The following information applies to all financial appointments administered by the department.

- Graduate appointments usually begin only in fall semester. Students beginning study in the spring semester or summer session are considered for appointments for the following fall semester.

- Scores on the Graduate Record Examination GRE General Test are routinely required for consideration for financial assistance.

- Appointment applications must be received by February 1 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.

#### Clinical Facilities

The clinical training program benefits greatly from the fact that Iowa City is the principal health center of the state, and from the ready availability of its health service facilities for the 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 Hospitals and Clinics Department of Otolaryngology–Head and Neck Surgery; speech pathology service in University hospitals’ Department of Neurology; speech and hearing services in the University Hospital School; Pediatrics Regional Child Health Specialty Clinics; speech pathology service in the University Hospitals and Clinics Department of Child Psychiatry; and the audiology and speech pathology service in the Veterans Affairs Medical Center. 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, and a six-week summer residential program for 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 by arrangement with the various state area education agencies; and in supervised clinical practice in speech, language, and hearing services provided by the University Hospitals and Clinics Departments of Otolaryngology–Head and Neck Surgery, Pediatrics, Neurology, and Child Psychiatry, the Regional Child Health Specialty Clinics, University Hospital School, and the Veterans Affairs Medical Center.

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 audiological, psychoacoustic, and neurophysiologic studies of hearing. Mechanical and electronic shops and trained technical personnel are available for assistance in research instrumentation.

Cooperation of various departments of the 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 medicine, further broaden the scope of research activities in speech and hearing.

Courses

For Undergraduates

1:000 Speech Pathology and Audiology Cooperative Education Assignment O.s.h.
Internships administered by the Cooperative Education Program; filled on competitive basis. Faculty approval, satisfactory completion of Cooperative Education Program requirements, and consent of the Cooperative Education Program required.

3:112 Anatomy and Physiology of Speech and Hearing 3 s.h.
Basic anatomy, physiology of central nervous system; emphasis on neural systems involved in normal and disordered communication. Offered spring semesters. Prerequisite: course in biological sciences, zoology, or physiology; or consent of instructor. Same as 103:110.

3:117 Psychology of Language 3 s.h.
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. Same as 103:172.

3:118 Language Development 1-3 s.h.
Alternative models of language acquisition; empirical data describing language development, from linguistic to phonetic roots through later development in adolescence. Offered fall semesters. Pre- or corequisite: 3:11:1 or 3:1:3 or consent of instructor. Corequisite: 3:1:17.

3:135 Principles of Diagnosis 1-3 s.h.
Basic concepts of psychological measurement; their application to assessment of communication disorders; fundamental methods of observing, testing, diagnosing and disorder communication in children, adults. Offered fall semesters. Prerequisites: 3:1:5, 3:1:10 or 3:1:3; 3:1:2, 3:1:18; and 7:9:25; or equivalents or consent of instructor. Corequisite: 3:1:145.

3:136 Principles of Intervention 1-3 s.h.
Theoretical underpinnings of speech, language treatment procedures provided by speech language pathologists; historical perspective, current issues in management of individuals with speech, language, hearing disorders; focus on commonalities among intervention methods regardless of disorder. Offered spring semesters. Prerequisites: 3:1:13, 3:1:15; and 3:1:145; or consent of instructor. Pre- or corequisite: 3:1:117.

3:140 Manual Communication I 1 s.h.
Training in use of sign systems in manual communication.

3:141 Manual Communication II 1 s.h.
American Sign Language, deaf culture. Prerequisite: 3:1:40.

3:145 Introduction to American Sign Language 4 s.h.
Basic manual communication across the culture, syntax, grammar, psychosocial, cultural ramifications of deafness. Offered only through Saturday and Evening Class Program.

3:144 Intermediate American Sign Language 2 s.h.
Continuation of 3:1:45; emphasis on receptive and expressive skills, conversational situations, finger spelling, elementary interpreting skills, vocabulary, diagnoses. Offered only through Saturday and Evening Class Program.

3:212 Voice Disorders 2 s.h.
Voice disorders, voice evaluation therapy procedures, rationale for clinical intervention. Offered fall semesters. Prerequisite: 3:1:12. Recommended: 3:2:01.

3:213 Voice Training and Rehabilitation 2 s.h.
Application of methods of communication in development, training, rehabilitation of vocal behavior; motor learning, efficacy of treatment strategies, factors affecting compliance with recommended therapy. Offered spring semesters. Prerequisites: 3:2:01 and consent of instructor required.

3:218 Psycholinguistics 3 s.h.
Theoretical, empirical issues in psycholinguistics; models demonstrating relation of normal language structure to psychological operations used in speech perception, production; laboratory emphasis on paradigmatic research in psycholinguistics. Offered fall semesters of odd years. Consent of instructor required. Same as 103:218.

3:291 Fundamentals of Laboratory Instrumentation 3 s.h.
Electrical circuits, emphasis on application to instrumentation used in speech and hearing; laboratory focus on instrumentation. Offered fall semesters.

3:292 Advanced Laboratory Instrumentation 3 s.h.
Circuit construction, power supplies, amplification, signal generation, switching and timing, magnetic tape recorders, transducers. Offered spring semesters of odd years. Consent of instructor required. Prerequisites: 3:2:19 or equivalent.

3:221 Instrumentation for Voice Analysis 2 s.h.
Use of stroboscope, videoendoscopic, electromyographic, aerodynamic, acoustic analysis for examination of vocal, respiratory function; use of these techniques in conjunction with perceptual evaluation of voice. Offered summer sessions of even years. Prerequisite: 3:2:01 or consent of instructor.

3:224 System and Signal Theory for Speech and Hearing 3 s.h.
Basic calculus; differential equations, convolution, system functions; principles of linear systems theory applied to speech, auditory research. Offered spring semesters of odd years. Prerequisite: introductory calculus.
Offered spring semesters. Graduate standing or consent of instructor.

3:231 Communication Problems Associated with Head and Neck Cancer 1 s.h.

Valuing the surgical alteration or removal of the larynx, vocal mechanism; clinical intervention principles for other types of head and neck cancer. Offered spring semesters of odd years. Prerequisites: 3:135, 3:136, 3:145, and 3:146; or consent of instructor.

3:233 Neurogenic Disorders of Language 2 s.h.

Assessment, treatment of adult language and cognitively based communication disorders associated with disease, trauma, abnormalities of nervous system. Offered fall semesters of odd years. Prerequisite: 3:136, 3:135, 3:136, 3:145, and 3:146; or consent of instructor.

3:234 Neurogenic Disorders of Speech 2 s.h.

Assessment, treatment of adult disorders of speech production associated with disease, trauma, abnormalities of nervous system. Offered fall semesters of even years. Prerequisites: 3:136, 3:135, 3:136, 3:145, and 3:146; or consent of instructor.

3:236 Swallowing Disorders 2 s.h.

Physiology of normal, abnormal swallowing; assessment, treatment of swallowing disorders in adults, children. Offered fall semesters of odd years. Prerequisites: 3:112, 3:113, 3:116, and 3:135; or consent of instructor.

3:237 Clef Palate and Related Disorders 2 s.h.

Nature, etiologies, principles of treatment of common disorders associated with cleft palate, speech and voice disorders. Offered spring semesters of even years. Prerequisites: 3:135, 3:136, 3:145, and 3:146; or equivalents or consent of instructor.

3:240 Hearing Aids I 3 s.h.

Hearing aids, diagnostic procedures; laboratory emphasis on measurement procedures. Offered fall semesters. Prerequisite: 3:185 or consent of instructor.

3:241 Differential Diagnosis in Audiology 2 s.h.

Current research, practice; physiological measurement of hearing loss and vestibular function, occupational audiology, evaluation of central auditory problems. Offered fall semesters. Prerequisite: 3:240 or consent of instructor.

3:242 Hearing Aids II 3 s.h.

Evaluation, verification procedures; emphasis on advanced technologies, strategies. Offered spring semesters. Prerequisite: 3:240 or consent of instructor.

3:243 Hearing Aid Assembly and Repair 1-2 s.h.

Hands on work with components, fabrication of shells and earmolds, assembly of ITE hearing aids; repair of otologic, evaluation and troubleshooting of adult and pediatric hearing aid problems. Offered spring semesters of even years. Prerequisite: 3:135, 3:136, 3:145, and 3:146; or equivalents Consent of instructor.

3:246 Audiology 2 s.h.

Theory, procedures for assessment, rehabilitation of speech, hearing and language deficits of people with hearing impairment. Supervised laboratory sessions. Offered fall semesters. Prerequisite: 3:185 or consent of instructor.

3:247 Medical Audiology 3 s.h.

Genetic, acquired, traumatic pathologies that affect auditory systems; nature, etiology, principles of assessment, treatment. Offered spring semesters. Prerequisite: 3:185 or consent of instructor.

3:248 Hearing Aids: Advanced Clinical Practice 2 s.h.

Recent advances in hearing aid evaluation and fitting procedures, innovative circuitry, related software; emphasis on clinical aspects of hearing aid counseling and client cases. Supervised laboratory sessions. Prerequisites: 3:240 and 3:242, or consent of instructor.

3:249 Manual Communication in Clinical Settings 1 s.h.

Use of manually coded English systems with clinical populations. Supervised clinical practice in a variety of real-world settings. Graduate standing or consent of instructor required. Prerequisites: beginning course in signed English or signing exact English or American sign language.
3:538 Seminar: Auditory Physiology 2 s.h.
Topics of interest to group. May be repeated. Offered spring
semesters of even years. Consent of instructor required.

3:590 Research  arr.
Consent of instructor required.

Chair: Bonnie Slatton
Professors: Susan Birrell, Donald R. Casady, Benjamin
K. Hemmert, Richard D. MacNeil, Kenneth E. Mohly,
Michael L. Teague

Professors emeriti: Margaret G. Fox, John A. Nesbitt
Associate professors: N. Peggy Burke, Gary F.
Hansen, Christine H.B. Grant, Carolyn Lata-Brad, David K. Leslie, Bonnie Slatton
Associate professor emerita: Jeannette L. Schall
Assistant professors: Stephen Coff, Kathleen F. Janz,
Dawn Stephens

Visiting lecturers: Lynda Johnson, Caronna Parratt
Assistants in instruction: Beth Begen, Gayle Bleivins,
Charles Darley, Diane L. DeMarco, Carol Girdler,
Jerald M. Hassard, Peter Kennedy, Linda Schoenstedt,
Vivian Stringer, Diane M. Thomson

The Department of Leisure Studies and the
Department of Physical Education and Sports
Studies have combined to form the Department of
Sport, Health, Leisure, and Physical Studies.

Students have until August 1999 to complete
majors in physical education or leisure studies.
For information on degrees and programs
available in the new department, contact
the department office, the Liberal Arts Office
of Academic Programs, the Undergraduate
Advising Center, or the Graduate College.

Courses

24:000 Cooperative Education internship 0 s.h.

28:1 Skill Acquisition in Physical Education 1 s.h.
May be repeated.

28:2 Skill Acquisition in Physical Education 1 s.h.
May be repeated.

28:10 Movement and Sport Skills 0-3 s.h.
Same as 7E:23, 7S:23.

28:11 Lifeguard and Water Safety Instruction 1-4 s.h.
Leads to American Red Cross lifeguard certification, water safety
instructor's certificate. Consent of instructor required.

28:12 Basic Dance Skills 2 s.h.

28:13 Basketball 1 s.h.

28:14 Field Sports 1 s.h.

28:15 Golf 1 s.h.

28:16 Recreational Skills 1 s.h.

28: 17 Non-Traditional Sports 1 s.h.

28:18 Softball 1 s.h.

28:19 Tennis 1 s.h.

28:21 Track and Field 1 s.h.

28:22 Tumbling and Apparatus 1 s.h.

28:23 Volleyball 1 s.h.

28:27 Basic Movement and Body Awareness 3 s.h.
Structure, systems of the body; how individual body
movement carries and lifts weight, moves with gravity, stands upright,
and so forth. Same as 49:27, 137:27.

28:30 Principles of an Exercise Class 2 s.h.
Exercise standards, guidelines for exercise/exercise instructors;
exercise workout components, contraindicated exercises, injury
prevention/treatment.

28:31 Theory and Principles of Weight Training 1 s.h.
Principles, techniques, safety procedures for free/fixed weight
training programs.

28:32 First Aid and CPR 2 s.h.
Leads to American Red Cross first aid and adult CPR
instructor certification. Same as 27:56.

28:33 Promotional Strategies 3 s.h.
Methods, materials, graphic design techniques for sport/wellness
presentations to adults. Open only to majors or to
others with consent of instructor.

28:35 Stress Management 2 s.h.
Stress, the stress response; causes and consequences,
management.

28:60 Leisure in Contemporary Society 3 s.h.
Basic philosophical, historical, scientific foundations,
developments; function, settings of organized recreation.

28:61 Recreation, Leadership, and Programming 4 s.h.
Leadership principles, techniques; programming techniques.

28:70 Perspectives on Leisure and Play 3 s.h.
Relationships between leisure and economics, sociology,
and other social sciences; effect of leisure on individual, group
behaviors; antecedents, motives, consequences of leisure
behavior. GER: social sciences.

28:72 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. GER: humanities.

28:74 Inequality in Sport 3 s.h.
Sport experiences, barriers to participation based on sex, race,
classism, classism, and sexism. Same as 7S:158.

28:76 Psychosocial Dimensions of Sport Psychological, sociological aspects.

28:80 Administration of Intramural Athletics 2 s.h.

28:82 Psychology of Coaching 2 s.h.
Application of psychological principles to athletic coaching
situations; competition, motivation, confidence, anxiety
in athletics.

28:102 Introduction to Muesology 3 s.h.

28:103 Administration of Physical Education and Athletics 3 s.h.
Advisory issues, including theory, budgeting practices,
legal liability, public relations, evaluation of personnel. Same as
7E:103, 7S:103.

28:105 Physical Education Disabilities Education 3 s.h.
Prerequisite: 27:53.

28:112 Workshop: Sport/Health/Lesuire Studies 1-4 s.h.

28:14 Mental Training for Peak Performance 3 s.h.

28:17 Ancient Athletics 3 s.h.
Same as 14:104.

28:12 Teaching of Dance 2 s.h.
Methods for teaching basketball, folk, square dance at
elementary, secondary, college levels; observation of classes,
lesson planning, evaluation procedures, materials, teaching aids.
Prerequisite: 28:102.

28:124 Physical Education Curriculum: Trends Professional preparation, K-12 programming. Same as
FER: humanities.

28:126 Methods and Practice in School Health 3 s.h.
Methods, materials, instructional planning, management,
practicum in school health programs. Prerequisite: 28:140.
Same as 7S:158.

28:128 Environmental Issues in Recreation 3 s.h.
Issues in relation to outdoor recreation behavior, management;
issues vis-a-vis concept of the ecosystem.

28:129 Practicum in Outdoor Recreation 3 s.h.
Outdoor adventure trips sponsored by Division of Recreational
Services.

28:130 Human Nutrition 3 s.h.
Physiology, biochemistry of human nutrition; appropriate food
sources; qualitative, quantitative evaluation of diets using
standard references; simple arithmetic, computer skills required.

28:131 Nutrition 3 s.h.
Offered through Guided Correspondence only. Open only to non-majors.

28:132 Fitness/Sport Nutrition 3 s.h.
Relationship between nutrition, fitness/sport performance;
basic nutrition, physiology, chemistry, psychology, food preparation.
Prerequisite: 28:130.

28:133 Nutrition Through the Life Span 3 s.h.
How body processes and nutritional needs change with age and
physiological state; effects of food-drug medication interactions,
anorexia, bulimia, and adolescent pregnancy; emphasis on food
and health habits that minimize nutrition related problems.
Prerequisite: 28:130.

28:134 Nutrition Intervention 3 s.h.
Strategies for meeting nutritional needs of individuals with unique
needs due to limitations imposed by genetics, trauma,
aging, medications, and so forth. Prerequisite: 28:130.

28:135 Practicum: Health and Physical Activity 1-2 s.h.
Work with full time instructor teaching majors activity or
fitness/wellness class; lesson planning, teaching, evaluation.
Open only to majors. Maybe repeated. Prerequisite: one
methods course.

28:136 Physical Activity and Aging 3 s.h.

28:137 Health and Sport Fitness Assessment 3 s.h.
Examination, application of measurement techniques, tests;
emphasis on different measures of health status and
psychomotor skills, including fitness and sports test batteries.

28:138 Exercise Testing and Prescription 4 s.h.
Field and clinical settings, exercise program design for healthy
and high risk populations. Prerequisites: 27:140; and 7P:25 or
226:2 or equivalent.

28:140 Health for Living 3 s.h.
Personal health strategies; focus on disease prevention, wellness.

28:141 Health Promotion Theory and Practice 3 s.h.
Multihand health promotion strategies, including awareness,
personal behavior change, environmental supports. Prerequisite:
28:140.

28:142 Health Promotion in corporate, Hospital,
and Private Settings 3 s.h.
Development and operation of health promotion programs in
corporations, hospitals, community outreach centers.
Prerequisite: 28:140.

28:144 Peer Health Education 2 s.h.
Students act as peer educators, assisting students in their
residential areas, presenting educational outreach programs on
health topics, making referrals to campus and area agencies,
and serving as positive role models. Consent of instructor required.

28:146 Health Promotion for Older Adults 3 s.h.
Problems, strategic efforts toward long-term goal of health
promotion; disease prevention; shadow decline of chronic
conditions to allow independent, rewarding lives.

28:148 Practicum in Health Promotion 1 s.h.
Experience in planning implementing programs on
health-related topics; nutrition, physical fitness, substance abuse,
sexuality. Consent of instructor required. May be repeated.

241:158 Recreation Administration 3 s.h.
Personnel, finance, budgets, liability, marketing.

28:151 Liability in Sport/Health/Leisure 3 s.h.
Legal knowledge needed to manage sport, recreation and
physical activity programs effectively and to avoid legal
problems; strategies for addressing such issues as right to
participate, liability for injuries, risk management and special
legal statutes that govern sport, health and recreation
organizations.

28:152 Administration of Athletics 3 s.h.
Beliefs, practices in intercollegiate athletic programs; analysis of
sport organizations at institutional, conference, national,
international levels. Graduate standing or consent of instructor
required.

28:153 Sports and Cultural Events Management 3 s.h.
Planning managing events; resource management, liability,
safety, staffing, personnel, publicity, promotion strategies.

241:154 Park and Recreation Facility Management 3 s.h.
Personnel, program, financing, design, standards.

28:155 Recreation and Sport Management 3 s.h.
Organizational skills, roles, functions of managers; strategic
planning, resource allocation; budget, income strategies;
economics, sport, business.

28:156 Design of Recreation Facilities 3 s.h.
Horticulture, floriculture, landscape design, agronomy, turf
management; their relation to planning design of recreation
and park areas and facilities.
Undergraduate Programs

The Bachelor of Science can be earned in actuarial science or statistics (applied or mathematical).

Bachelor of Science in Actuarial Science

Due to the popularity and difficulty of the actuarial science major, students are admitted on a selective basis. Undergraduate students who wish to major in actuarial science must submit an application for admission. Although admission is based on several factors, the primary ones are overall grade-point average and grade-point average in mathematics. Students typically submit the application during their sophomore year, after completing at least 40 semester hours including 22M:25 Calculus I, 22M:26 Calculus II, and 22M:27 Introduction to Linear Algebra, 22M:28 Calculus 111, and 22S:130 Introduction to Mathematical Statistics I.

Students should choose the pre-actuarial science major when they enter the University. Transfer students who have completed 40 semester hours and the equivalents of the courses listed above may apply for admission into the actuarial science program prior to enrolling in the University. Application forms and additional information about selective admissions are available from the Department of Statistics and Actuarial Science.

The actuarial science program prepares students for the actuarial profession. The department offers both theoretical and practice-oriented courses that help students prepare for most of the associateship level examinations of the principal organizations. The required courses in the program are as follows.

Computer Science
22C:16 Introduction to Programming with Pascal 4 s.h.

Economics
6E:1 Principles of Macroeconomics 3 s.h.
6E:2 Principles of Macroeconomics 3 s.h.

Mathematics
22M:45-46 Accelerated Calculus 1-11 8 s.h.
or
22M:35-36 Engineering Calculus I-II 8 s.h.
or
22M:25-26 Calculus I-II 8 s.h.
22M:27 Introduction to Linear Algebra 4 s.h.
22M:28 Calculus 111 4 s.h.

At least one of the following:
22M:50 Elements of Group Theory 3 s.h.
22M:55 Fundamental Properties of Spaces and Functions 3 s.h.
22M:100 Introduction to Ordinary Differential Equations 3 s.h.
22M:109 Classical Analysis I 3 s.h.
22M:118 Complex Variables 3 s.h.
22M:127 Matrix Theory 3 s.h.

Statistics and Actuarial Science
All of the following:
22S:110 Introduction to Financial Security Systems 3 s.h.
22S:130 Introduction to Mathematical Statistics I 3 s.h.
22S:131 Introduction to Mathematical Statistics II 3 s.h.
22S:153 Mathematical Statistics I 3 s.h.
22S:154 Mathematical Statistics II 3 s.h.
22S:177 Numerical Analysis for Actuaries 3 s.h.
22S:180 Mathematics of Finance 3 s.h.
22S:181 Life Contingencies I 3 s.h.
22S:182 Life Contingencies II 3 s.h.

In exceptional cases, the adviser may grant permission to waive 22S:130 and/or 22S:131.

At least one of the following:
22S:175 Risk Theory 3 s.h.
22S:176 Credibility and Loss Distributions 3 s.h.
22S:179 Ratemaking and Loss Reserving 3 s.h.
22S:183 Life Contingencies I 3 s.h.
22S:189 Topics in Actuarial Science 3 s.h.

The following is a recommended schedule for completing the departmental degree requirements.

FRESHMAN YEAR
Fall Semester
22M:45 Accelerated Calculus I 4 s.h.
or
22M:35 Engineering Calculus I 4 s.h.
or
22M:25 Calculus I 4 s.h.
6E:1 Principles of Macroeconomics 3 s.h.

Spring Semester
22M:26 Calculus II 4 s.h.
or
22M:36 Engineering Calculus II 4 s.h.
or
22M:46 Accelerated Calculus II 4 s.h.
6E:2 Principles of Macroeconomics 3 s.h.
22C:16 Introduction to Programming with Pascal 4 s.h.

SOHOPHOMER YEAR
Fall Semester
22S:130 Introduction to Mathematical Statistics I 3 s.h.
22S:27 Introduction to Linear Algebra 4 s.h.
or
22S:131 Introduction to Mathematical Statistics II 3 s.h.

Spring Semester
Math elective 3 s.h.
22S:110 Introduction to Financial Security Systems 3 s.h.
22S:131 Introduction to Mathematical Statistics II 3 s.h.

JUNIOR YEAR
Fall Semester
22S:153 Mathematical Statistics I 3 s.h.
22S:177 Numerical Analysis for Actuaries 3 s.h.
22S:180 Mathematics of Finance 3 s.h.

22S:181 Life Contingencies I 3 s.h.
22S:182 Life Contingencies II 3 s.h.

Senior Year
Fall Semester
22S:154 Mathematical Statistics II 3 s.h.
22S:181 Life Contingencies I 3 s.h.

Applied Statistics

This program is designed to prepare students for careers in applied statistics or for graduate study in applied statistics or other disciplines that incorporate statistical tools. The required courses in the program are as follows.

Computer Science
22C:7 Introduction to Computing with FORTRAN 3 s.h.
or
22C:16 Introduction to Programming with Pascal 4 s.h.

Mathematics
22M:25-26 Calculus I-II 8 s.h.
or
22M:35-36 Engineering Calculus I-II 8 s.h.
or
22M:45-46 Accelerated Calculus I-II 8 s.h.
or
22M:27 Introduction to Linear Algebra 4 s.h.
or
22M:28 Calculus 111 4 s.h.

Statistics and Actuarial Science
22S:130 Introduction to Mathematical Statistics I 3 s.h.
22S:131 Introduction to Mathematical Statistics II 3 s.h.
22S:152 Regression and Design 3 s.h.
or
22S:155 Regression Analysis 3 s.h.
(Students may not receive credit for both 22S:152 or 22S:155.)
22S:153-154 Mathematical Statistics I-II 6 s.h.
22S:158 Experimental Design and Analysis 3 s.h.
or
22S:162 Analysis and Design of Experiments I 3 s.h.
(Students may not receive credit for both 22S:158 or 22S:162.)

At least two of the following:
22S:149 Statistical Analysis and Computing 3 s.h.
or
22S:156 Applied Time Series Analysis 3 s.h.
or
22S:161 Application of Multivariate Statistical Techniques 4 s.h.
or
22S:163 Nonparametric Statistical Methods 3 s.h.
or
22S:167 Introduction to Stochastic Processes 3 s.h.
or
22S:168 Analysis and Design of Experiments II 3 s.h.
or
22S:173 Data Analysis 3 s.h.
Honors

Qualified undergraduate students may earn their degrees with honors.

To graduate with honors in actuarial science, a student must have a grade-point average of at least 3.33 in all departmental courses numbered 130 and higher, pass certain professional exams, and complete two additional courses or an honors project.

To graduate with honors in statistics, a student must have a grade-point average of at least 3.33 in all departmental courses numbered 130 and higher, complete one 200-level course with a grade of at least B-, and complete an honors project.

More specific information about these requirements is available from the department.

Minor

Students can earn a minor in statistics by taking 15 semester hours in statistics courses, 12 of which must be in courses taken at The University of Iowa numbered 22S:120 and above. The grade-point average in departmental courses must be at least 2.00.

The minor in actuarial science is being phased out. Students who wish to earn a minor in actuarial science must complete requirements (see the 1992-94 General Catalog) and graduate by 1998.

Graduate Programs

Master of Science

Each M.S. candidate has a committee of three or four members, which is responsible for recommending action on the candidate’s degree. For nonthesis programs, the committee’s recommendation usually is based on two written examinations on topics covered in the required courses. For thesis programs, the committee’s final recommendation usually is based on an oral defense of the thesis, although it may be based on a single written examination over the topics covered in the candidate’s program of study.

The department requires a grade-point average of at least 2.75 for courses that appear on the plan of study. This includes all courses used to meet degree requirements plus additional courses that are relevant to the student’s program. Students who choose to earn the M.S. with a thesis may earn up to 6 semester hours of credit for thesis preparation. Specific course requirements for the M.S. programs are as follows. Students must complete at least 35 semester hours of course work to earn an M.S. in Actuarial Science. The required courses are as follows.

Actuarial Science

M.S. WITHOUT THESIS

22S:175 Risk Theory 3 s.h.
22S:176 Credibility and Loss Distributions 3 s.h.
22S:177 Numerical Analysis for Actuaries 3 s.h.
225:180 Mathematics of Finance 3 s.h.
22S:181 Life Contingencies I 3 s.h.
22S:182 Life Contingencies II 3 s.h.
22S:192 Probability 3 s.h.
22S:199 Seminar: Actuarial Science 1 s.h.

One of the following:
22S:154 Mathematical Statistics II 3 s.h.
22S:193 Statistical Inference I 3 s.h.

At least one of the following:
22S:149 Statistical Analysis and Computing 3 s.h.
22S:150 Methods of Statistical Inference 3 s.h.
22S:152 Regression and Design 3 s.h.
22S:155 Regression Analysis 3 s.h.

(Students may not receive credit for both 22S:152 and 22S:155.)

22S:156 Applied Time Series Analysis 3 s.h.
22S:167 Introduction to Stochastic Processes 3 s.h.
22S:194 Statistical inference I 3 s.h.
22S:195 Analysis of Variance 3 s.h.
22S:196 Nonparametric Statistics 3 s.h.
22S:197 Applied Time Series Analysis 3 s.h.
22S:198 Generalized Linear Models 3 s.h.
22S:199 Seminar: Actuarial Science 1 s.h.
22S:109 Classical Analysis 1 3 s.h.
22S:110 Real Analysis 3 s.h.
22S:111 Complex Analysis 3 s.h.
22S:112 Advanced Calculus 3 s.h.
22S:113 Introduction to Measure Theory 3 s.h.
22S:114 Introduction to Topology 3 s.h.
22S:115 Introduction to Differential Equations 3 s.h.
22S:116 Introduction to Algebra 3 s.h.
22S:117 Introduction to Group Theory 3 s.h.
22S:118 Introduction to Ring Theory 3 s.h.
22S:119 Introduction to Field Theory 3 s.h.
22S:120 Introduction to Linear Algebra 3 s.h.
Analysis and Design of
22S:168 Data Analysis 3 s.h.
22S:173 Any 200-level statistics course
Experience in a computer language such as FORTRAN is required.

M.S. WITH THESIS
22S:149 Statistical Analysis and Computing 3 s.h.
22S:155 Regression Analysis 3 s.h.
22S:162 Analysis and Design of Experiments I 3 s.h.
22S:190 Mathematical Methods for Statistics 3 s.h.
22S:192 Probability 3 s.h.
22S:193 Statistical Inference I 3 s.h.
22S:194 Statistical Inference II 3 s.h.

At least two of the following:
22S:156 Applied Time Series Analysis 3 s.h.
22S:161 Application of Multivariate Statistical Techniques 3 s.h.
22S:167 Introduction to Stochastic Processes 3 s.h.
22S:168 Analysis and Design of Experiments II 3 s.h.
22S:173 Data Analysis 3 s.h.

A graduate course in a discipline where quantitative methods are regularly used (course must be approved by student’s adviser)

At least 6 semester hours of 22S:191 Individual Study

Experience in a computer language such as FORTRAN is required.

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, and students earn academic credit for this study by registering for 22S:191 Individual Study.

Quality Management and Productivity
This innovative M.S. program is sponsored by the Departments of Statistics and Actuarial Science in the College of Liberal Arts, Industrial Engineering in the College of Engineering, and Management Sciences in the College of Business Administration. The M.S. program requires 36 semester hours, including a course covering Statistical Quality Control (SQC) and Total Quality Management (TQM), plus the following nine courses.

22S:130-131 Introduction to Mathematical Statistics I-II 6 s.h.
22S:153-154 Mathematical Statistics I-II 6 s.h.
22S:149 Statistical Analysis and Computing 3 s.h.
22S:155 Regression Analysis 3 s.h.
22S:162 Analysis and Design of Experiments I 3 s.h.
22S:156 Applied Time Series Analysis 3 s.h.
6K:278 Forecasting 3 s.h.
6K:284 Manufacturing Automation 3 s.h.
6K:277 Management Science Topics 3 s.h.
56:171 Operations Research 3 s.h.
56:153 Engineering Administration I 3 s.h.
56:253 Engineering Administration II 3 s.h.

Students must take at least 2 semester hours of seminar and/or practicum and are required to have a grade-point average of at least 3.00 for courses that appear on the plan of study. Outstanding students may write M.S. theses.

Doctor of Philosophy
To satisfy the course requirements for a Ph.D. in statistics, students must successfully complete the following.

22S:149 Statistical Analysis and Computing 3 s.h.
22S:155 Regression Analysis 3 s.h.
22S:162 Analysis and Design of Experiments I 3 s.h.
22S:173 Data Analysis 3 s.h.
22S:190 Mathematical Methods for Statistics 3 s.h.
22S:192 Probability 3 s.h.
22S:193 Statistical Inference I 3 s.h.
22S:194 Statistical Inference II 3 s.h.
22S:203 Foundations of Probability I 3 s.h.
22S:204 Foundations of Probability II 3 s.h.
22S:253 Advanced Inference I 3 s.h.
22S:254 Advanced Inference II 3 s.h.
22S:255 Linear Models 4 s.h.
22S:264 Theory of Probability I 3 s.h.

At least 2 semester hours of any combination of the following:
22S:293 Seminar: Probability arr.

At least two of the following:
22S:156 Applied Time Series Analysis 3 s.h.
22S:161 Application of Multivariate Statistical Techniques 4 s.h.
22S:167 Introduction to Stochastic Processes 3 s.h.
22S:168 Analysis and Design of Experiments II 3 s.h.
22S:220 Analysis of Categorical Data 3 s.h.
22S:225 Survival Data Analysis 3 s.h.
22S:230 Introduction to the Theory of Nonparametric Statistics 3 s.h.
22S:256 Multivariate Analysis 4 s.h.
22S:265 Theory of Probability II 3 s.h.

At least 18 hours of 22 S:299 Reading Research
For each semester graduate students are registered for 6 or more semester hours, their registration must include at least one course of at least 2 semester hours offered by the Department of Statistics and Actuarial Science or 22 S:191 Individual Study. 22 S:197 Readings in Statistics and/or Actuarial Science, or 22 S:299 Reading Research. This is in addition to the requirements stated above.

During the graduate program, students may take course work or seminars in other departments to achieve certain auxiliary goals of the department in statistics. Those goals are 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 be able to respond in personal contacts with foreign statisticians.

Students who wish to be considered for financial assistance for their third year should request a qualifying analysis no later than the spring semester of their second year.

Students take a comprehensive examination after completing most of the course work on their approved plan of study, typically during the third year.

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:192-195, 22S:203-204, and 22S:255. Study guides for the core examination are available from the department.

A program that does not conform to the prescribed requirements but is of high quality may be approved by the department chair.

Special Features
Because statisticians often are teamed with other scientists in research projects, it is important that students gain experience in group efforts. The department tries to provide this experience in several courses. In addition, the department houses the Statistical Consulting Center, which offers assistance to members of the University community in planning experiments and carrying out the analysis of experimental data. Under faculty supervision, graduate students may participate in these activities as part of their training.

Although the majority of Statistical Consulting Center projects involve statistical problems arising in thesis research conducted by students in other departments, the center also seeks involvement in larger research projects and proposal writing.

Courses
Primarily for Undergraduates
Students may not receive credit for a Department of Statistics and Actuarial Science course numbered below 110 after receiving credit for one numbered above 110. Students may receive credit for only two of these courses: 22S:2, 22S:8, or 22S:25 (same as 7P:25). Credit for 22S:2 will not be given if taken after 22S:8 or 22S:25 (same as 7P:25).

22S:2 Statistism and society 3 s.h.
Statistical ideas, their relevance in public policy, business, and social, health, physical sciences; focus on critical approach to statistical evidence. GER: quantitative or formal reasoning. Prerequisite: 22M:1 or equivalent or consent of instructor.

22S:8 Quantitative Methods I 4 s.h.
Descriptive statistics, elementary probability, estimation and testing, regression, correlation, statistical computer packages. GER: quantitative or formal reasoning. Prerequisite: 22M:2 or equivalent.
### Liberal Arts • Statistics and Actuarial Science

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<td>Introduction to Mathematical Statistics II</td>
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<td>Quality Control</td>
<td>3 S.h.</td>
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<td>Experimental Design and Analysis</td>
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<td>Design of Experiments</td>
<td>4 S.h.</td>
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<td>Discrete Probability Models</td>
<td>3 S.h.</td>
<td>TCC College of Engineering and Physical Sciences</td>
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<td>Introduction to Stochastic Processes</td>
<td>3 S.h.</td>
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<td>Analysis and Design of Experiments II</td>
<td>3 S.h.</td>
<td>TCC College of Engineering and Physical Sciences</td>
</tr>
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<td>22S:172</td>
<td>Topics in Statistics</td>
<td>3 S.h.</td>
<td>TCC College of Engineering and Physical Sciences</td>
</tr>
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<td>Data Analysis</td>
<td>3 S.h.</td>
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<td>22S:175</td>
<td>Risk Theory</td>
<td>3 S.h.</td>
<td>TCC College of Engineering and Physical Sciences</td>
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<td>Credibility and Loss Distributions</td>
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<td>TCC College of Engineering and Physical Sciences</td>
</tr>
<tr>
<td>22S:177</td>
<td>Numerical Analysis for Actuaries</td>
<td>3 S.h.</td>
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</tr>
<tr>
<td>22S:179</td>
<td>Ruining and Loss Reserving</td>
<td>3 S.h.</td>
<td>TCC College of Engineering and Physical Sciences</td>
</tr>
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<td>22S:180</td>
<td>Mathematics of Finance</td>
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</tr>
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<td>22S:181</td>
<td>Life Contingencies</td>
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</tr>
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<td>Actuarial Exam Preparation</td>
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</tr>
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<td>Topics in Actuarial Science</td>
<td>3 S.h.</td>
<td>TCC College of Engineering and Physical Sciences</td>
</tr>
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<td>Probability</td>
<td>3 S.h.</td>
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</tr>
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<td>Individual Study</td>
<td>arr.</td>
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<td>Statistical Inference</td>
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</tr>
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<td>Hypothesis Tests</td>
<td>3 S.h.</td>
<td>TCC College of Engineering and Physical Sciences</td>
</tr>
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<td>Preparatory Calculus</td>
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<td>Seminar in Actuarial Science</td>
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<td>TCC College of Engineering and Physical Sciences</td>
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<td>22S:203</td>
<td>Foundations of Probability</td>
<td>3 S.h.</td>
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<tr>
<td>22S:204</td>
<td>Foundations of Probability II</td>
<td>3 S.h.</td>
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</tr>
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<td>Analysis of Categorical Data</td>
<td>3 S.h.</td>
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<td>Survival Data Analysis</td>
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<td>Introduction to the Theory of Nonparametric Statistics</td>
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</tr>
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...
22S:253 Advanced Inference I 3 s.h.
Decision theoretic principles, group and exponential families, unbiased estimation, Fisher information and the information inequality, invariance and equivariance principles; MLE, Bayes, minimax estimation. Prerequisites: 225: 194 and 22S:204.

22S:254 Advanced Inference II 3 s.h.
Continuation of 22S:253, hypothesis testing, large sample theory, asymptotic optimality, asymptotic efficiency, statistical functions; U, M, L, and R statistics. Prerequisite: 22S:253.

22S:255 Linear Models 4 s.h.
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: 225:155, 225:162, and 22S:194.

22S:256 Multivariate Analysis 4 s.h.
Multivariate distributions, tests and estimates, multivariate general linear model, MANOVA, discriminant analysis, canonical correlation, factor analysis, principal components. Prerequisite: 22S:255.

22S:291 Seminar: Mathematical Statistics 3 s.h.
Dramatic literature, history, and criticism, and playwriting are complemented by classes in dramatic literature, history, and criticism, and students are actively encouraged to explore a range of courses throughout the university. Dozens of productions each year provide additional opportunities to learn the theater craft and to develop a personal artistic vision.

The department is also interested in educating students who will enter other fields where understanding of the arts and experience with theater skills will be useful.

Degree Requirements
The following courses compose the basic experience for all undergraduate theatre arts majors. Students who want to be considered for a special emphasis program must consult with the head of the appropriate program.

MINIMUM REQUIREMENTS
Students must maintain a 2.00 grade-point average for all courses taken in the major. The following course work is required (total of 29 semester hours).

49:25 Acting I 3 s.h.
49:43 Elements of Design 3 s.h.
49:44 Theatre Crafts 3 s.h.
49:45 Production I 1 s.h.
49:46 Production II 1 s.h.
49:47 Production III 1 s.h.
49:48 Production IV 2 s.h.
49:60 Play Script Analysis 3 s.h.
49:112 History of Theatre and Drama I 3 s.h.
49:113 History of Theatre and Drama II 3 s.h.
49:114 Contemporary Theatre and Drama 3 s.h.
49:130 Directing I 3 s.h.
or
49:194 Dramaturgy 3 s.h. or
An upper-level playwriting course

Courses 49:25 and 49:43 are normally completed within the first year of study in the major; 49:44 Theatre Crafts is co- or prerequisite to 49:45 Production I and is prerequisite to 49:46-48 Production II, 111, and IV.

Students normally enroll in no more than one production course in any one semester.

THEATRE ARTS LABORATORY
All theatre arts students, faculty, and staff meet regularly for guest presentations, discussion, and theatre arts class presentations. The department encourages attendance by theatre majors.

AUDITIONS
All productions are open to anyone who wishes to audition. Each play is cast on the basis of who tries out and who is best suited to the available roles; no preference is given to graduate or upper-class students.

Theatre arts majors are encouraged to audition in general auditions at the beginning of the fall semester. They normally present a four-minute audition consisting of two contrasting pieces. From this audition, call-back lists are posted for major productions offered during the first semester.

Materials and information about the general auditions are available from the theatre arts office in August. Notices of auditions for all subsequent productions are posted on the department’s call board.

SPECIAL EMPHASIS PROGRAMS
Students who have special aptitude and readiness may wish to pursue one of the following emphasis programs. Achievement of a passing grade in the prior course is not a guarantee of admission to more advanced courses. To culminate the emphasis, the student presents a final project to the ‘facul ty.

Acting Emphasis
49:120 Acting II 3 s.h.
49:125 Voice for the Actor 3 s.h.
49:127 Movement for the Actor 3 s.h.

Two of these (total 6 s.h.):
49:121 Advanced Scene Study 3 s.h.
49:122 Acting with Verse 3 s.h.
49:123 Alternative Approaches to Acting 3 s.h.

Two of these (total 4-6 s.h.):
49:28 Basic Stage Combat 2 s.h.
49:126 Voice for the Actor II 3 s.h.
49:128 Movement for the Actor II 3 s.h.
49:156 Stage Makeup 2 s.h.

Directing Emphasis
49:120 Acting II 3 s.h.
49:125 Voice for the Actor 3 s.h.
49:127 Movement for the Actor 3 s.h.
49:130 Directing I 3 s.h.
49:131 Directing II 3 s.h.
49:133 Stage Management 3 s.h.

28 Basic Stage Combat 2 s.h.
or
49:172 Playwrights, Directors, and Designers 3 s.h.
or
49:194 Dramaturgy 3 s.h.

Design Emphasis
49:41 Costume Practicum 3 s.h.
49:147 Technical Production I 3 s.h.

Two of these (total 6 s.h.):
49:134 Scene Design I 3 s.h.
49:135 Costume Design I 3 s.h.
49:136 Lighting Design I 3 s.h.

Two of these:
49:137 Scene Design II 3 s.h.
49:138 Costume Design II 3 s.h.
49:139 Lighting Design II 3 s.h.

One of these:
49:144 Drafting for Designers I 3 s.h.
49:145 Drafting for Designers II 3 s.h.

Final project: an independent advanced design project in area of specialization

Undergraduates in the design emphasis may meet with the graduate designers in 49:255 Studio in Theatrical Design.

Playwriting Emphasis
49:62 Basic PlayWriting 3 s.h.
49:165 Advanced PlayWriting 3 s.h.
49:120 Acting I 3 s.h.
49:130 Directing I 3 s.h.
Three of these (total 9 s.h.):

49: 131 Directing II 3 s.h.
49: 163 Adaptation 3 s.h.
49: 164 Playwriting for Other Media 3 s.h.
49: 166 Playwriting: The Docudrama 3 s.h.
49: 167 Experimental Play Writing 3 s.h.
49: 168 The One-Person Play 3 s.h.
49: 169 Children’s Plays 3 s.h.
49: 170 Political Plays 3 s.h.
49: 194 Dramaturgy 3 s.h.

Final project: a full-length play or its equivalent in shorter works (One five-minute scene must be staged for the faculty.)

49: 180 Greek Drama in Translation 3 s.h.
49: 194 Dramaturgy 3 s.h.
49: 199 Independent Study (practical dramaturgy project) 2 s.h.

One of these:

49: 182 Shakespeare 2-3 s.h.
49: 183 Shakespeare: Selected Plays 2 s.h.
49: 184 English Renaissance Drama 3 s.h.
49: 185 Restoration Drama 3 s.h.

One of these:

49: 117 American Drama Since 1945 3 s.h.
49: 118 American Women Playwrights: 19th and 20th Century 3 s.h.
49: 188 Contemporary British Drama 3 s.h.

One of these:

35: 133 Spanish-American Drama 3 s.h.
49: 190 Black Action Theatre 3 s.h.
49: 192 Afro-American Drama 3 s.h.
129: 103 African Drama 3 s.h.

Transfer Students

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 undertake advanced-level electives or seek admission to a special emphasis program. Students transferring from another institution may present course work equivalent to 49:47 Production III for evaluation; all transfer students are required to complete Production I, 11, and IV (49:45, 46, and 48) in the department.

Honors

Honors students complete an honors project under the supervision of a faculty member. Projects may be analytical or creative or an appropriate combination of the two. All require an oral presentation or performance for the faculty.

Senior majors who are members of the University Honors Program and have earned a 3.00 in the major are, with the approval of the faculty, qualified to undertake an honors project. Students who wish to complete an honors project meet with the departmental honors adviser, who advises them on finding an appropriate faculty project adviser, preparing and gaining acceptance for a written proposal; presenting the work; and evaluating the outcome.

Minor

A minor in theatre arts requires 15 semester hours of course work in theatre arts, excluding 49:1 and 49:2, with a minimum grade-point average of 2.00. At least 12 of these semester hours must be taken at The University of Iowa in advanced courses. Advanced courses accepted by the department include 49:25, 49:43, 49:44, 49:60, 49:62, and any course numbered 49: 100 and above.

Graduate Program

Master of Fine Arts

The M.F.A. programs are dedicated to the creative development of theater 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 theater in society. Interactions among the various theater 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 theater.

Students who demonstrate exceptional ability in acting, directing, playwriting, design, or production 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 artistic work; the undergraduate record, other records or proof of artistic accomplishment; and letters of recommendation.

Submission of playscripts is the most important element in selection of students to enter the Playwrights Workshop.

Degree Requirements

Students normally must complete six semesters in residence (internships may be substituted), the requisite number of graduate credits in the individual programs, a 3.00 grade-point average, and a record of substantial creative work of high quality. They also must make normal progress toward completion of the degree requirements to remain in the program. Normal progress is defined as maintenance of a 3.00 grade-point average in all course work attempted and 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. programs.

Facilities

The University of Iowa has one of the finest educational theater complexes in the country. The Theatre Building offers four theaters and up-to-date facilities for classroom, laboratory, shop, and performance work.

The E.C. Mabee Theatre, a continental-style, 477-seat proscenium playhouse, is one of the finest theaters of its type in the United States. Theatre A 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 theater dedicated primarily to the production of new and experimental works from the Iowa Playwrights Workshop. The flexible studio theater seats 50. All four theaters are equipped with state-of-the-art electronic lighting control and sound reproduction systems.

In addition to special classrooms for acting and directing, several spaces are designed for teaching particular aspects of dramatic studies. The movement room is for study of movement and motion by acting students. The intelligent classroom is equipped with videotape, laser disc, closed circuit and cable television, audio systems, and computer information retrieval systems. The Amie Gillette Design Studio, named for a former professor of design and head of Iowa’s theater program, serves as classroom and studio workshop for technical and design students. The Computer-Aided Design Lab provides professional-quality, computer-aided design (CAD) programs for use by designers and technical directors.

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

The Theatre Arts Department presents 30-40 public productions each year. These include a subscription series of five or six plays, a festival of six new works by students, Iowa Summer Rep, and roughly two dozen other productions, most 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, 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.

Courses

Primarily for Undergraduates

49:000 Cooperative Education Internship 0 s.h.
49:1 Art of the Theatre 3 s.h.

Purpose, principles, disciplines, practitioner and their methods, conditions of performance. GER: humanities.
49:2 Theatre and Society 3 s.h.
Historical investigation of relationship between theater and society in Europe and America, early nineteenth century to present; modern theatrical movements (e.g., naturalism, surrealism, Epic Theatre), their ideas, their work as response conditions of society and of theater itself. GER: historical perspectives.

49:20 Basic Acting 3 s.h.
Concentration, relaxation, imagination, observation, sensory awareness; development of theatrical creativity through techniques, obstacles, action, conflict, spontaneity; development of scene from scripts. Open only to non-theatre arts majors. GER: humanities.

49:22 Acting for Opera 3 s.h.
Techniques for opera students.

49:23 Improvisation for the Theatre 3 s.h.
Techniques; focus on spontaneity, increased physical, mental, emotional awareness; "improv" genre.

49:27 Basic Movement and Body Awareness 3 s.h.
Body structures and systems, personal body design; how body carries weight, moves with gravity, shifts weight, stands upright, etc. Same as 28:27, 137:27.

49:28 Basic Stage Combat 2 s.h.
Principles, safety, techniques of nonviolent stage combat for actor, director, choreographer. Prerequisite: 49:25 or consent of instructor.

49:41 Costume Practicum 3 s.h.
Construction, dying, texturing of costumes.

49:43 Elements of Design 3 s.h.
Design, color, media, creative process.

49:44 Theatre Crafts 3 s.h.
Backstage operations; wardrobe, scenery, properties, lighting, sound.

49:45 Production I 1 s.h.
Running crews for major season productions. Pre or corequisite: 49:44.

49:46 Production II 1 s.h.
Construction, setup crew for major season production. Prerequisite: 49:44.

49:47 Production III 1 s.h.
Running or construction crew for major season production. Prerequisite: 49:44.

49:48 Production IV 2 s.h.
Advanced production responsibility for major season production. Experience on build crew m assigned area required.

49:60 Play Script Analysis 3 s.h.
Historical and contemporary, variety of genres; dynamics of play structure; challenges of playscripts for directors, actors, designers, technicians.

49:62 Basic Playwriting 3 s.h.
Emphasis on one act play, original student writing. GER: humanities.

49:63 Basic Playwriting II 3 s.h.
Continuation of 49:62, which is prerequisite; emphasis on demands of writing one act play.

49:72 Shakespeare 3 s.h.
Same as 8:72.

49:93 Voice Improvement 3 s.h.
Voice and speech for speaking in public, lecturing, broadcasting, non theater major acting.

49:94 Oral Interpretation of Literature 3 s.h.
Principles, practice of reading literary prose and poetry to audiences; analysis, interpretation, performance, evaluation. GER: humanities.

For Undergraduates and Graduates

Acting and Directing

49:25 Acting I 3 s.h.
Creativity and imagination; exercises to engage mind, body, voice in theatrical play; focus on improvisation, openness; development of scenes from scripts. Major in theatre arts or consent of instructor required.

49:102 Workshop in the Teaching of Acting 3 s.h.
Techniques; improvisation, theater games, creativity exercises, group dynamics. Offered summer sessions.

49:120 Acting II 3 s.h.
Scene study; focus on realistic material, development of collaborative dynamic in two-character and group situations. Prerequisite: 49:25 or consent of instructor.

49:121 Advanced Scene Study 3 s.h.
Development of characterizations, personal research, advanced approaches to realistic material, difficult situations. Prerequisites: 49:120 and 49:125 or consent of instructor.

49:122 Acting with Verse 3 s.h.
Techniques for opera students.

49:123 Alternative Approaches to Acting 3 s.h.
Methods of acting expression that differ from standard approaches to realistic material, difficult scenes. Prerequisites: 49:120 and 49:125 or consent of instructor.

49:125 Voice for the Actor 3 s.h.
Basic stage voice, speech; techniques to develop relaxation, centered breath, efficient warm-up, resonance, articulation, muscular flexibility; mature, versatile, nonregional voice and speech. Prerequisite: 49:25.

49:126 Voice for the Actor II 3 s.h.
Continuation of 49:125, which is prerequisite.

49:127 Movement for the Actor 3 s.h.
Awareness through application of techniques to relax stress, tension while freeing energy for ease, flexibility in expressive movement; relation of self to character through movement. May be repeated. Prerequisite: 49:25.

49:128 Movement for the Actor II 3 s.h.
Continuation of 49:127, which is prerequisite.

49:129 Advanced Stage Combat 3 s.h.
Principles, safety, techniques of nonviolent stage combat for actor, director, choreographer. Consent of instructor required.

49:130 Directing I 3 s.h.
Basic elements; exercises in composition, emphasis, movement, rhythm, dramatical director's role in production process; short scenes. Consent of instructor required. Prerequisites: 49:25, 49:43, 49:60, and 49:120.

49:131 Directing II 3 s.h.
Continuation of 49:130; advanced exercises in theatrical direction; focus on theatricality, storytelling style; development of concept building; direction of theater projects. Prerequisite: 49:130 or consent of instructor.

49:133 Stage Management 3 s.h.
Duties and procedures for stage managers; work on a production as stage manager or assistant. Offered fall semesters. Prerequisites: 49:64 and one semester of production, or consent of instructor.

49:220 Advanced Acting 3 s.h.
Preprofessional training; may include psycho-physical training in impulsion, openness and the "mask," individual and group dynamics, improvisation, repetition, characterization and scenework. Shakespeare and stylized acting. Consent of instructor required.

49:225 Vocal Technique 3 s.h.
Skills training; may include voice and speech for the actor, phonetics, text analysis, sound exploration, contemporary and classical text interpretation, dialects. Consent of instructor required.

49:227 Movement Technique 3 s.h.
Awareness through application of techniques may include improvisational choreography, pantomime, rhythm/space, period court dances, Alexander technique. Consent of instructor required.

49:230 Director's Seminar 1-3 s.h.
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; collaboration with designers, playwrights, actors. Consent of instructor required.

49:233 Stage Management Seminar 1 s.h.
Practice, techniques. May be repeated. Prerequisite: 49:133 or consent of instructor.

Design

49:134 Scene Design I 3 s.h.
The design process, including research, rendering, model building. Prerequisite: 49:43. Same as 1F:134.

49:135 Costume Design I 3 s.h.
Historical orientation; the design process, including research, rendering, swatching. Prerequisite: 49:43.

49:136 Lighting Design I 3 s.h.
Visual perception, optical control of light, introduction to design procedure and responsibilities. Prerequisite: 49:43.

49:137 Scene Design II 3 s.h.
Designer's research; development of production concepts for projects in scenery, property design. Prerequisites: 49:60, 49:134, and 49:144.

49:138 Costume Design II 3 s.h.
Continuation of 49:130; emphasis on designer's research, production concepts. Prerequisites: 49:60 and 49:135.

49:139 Lighting Design II 3 s.h.
Designer's research; development of production concepts for projects in lighting design. Prerequisites: 49:60 and 49:136 and 49:144.

49:140 Sound Design for the Theatre 3 s.h.
Conception, development of sound scores for performance of dramatic works; sound studio equipment, technique.

49:144 Drafting for Designers I 3 s.h.
Took; conventions of theatrical drafting for design and technical drawing; two-dimensional CAD.

49:145 Drafting for Designers II 3 s.h.
Three-dimensional CAD. Prerequisite: 49:144.

49:146 Drawing and Rendering for the Theatre 3 s.h.
Presentation techniques for scene, costume, lighting designs. May be repeated. Pre or corequisite: 49:43 or admission to M.F.A. design program.

49:147 Technical Production I 3 s.h.
Scene construction techniques, theatrical rigging.

49:148 Technical Production II 3 s.h.
Continuation of 49:147, which is prerequisite. Offered spring semesters of odd years.

49:149 Technical Problems for Designers 3 s.h.
Developing technical solutions for design problems.

49:151 Scenic Art for Designers 3 s.h.
Scene painting, model building, construction, finishing.

49:152 Costume Crafts I 3 s.h.
Pattern development from theatrical designs; fitting problems; corsets and other body shaping garments; millinery, armor, footwear, and so on.

49:153 Costume Crafts II 3 s.h.
Continuation of 49:152. Prerequisite: 49:152 or consent of instructor.

49:156 Stage Makeup Application and design.

49:157 Life Drawing I 3 s.h.
Same as 1F: 105.

49:158 Environmental Design I 3 s.h.
Same as 1F: 137.

49:237 Scene Design III 3 s.h.
Advanced projects. Prerequisites: 49:194 or 49:215, admission to M.F.A. design program, and consent of instructor.

49:238 Costume Design III 3 s.h.
Advanced projects in drama, opera, dance. Admission to M.F.A. design program, consent of instructor required. Prerequisite: 49:194 or 49:215.

49:239 Lighting Design III 3 s.h.
Advanced projects. Admission to M.F.A. design program, consent of instructor required. Prerequisite: 49:194 or 49:215.

49:240 Scene Design IV 3 s.h.
Advanced projects. Consent of instructor required.

49:241 Costume Design IV 3 s.h.
Advanced projects. Consent of instructor required.

49:242 Lighting Design IV 3 s.h.
Advanced projects. Consent of instructor required.

49:243 Scene Design V 3 s.h.
Portfolio development; collaborative. Consent of instructor required.
49:118 American Women Playwrights: 19th and 20th Century 3 s.h.
American women's gender studies approach to 200-year tradition of playwrights and plays representing diverse configurations of race, ethnicity, class, and sexuality. GER: humanities.

49:180 Greek Drama in Translation 3 s.h. GER: humanities. Same as 14:108.

49:181 Medieval Drama 3 s.h. Same as 8:144.

49:182 Shakespeare 2-3 s.h. Same as 8:122.

49:183 Shakespeare: Selected Plays Same as 8:165.

49:184 English Renaissance Drama Same as 8:145.

49:185 Restoration Drama Same as 8:146.

49:186 Modern Drama: Ibsen to Shaw Same as 8:148.

49:187 Modern Drama: Brecht to Stoppard Same as 8:149.

49:188 Contemporary British Drama Same as 8:155.

49:189 Indian Theater 3 s.h.
Two millennia of South Asian performance traditions, from classical Sanskrit dramas to contemporary folk pageants; emphasis on ritual, aesthetic, social contexts. Same as 39:194.

49:190 Black Action Theatre 3 s.h. Offered fall semesters. Same as 129:175.

49:191 Black Action Theatre 3 s.h. Offered summer sessions. Same as 129:176.

49:192 Afro-American Drama Same as 129:180, 8:154.

49:193 Studies in Drama Same as 8:167.

49:194 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, script cutting and adaptation, season planning; evaluation, advocacy development of new plays; audience relations and education. Consent of instructor required. Prerequisite: 49:60.

49:213 Shakespeare: Later Plays 3 s.h. Same as 9:253.

49:215 Advanced Playwriting Analysis 3 s.h.
Common analytical approach to structural analysis; play as blueprint for performance; theoretical, production approaches to text; focus on modern plays.

49:216 Graduate Survey of Western Drama to 1850 3 s.h.
Representative plays; historical circumstances of original productions; textual analysis; implications for contemporary theatrics writing, design, acting, directing.

49:217 Performance Theory 1-4 s.h.
Influential documents of dramatic, theatrical theory; classical Greece, Rome; early Christian and Renaissance Europe; romantic, modern, postmodern, feminist.

49:218 Studies in Contemporary Performance 3 s.h.
Live performance across artistic disciplines, from experimental plays to conceptual art and gallery installations; comparison with video art, film, broadcast media.

49:261 History of Criticism Plato to 1700 3 s.h. Same as 8:261.

49:262 History of Criticism 1700-Present 3 s.h. Same as 8:262.

Special

49:9 Workshop in Theatre Arts 2 s.h.
Improvisation, theater games, scene study, acting style; production or scene presentations; two-week workshop. Offered summer sessions. Open only to high school students.

49:100 Workshop in Theatrical Design 2 s.h. Fundamentals: scenery, costume, lighting, sound. Offered summer sessions.

49:101 Workshop in Scenery and Prop Construction 2 s.h.
Construction of stage scenery and props: flats, platforms, steps, use of plastics and foam, legging and rigging techniques; ways to cut construction time and expense, solve problems. Offered summer sessions.

49:103 Workshop in Voice and Movement 2 s.h.
Integration of voice, body for performers or teachers; practical exercises, basic theory. Offered summer sessions.

49:104 Workshop in Stage Directing An Introduction arl.

49:105 Repertory Theatre 3 s.h.
Theater experience. May be repeated. Offered summer sessions. Consent of summer repertoire director required.

49:109 Introduction to Arts Management 3 s.h.
History, theory, practice of arts administration; emphasis on contemporary theater management.

49:195 senior Project 1 s.h. Faculty evaluation.

49:196 Projects in Theatre Consent of instructor required.

49:197 Honors Theatre Arts arl.

49:198 Projects in Media 3 s.h.
Writers, directors, actors develop, produce a new work for film or television.

49:199 Independent Study arl.

49:264 American Drama Same as 8:237.

49:267 MFA. Production 1-4 s.h.
Assignments in all aspects of play production. Consent of instructor required.

THIRD WORLD DEVELOPMENT SUPPORT
Chair: Jan Albert Gratama
Professors: Joseph Ascroft (Journalism and Mass Communication), Joel Barkan (Political Science), Michael McNulty (Geography), Rangaswamy Rajagopal (Geography and Civil and Environmental Engineering), Kenneth Starck (Journalism and Mass Communication) Associate professors: James Glibin (History and African-American World Studies), Jan Albert Gratama (Art and Art History), Rex Honey (Geography), Douglas Midgett (Anthropology), Rebecca Roberts (Geography), Martin Tracy (Social Work) Assistant professors: Alan Peters (Urban and Regional Planning), Salome Raheim (Social Work) Graduate degree: M.A. in Third World Development support

Third World Development Support offers students an education in the broad issues of third world development, with emphasis on examination of support services that social sciences offer to the process of development. The program promotes interdisciplinary scholarship, research, and applied professionalism related to development problem solving.

The program’s faculty represents departments across the University, including African-American world studies, anthropology, art and art history, civil and environmental engineering, geography, history, journalism and mass communication, political science, social work, and urban and regional planning. Many of the faculty members are involved in training efforts in the United States and abroad, and many are consultants to international agencies on development program design and evaluation.

Students from diverse backgrounds and professional experiences enroll in the program.
Many foreign students who have graduated from the program have returned to jobs in their home countries, some to inaugurate development support communication programs in their national universities or in the institutional frameworks of their countries’ governments. Others have taken positions with organizations such as UNICEF, FAO, WHO, the World Bank, the Peace Corps, and the Academy for Educational Development.

**Graduate Program**

Third World Development Support offers a graduate degree, in conjunction with the Program for International Development, the Center for International and Comparative Studies, and the Graduate College. Students may pursue a Master of Arts degree through a program of study designed especially for individuals planning to pursue or already pursuing careers in forming and implementing development strategies.

**Master of Arts**

Students may choose from two tracks. The academic track, known as development support studies, is a research-based option intended for students planning to pursue doctoral studies at The University of Iowa or another institution. The academic track requires a thesis.

The professional track is practice based. It is intended for students who seek a terminal M.A. and are planning to pursue careers in which they will apply social scientific knowledge to problem solving in development. Students who choose the professional track may opt for an emphasis in development support communication or in development support social work. The professional track requires completion of a final project and a written comprehensive examination.

**REQUIRED CORE**

The following courses on development theories, policies, and strategies are required for both tracks.

19:207 Third World Development Support 3 s.h.

44:273 Development Policy and Planning in the Third World (same as 7F:275, 34:275, 42:275, 102:275, 113:275) 3 s.h.

150:202 Contemporary Issues in Development Seminar 2 s.h.

150:210 Third World Research Methodology 3 s.h.

**Development Support studies (DSS)**

Academic track students take 32 semester hours of courses, divided as follows.

Eleven semester hours of core courses (see “Required Core”);

Nine semester hours of conceptual courses selected from the list below (students may take courses within one topic area to approximate a disciplinary major, or they may choose courses from several areas);

Six semester hours of electives (with at least 3 semester hours selected from the list of development support communication or development support social work professional courses);

Six semester hours for thesis with oral defense.

**DSS CONCEPTUAL COURSES**

**Political Economy and Public Policy**

30:350 Political Economy and Public Policy in Developing Countries 3-4 s.h.

44:262 Political Economy of Regional Development 3 s.h.

**Peasant Culture/Economy**

44:264 Agrarian Change and Rural Development in the Third World 3 s.h.

**Urban/Industrial Development**

102:291 Urban and Regional Development 3 s.h.

**Women in Development**

42:273 Women, Men, and Global Social Change: International Development Perspectives 3 s.h.

113:175 Gender and Development Studies 3 s.h.

**Social and Educational Policy**

7F:104 Education in the Third World 2-3 s.h.

42:186 Comparative Social Policy 3 s.h.

113:151 Sociology of the Third World (same as 34:151) 3 s.h.

**Spatial and Geographic Perspectives**

44:194 Geographic Perspectives on Development 3 s.h.

**Problems in Social Work**


42:285 Travel/Study Seminar (No Credit) 3 s.h.

**International Economic Development**

6E:125 International Economics 3 s.h.

6E:129 Economic Growth and Development 3 s.h.

Regional Development

141:146 African Development (same as 30:146, 44:161) 3 s.h.

141:157 Peoples and Cultures of Africa (same as 113:120, 129:157) 3 s.h.

**Development Support Communication (DSC)**

DSC students merge knowledge and skills from the social sciences with expertise in communication theory and practice. They acquire an analytical basis for identifying problems, designing practical development projects, and planning effective implementation strategies. This emphasis requires 32 semester hours of courses, as follows.

Eleven semester hours of core courses (see “Required Core”);

Nine semester hours of professional courses (listed below);

Six semester hours of conceptual courses (3 from the list below and 3 from the list of development support studies conceptual courses);

Six semester hours for the project, comprehensive exam, and oral defense.

**Development Support Social Work (DSSW)**

Development support social work is an option for students who seek careers in social work and community development. Students learn to apply social science theory and methodology in support of social work and development planning. This emphasis requires 32 semester hours of courses, as follows.

Eleven semester hours of core courses (see “Required Core”);

Nine semester hours of professional courses (listed below);

Six semester hours of conceptual courses (3 from the list below and 3 from the list of development support studies conceptual courses);

Six semester hours for the project, comprehensive exam, and oral defense.
Admissions

Applications for admission and transcripts are due at The University of Iowa Office of Admissions no later than July 15 for fall semester, December 1 for spring semester, and May 1 for summer session for domestic students (for foreign students the deadlines are February 1 for fall, October 1 for spring, and February 1 for summer). Students who wish to be considered for a limited number of graduate assistantships should submit both the application for admission and application for graduate awards by February 1.

Minimum requirements for acceptance are: cumulative undergraduate grade-point average of 2.50, or 12 semester hours of graduate work with a minimum grade-point average of 2.50, and a GRE score of 1100. Foreign students whose native language is other than English must have a TOEFL score of 600.

Students should submit directly to the program, by the above deadlines, three letters of recommendation, a one-page essay explaining their interest in the program, and an example of their written or professional work. Because applicants' educational background, linguistic ability, and professional experience vary greatly, the admissions committee will consider the complete record of each applicant, including academic transcripts and professional experience. Priority will be given to applicants - U.S. citizens and foreign nationals alike - who have working experience in development contexts and who have demonstrated a facility for languages.

Associated Courses

AFRICAN STUDIES
141: 146 African Development 3 s.h.
141: 157 Peoples and Cultures of Africa 3 s.h.

ANTHROPOLOGY
113: 120 Peoples and Cultures of Africa 3 s.h.
113: 151 Sociology of the Third World 3 s.h.
113: 275 Development Policy and Planning in the Third World 3 s.h.

ART
133: 146 Graphic Design II 3 s.h.
1240 Individual Instruction in Design 3 s.h.

BUSINESS
6M: 236 Advertising and Promotion Strategy 3 s.h.
6M: 238 Contemporary Topics in Marketing 3 s.h.

COMMUNICATION STUDIES
36D: 95 Radio Production I 3 s.h.
36D: 96 Television Production I 3 s.h.
36D: 97 Film Production I 4 s.h.
36M: 231 Theories of Mass Communication 3 s.h.
36M: 507 Seminar: Rhetoric and culture 1-4 s.h.

ECONOMY
6E: 125 International Economics 3 s.h.
6E: 129 Economic Growth and Development 3 s.h.

EDUCATION
7E: 104 Education in the Third World 3 s.h.
7F: 275 Development Policy and Planning in the Third World 3 s.h.
7W: 120 Introduction to Instructional Design and Technology 3 s.h.

GEOGRAPHY
44: 161 African Development 3 s.h.
44: 194 Geographical Perspectives on Development 3 s.h.
44: 262 Political Economy of Regional Development 3 s.h.
44: 264 Agrarian Change and Rural Development in the Third World 3 s.h.
44: 275 Development Policy and Planning in the Third World 3 s.h.

JOURNALISM AND MASS COMMUNICATION
19: 131 Publication Design Workshop 4 s.h.
19: 150 Visual Communication 3 s.h.
19: 200 Visual Communication 3 s.h.
19: 207 Third World Development support 3 s.h.
19: 240 Media Workshop 3 s.h.
19: 242 Photojournalism Workshop 3 s.h.
19: 250 Media Workshop 3 s.h.

POLITICAL SCIENCE
30: 146 African Development 3 s.h.
30: 350 Political Economy and Public Policy in Developing Countries 3 s.h.
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.

Transportation analysts and planners must draw on a number of skills to respond to the challenges they face. They are required to 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.

Graduate Programs

Certificate

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, three academic units at The University of Iowa participate in an interdisciplinary transportation program. The Department of Civil and Environmental Engineering, the Department of Geography, and the Graduate Program in Urban and Regional Planning have established a graduate certificate program that enables students in these academic units to obtain an additional credential along with their graduate degrees.

The Transportation Certificate Program is coordinated by the Public Policy Center in conjunction with the Graduate College. Completion of the requirements for a certificate is documented on the student’s transcript. The certificate is awarded in conjunction with the established degree requirements of the individual academic units, described in this section of the Catalog.

Students who enroll in a course of study leading to transcript certification also may wish to apply within their academic department for selection as graduate scholars of the Midwest Transportation Center (MTC). The MTC, a special consortium of The University of Iowa and Iowa State University, is administered through the Public Policy Center. Scholars are required to complete an integrated seminar course offered jointly by the two consortium universities. They also must work with a faculty mentor in a year-long research effort that culminates in a publishable paper. A competitive stipend is provided.

Degree Programs in Civil and Environmental Engineering

The Department of Civil and Environmental Engineering offers degrees in transportation at both the Master of Science and Doctor of Philosophy levels. The M.S. may be earned either without thesis (requiring a minimum of 30 semester hours of credit) or with thesis (a 30-semester-hour program that includes up to 6 semester hours of credit for thesis research). Nonthesis students usually are required to complete a research paper based on independent study and must defend the paper in an oral examination. The Ph.D. degree involves a minimum of 72 semester hours beyond the B.S. degree, with up to 18 semester hours earned for dissertation research. A minimum of one year of campus residency is required.

Individuals with degrees in transportation-related disciplines as well as in civil engineering are encouraged to apply. Depending on the student’s background, it may be necessary to complete courses in statistics, computer programming, simulation, mathematics, and operations research without being able to apply the course credit to semester hours needed for the degree program.

A typical master’s program includes the following courses.

First Semester

53:262 Transportation Demand Analysis 3 s.h.
102:260 Transportation Policy and Planning 3 s.h.
102:269 Transportation Program Seminar 1 s.h.
Technical elective 3 s.h.

Second Semester

53:363 Simulation Application to Transportation 3 s.h.
102:266 Transportation and Land Use Planning 3 s.h.
102:268 Seminar in Transportation Issues 1 s.h.
One of the following:

53:199 Research: Civil and Environmental Engineering M.S. Thesis 3 s.h.
Statistics course 3 s.h.
Planning elective 3 s.h.

Third Semester

53:198 Individual Investigations: Civil and Environmental Engineering 3 s.h.
53:199 Research: Civil and Environmental Engineering M.S. Thesis 3 s.h.
Technical elective 3 s.h.

Technical electives are advanced courses in engineering operations research, computer-aided design, urban and regional planning, or economics. Specific course requirements are sufficiently flexible to conform to a student’s graduation schedule and desired area of specialization. Applications should be made through the Graduate College and the Department of Civil and Environmental Engineering.

Degree Programs in Geography

The Department of Geography offers Master of Arts and Doctor of Philosophy degrees with a specialization in transportation systems analysis. The transportation specialty draws on the resources of the College of Engineering, the Graduate Program in Urban and Regional Planning, the Department of Economics, and the Department of Geography. The specialty has a strong quantitative orientation and is designed to provide students with a broad range of skills relevant to transportation and urban and regional analysis. It also helps students develop an appreciation of political and organizational considerations affecting transportation systems and of the exigencies of practical problem solving.

M.A. students typically take five courses in transportation and urban and regional analysis, three quantitative methods courses, and four additional courses in geography or economics. The M.A. degree is available with or without a thesis. If a thesis is prepared, it can substitute for two of the courses. Students who have studied calculus as undergraduates can complete the master’s program in four semesters. Students who have not studied calculus as undergraduates or who have research or teaching assistantships may require an additional one or two semesters to complete the program.

A typical master’s program includes the following courses.

First Semester

102:260 Transportation Policy and Planning 3 s.h.
102:264 Transportation Planning Process 3 s.h.
102:269 Transportation Program Seminar 1 s.h.

Second Semester

6E:184 Introduction to Econometrics 3 s.h.
102:268 Seminar in Transportation Issues 1 s.h.
44:265 Transportation Regulation and Finance 3 s.h.
44:350 Research Seminar: Staff 1 s.h.
44:137 Economic Theory of Location 3 s.h.

Third Semester

6E:213 Managerial Economics 3 s.h.
102:262 Transportation Demand Analysis 3 s.h.
44:175 Locational Conflict 3 s.h.
44:350 Research Seminar: Staff 1 s.h.

Fourth Semester

44:350 Research Seminar: Staff 1 s.h.
44:285 Methods of Regional Analysis: Regional Science 3 s.h.
44:293 Advanced Location Theory 3 s.h.

Ph.D. students, in addition to taking the courses recommended for master’s students, are strongly encouraged to take advanced courses in areas such as economics, operations research, regional development, and location theory and analysis. Ph.D. students also are required to undertake original research leading to the preparation of a dissertation. Applications should be made through the Graduate College and the Department of Geography.

Degree Programs in Urban and Regional Planning

The Graduate Program in Urban and Regional Planning offers Master of Arts and Master of Science degrees with a sectoral major in transportation. During the first year, students
complete an integrated core curriculum, consisting of courses in planning economics and public finance, analytic methods, planning theory, collective decision making, law, and information presentation. The second year is devoted to a sectoral major, such as transportation, where core concepts are applied to a chosen area of specialization. The planning curriculum is intended to provide students with the capability to examine policy issues in transportation, devise workable options, evaluate these optional courses of action, and work toward the implementation of policy solutions.

Planning students complete a total of 48 semester hours and an internship. Twenty-seven semester hours are accounted for by the core; the sectoral major constitutes a minimum of 9 semester hours; and electives are taken to complete the remaining hours. If the thesis option is selected, up to 6 semester hours of sectoral major credit are awarded. Students may elect to complete an additional 2 semester hours of course work in lieu of an internship, bringing the total to 50 semester hours.

A typical transportation sectoral major program includes the following courses.

First and Second Semesters

Core courses (See “Urban and Regional Planning” in this section of the Catalog.)

Third Semester

102:260 Transportation Policy and Planning
102:262 Transportation Demand Analysis
102:264 Transportation Planning Process
102:269 Transportation Program Seminar
Planning elective

Fourth Semester

102:215 Field Problems in Planning
102:268 Seminar in Transportation Issues

Three of the following:

102:263 Simulation Application to Transportation
102:265 Transportation Regulation and Finance
102:266 Transportation and Land Use Planning
Planning Elective

Students select optional transportation courses according to their individual interests. Elective courses typically include the following.

102:234 Project Impact Analysis
102:236 Capital Facilities Planning and Finance
102:245 Energy and Public Utility Policy and Planning
102:295 Economic Development Policy
102:298 Development Finance and Fiscal Analysis

Applications should be made through the Graduate College and the Graduate Program in Urban and Regional Planning.

UNIFIED PROGRAM

Coordinator: Richard Sjolund
Faculty: William Albrecht (Economics), Louis Frank (Physics and Astronomy), Miriam Gilbert (English), William Head (Philosophy), Jay Holstein (Religion), Robert Ketterer (Classics), Douglas Madsen (Political Science), David Schoenbaum (History), Richard Sjolund (Biological Sciences)

Unified Program (UP) is a four-semester series of integrated general education courses for a small group of students who begin the program as entering freshmen. UP satisfies all of the College of Liberal Arts General Education Requirements except the foreign language and physical education requirements, and each UP course is interchangeable with an equivalent approved course. Students may elect to complete the program at any time and satisfy the General Education Requirements in other ways, but only first-year freshmen may enter UP. To enter UP, students must be eligible for 10:3 Accelerated Rhetoric, and must have taken a higher mathematics course in high school or have achieved an ACT mathematics subscore of 23 or above. Higher mathematics courses are courses beyond second-year algebra (advanced algebra). Course titles may include precalculus, advanced math, senior math, statistics, college algebra, or calculus.

Courses

140:40 Human Biology 4 s.h.
General principles of biology, with examples drawn from the biology of human beings; for non-science majors. GER: natural sciences.

140:42 Chemistry and Physics of the Environment 3 s.h.
Ecology of our planet; air, earth, water, noise pollution; return of pollutants to man; chemistry, physics of balance of nature. GER: natural sciences.

140:43 Humanities I 3 s.h.
Development of major ideas about the human beings and the divine in Western religion, philosophy, and literature. GER: humanities.

140:44 Humanities II 4 s.h.
Literary tradition from the Roman world to the modern, with emphasis on the Middle Ages and Renaissance. GER: humanities.

140:45 Quest for Human Destiny 3 s.h.
Quests for destiny in terms of perceived options, goals and ability to recognize, pursue, achieve them. GER: humanities.

140:46 Principles of Reasoning 3 s.h.
Logic and its applications. GER: quantitative or formal reasoning.

140:47 Political Science 3 s.h.
Focus on patterns, basis of political behavior, emphasis on common elements across social, organizational, institutional settings. GER: social sciences.

140:49 Historical Perspectives 3 s.h.
The American, French, industrial revolutions; how they have changed the world and people’s lives during past 200 years. GER: foreign civilization and culture, historical perspectives.

140:50 Civilizations of Asia 3 s.h.
GER: historical perspectives.

140:55 Rhetoric 4 s.h.
Academic writing, reading, speaking. GER: rhetoric.

140:87 Principles of Microeconomics 3 s.h.
Organization, working of modern economic systems; role of markets, prices, competition in efficient allocation of resources and promotion of economic welfare; alternative systems; role of government; international trade. GER: social sciences.

URBAN AND REGIONAL PLANNING

Chair: Cheryl K. Contant
Professors: David J. Forkenbrock, John W. Fuller
Professor emeritus: James L. Harris
Associate professors: Cheryl K. Contant, Peter S. Fisher, James W. Stoner, James A. Throgmorton
Assistant professors: Heather L. MacDonald, Alan H. Peters, John G. Shaw
Adjunct lecturer: Karin A. Franklin
Graduate degrees: M.A., M.S. in Urban and Regional Planning

Urban and regional planning is a dynamic field encompassing the development of public policy alternatives to improve the quality of life in cities and regions. Today’s planners find themselves in demand for such diverse jobs as urban transit planner, zoning administrator, environmental analyst with a state pollution control agency, economic development planner for rural communities, regional solid waste management coordinator, state public health planner, nonprofit neighborhood organization planner, state legislative analyst, and transportation consultant.

The University of Iowa planning program is a two-year master’s program fully accredited by the Planning Accreditation Board. The program is based 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.

As an independent academic unit administratively aligned with the Graduate College, the program has benefited from an opportunity to develop its curriculum and faculty interests without the constraints imposed by affiliation with another discipline or professional field.

Faculty and students in the University’s planning program bring to each other a wide range of experience and education. Academic backgrounds of the faculty include planning, public policy, economics, geography, and engineering. The program’s students have diverse undergraduate majors, including economics, political science, geography, architecture and landscape architecture, environmental sciences, engineering, anthropology, sociology, urban studies and planning, English, biological sciences, history, classics, and philosophy. Usually, about 40 percent of the program’s 50 to 60 graduate students are women. Largely because of the common core of courses, students get to know each other quickly; a significant portion of the educational experience takes place in informal discussion.

Recent graduates of Iowa’s planning program have taken positions with city, metropolitan, and regional planning agencies, in state and federal government, in nonprofit organizations, and in private consulting firms. Recent graduates have taken positions in all geographic regions of the United States and in several foreign countries.
### Graduate Programs

The planning curriculum is a 48-50 semester-hour program encompassing two academic years. It includes 27 semester hours of core courses, 9 semester hours of sectoral major courses, and 12-14 semester hours of free electives. The curriculum is based on the philosophy that planners must develop the theoretical and analytical skills that will permit them to analyze social problems and evaluate public policies, as well as the professional skills (e.g., report writing, presentations, team management) that will allow them to function effectively in various organizational and political environments.

#### Core Curriculum

At the heart of The University of Iowa planning program is a unique integrated core curriculum, which occupies the first academic year. The function of the core is to help 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. The core also is designed to help students develop the ability to identify social goals and normative criteria for evaluating public policies, and the analytic skills, both quantitative (e.g., statistics, forecasting, surveys, regional analysis) and nonquantitative, to perform such investigations. In total, the core accounts for 27 semester hours.

Courses in the first semester are drawn primarily from traditional disciplines, particularly economics and statistics, together with an introduction to the theories and practice of planning. As students proceed through the core, increasing emphasis is placed on the development of critical judgment and insight in the application of theory through realistic planning problems and actual case studies. Students may request a waiver of selected core courses on the basis of previous course work.

Core curriculum courses are noted in the typical class schedule that follows.

<table>
<thead>
<tr>
<th>FIRST SEMESTER</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>102:203 History and Theories of Planning</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>102:205 Economics for Policy Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>102:210 Introduction to Analytic Methods</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>102:212 Planning Information and Communication</td>
<td>3 s.h.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>SECOND SEMESTER</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>102:204 Collective Decision Making</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>102:206 Economics for Policy Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>102:211 Intermediate Analytic Methods</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>102:213 Land Use Planning: Law and Practice</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>THIRD SEMESTER</th>
<th></th>
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<tbody>
<tr>
<td>Electives and sectoral major courses 12-14 s.h.</td>
<td></td>
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</tbody>
</table>

<table>
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<tr>
<th>FOURTH SEMESTER</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>102:215 Field Problems in Planning</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Electives and sectoral major courses</td>
<td>9 s.h.</td>
</tr>
</tbody>
</table>

#### The Sectoral Major

The second year of the program is directed toward developing an area of concentration, termed a sectoral major, by applying the concepts and skills developed in the core to a specific problem area. Students fulfill the sectoral major requirement by completing 9 semester hours of credit in courses offered in the planning program and by other departments and schools of the University.

Currently, there are five sectoral majors supported by faculty and course offerings within the planning program—transportation planning, housing and community development, economic development, environmental planning, and infrastructure planning. Students may design other sectoral majors, subject to faculty approval. For example, a student can major in health services planning with appropriate course work in the Department of Health Administration or Preventive Medicine and Environmental Health, or in human services planning with courses in the School of Social Work. Other sectoral majors developed by students include land use, public utility and energy planning, and urban management.

#### Options

**THESIS**

A thesis is not required, although students may petition to write one. Students may register for up to 6 semester hours of thesis credit. In addition, they may take up to 8 semester hours of readings to develop a thesis topic and prepare a literature review. Students may apply 3 semester hours of readings to the sectoral major requirement and substitute the thesis for the portfolio.

**INTERNSHIP**

Students are encouraged to complete an internship in a planning or related agency or organization. To obtain the 2-semester-hour credit reduction, the student must submit a brief paper summarizing and evaluating the experience. Internships usually are paid staff positions and are completed during the summer between the first and second years.

#### 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. The practicum carries 3 semester hours of course credit and substitutes for the required field problems course, 102:215, as well as permitting the 2-semester-hour reduction in degree requirements for the internship.

#### Other Requirements

Students who complete the optional internship must earn 48 semester hours of credit for the planning degree. Students may complete an additional 2 semester hours in lieu of the internship, bringing the total to 50 hours. All core and sectoral major courses must be completed with a grade of B- or better, and students must attain an overall graduate grade-point average of 3.00 or better.

### Joint Programs

#### Law

The Urban and Regional Planning Program and the College of Law cooperate in administering a program that satisfies the degree requirements leading to an M.A. in planning and a J.D. in law. The program usually requires four years to complete, a reduction of one academic year from the total requirements of the two programs taken separately. It may be completed in less time if the student chooses the accelerated law program. Separate admission to each academic unit is required.

Law is the most popular of the joint degree programs. Students in the planning and law program typically seek employment as attorneys, especially in law firms that specialize in land use or environmental law; as city managers; as city planners or planning administrators; or in advocacy organizations.

#### Engineering

A program combining a bachelor’s degree in engineering with a master’s degree in urban and regional planning has been developed for students who want to pursue a planning career in the public or private sector. Students in the program may earn a B.S. in engineering and an M.A. or M.S. in planning in a total of five or more academic years.

Students should apply for the joint program when they apply for admission to the engineering college or before they complete their sophomore year following matriculation. Applicants should submit a letter requesting admission to the program to the College of Engineering, The University of Iowa.

Students apply to the graduate planning program near the time when they are completing their engineering bachelor’s degree requirements. They should be prepared to meet the admission requirements of the graduate program at that time.

Engineering students complete the planning core in the last two years of their undergraduate program. After graduating from the College of Engineering and while enrolled in the graduate program in urban and regional planning, students fulfill the sectoral major requirement by completing 9 semester hours of credit in courses offered by various departments and schools of the University, including the graduate planning program and the engineering college.

Each combined degree student is assigned an adviser from engineering and one from planning. During the first four years of the program, students work primarily with their engineering adviser and a designated person in the office of the College of Engineering. For the fifth year, students confer with their graduate planning adviser.

#### Preventive Medicine and Environmental Health

Students may elect a joint master’s degree option with urban and regional planning and the Department of Preventive Medicine and Environmental Health in the College of Medicine. This option results in an M.A. in
planning and an M.S. in preventive medicine and environmental health. 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.

A total of 61 to 62 semester hours of credit is required; the two degrees generally can be earned in two and one-half years. Separate admission to each academic unit is required.

**Hospital and Health Administration**

Students interested in health planning may wish to enroll in a joint program between urban and regional planning and the Department of Hospital and Health Administration in the College of Medicine. This three-year program, which requires 69-74 semester hours, leads to an M.A. in planning and an M.A. in hospital and health administration. Course work is reduced by one year from the separate requirements of the two programs. Separate admission to each academic unit is required.

The hospital and health administration 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 degree program typically find employment in hospitals, state departments of health, and other private, nonprofit, or public health agencies.

**Economics**

Planning students who wish to strengthen their skills in economic analysis may enroll in the joint program with the Department of Economics. The combination of economics and applied policy analysis and planning is valuable for students who want to obtain jobs such as state economic development planner, analyst with a public utility regulatory commission, or fiscal analyst for a state legislature or revenue department.

The program requires a total of 60 to 63 semester hours of credit and usually can be completed in five semesters. Students earn an M.A. in planning and an M.A. in economics.

**Social Work**

For those interested in a career in social service delivery or human services planning, a joint program is offered in urban and regional planning and the School of Social Work, leading to an M.A. in planning and an M.S.W. in social work. Planning positions are available with city planning agencies, nonprofit social service agencies, and state human services departments.

A total of 86 semester hours is required for the two degrees. This is a reduction of 22 semester hours from the requirements of the two programs taken separately. It is possible to complete the program in three years, although some students may require an additional semester. Separate admission to each academic unit is required.

**Transportation**

The Transportation Studies Program is administered through the University’s Public Policy Center. A transportation certificate is awarded to students who satisfactorily complete a prescribed set of courses in transportation. These courses are taught in urban and regional planning, engineering, geography, and economics. The certificate program allows planning students with sectoral majors in transportation to extend their training and obtain an additional credential. For more information, see “Transportation Studies” in this section of the Catalog.

**Financial Aid**

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 research assistantships.

Assistantships typically require ten hours of work per week under the direction of a faculty member. A limited number of tuition scholarships also is available.

Students initiate applications for financial support, and awards are made on the basis of merit, experience, and interests. Assistantships may be renewed for up to a total of four semesters. The planning program has been successful in providing support to a majority of its students.

Students applying for financial aid are encouraged to submit application materials and aid requests in January or February, and no later than March 15. Students who apply after that date will be considered only as remaining funds permit. Financial aid is not usually available for students beginning the program in spring semester.

**Admission**

Admission to the Urban and Regional Planning Program is open to students from any undergraduate major or area of concentration.

Admission is based on Graduate Record Examination (GRE) General Test scores (verbal, quantitative, and analytical), letters of recommendation, previous academic performance, and a written statement of purpose.

Applicants should submit the application form, GRE General Test scores, recommendation letters, statement of purpose, and transcripts early in the spring for fall admission (although applications are still accepted until July 15), or by December 1 for spring admission. Fall admission is strongly preferred. Students applying for financial aid should submit their materials by March 15 or earlier (see “Financial Aid” in this section of the Catalog).

**Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>102:000</td>
<td>Cooperative Education Internship</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>102:101</td>
<td>Introduction to Planning and Policy Development</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>102:123</td>
<td>Introduction to Environmental Policy and Planning</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>102:133</td>
<td>Introduction to Economics of Transportation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>102:134</td>
<td>Methods of Transportation Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>102:143</td>
<td>Urban Transportation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>102:144</td>
<td>Women and the City</td>
<td>1.5 s.h.</td>
</tr>
<tr>
<td>102:203</td>
<td>History and Theories of Planning</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>102:205</td>
<td>Economics for Policy Analysis I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>102:206</td>
<td>Economics for Policy Analysis II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>102:210</td>
<td>Introduction to Analysis Methods</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>102:211</td>
<td>Intermediate Analytic Methods</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>102:212</td>
<td>Planning Information and Communication</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>102:213</td>
<td>Land Use Planning Law and practice</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>102:215</td>
<td>Field problems in Planning</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>102:219</td>
<td>Practicum</td>
<td>1.5 s.h.</td>
</tr>
<tr>
<td>102:223</td>
<td>Land Use Controls Seminar</td>
<td>1.5 s.h.</td>
</tr>
</tbody>
</table>
102:234 Project Impact Analysis 3 s.h. Analysis and evaluation of economic, social, environmental, and fiscal impacts of major public and private policies or projects; techniques for analysis, evaluation, case studies, projects.

102:236 Capital Facilities Planning and Finance 2-3 s.h. Overview of current public infrastructure problems; methods of planning size, location, and timing of utility networks and other capital facilities; municipal bond financing; service pricing; alternative institutional arrangements, such as privatization of special districts, and municipal enterprise. Prerequisite: 102:206 or consent of instructor.

102:238 Ethical Dilemmas in Professional Practice 3 s.h. Ethical considerations in professional decision making; conflicts of interest; client relationships; ethical responsibilities versus organizational roles and career aspirations.

102:242 Environmental History and Theories 3 s.h. Historical, political, and theoretical examination of public policy toward the natural environment; assessment of the role of planners and policy analysts in guiding environmental change; may include problem scenarios, role, playing.

102:244 Advanced seminar in Environmental Policy 3 s.h. Current environmental issues, approaches to problem solving, methodologies, ethical concerns; topics vary.

102:245 Energy and Public Utility Policy and Planning 3 s.h. Function and organization of public utilities; planning techniques and procedures related to regulated utilities, legal, historical, and economic background necessary for informed utility planning.

102:246 Nonpoint Pollution Policy 3 s.h. Causes and consequences of nonpoint sources of pollution; emphasis on alternative policy mechanisms to control urban and rural pollution sources, current programs, key to success.

102:254 Introduction to Environmental Processes and policy 1-2 s.h. Natural environmental processes and systems; contemporary policies and programs to protect environmental systems and resources.

102:260 Transportation Policy and Planning 3 s.h. Institutional setting for transportation services, changing roles of the various levels of government; impact of alternative pricing and investment policies on efficiency and equity; financing options and user charges; theory and case studies.

102:261 Problems in Transportation and Land Use 1-3 s.h. Policy problems of local or state interest in Iowa such as highway finance, truck user fees, inland waterway investment, cost/benefit analysis of major freeway segments, rail/road line abandonment, rural transit evaluation; individual projects from issue identification to presentation of results to potential clients.

102:262 Transportation Demand Analysis 3 s.h. 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. Same as 53:262.

102:263 Simulation Application to Transportation 3 s.h. Same as 53:163.

102:264 Transportation Planning Process 2-3 s.h. Technical issues, political interface, citizen involvement, intermodal questions, public versus private roles; critiques of transportation plans.

102:265 Transportation Regulation and Finance 3 s.h. Theoretical and methods of regulating and financing passenger and freight transportation; effects of deregulation of surface and air transport modes and of changing finance and pricing policies, including privatization and impact fees. Same as 44:265.

102:266 Transportation and Land Use Planning 3 s.h. Transportation theories and models: land use relationships, political, legal, institutional frameworks; neighborhood traffic control; land use impacts on transit and alternative transportation modes.

102:268 Seminar in Transportation Issues 1 s.h. Students from diverse departments interact with faculty, business executives, public sector leaders, and other speakers with specialized knowledge in transportation.

102:269 Transportation program Seminar 1 s.h. Transportation finance, safety and economic regulation, planning processes, management, government policy issues at the federal, state, and local levels. May be repeated.

102:271 Housing Policy and Finance 3 s.h. Critical analysis of housing policy at the federal, state, and local levels; income housing finance and development; public housing management; problems in low income housing preservation; trust funds and land trusts; public/private partnerships, community development organizations.

102:273 Community Housing Strategies 3 s.h. State and local housing policy; role of nonprofit sector, public/private housing partnerships; non federal housing strategies for affordable and low income living; special needs housing; neighborhood/small town preservation.


102:291 Urban and Regional Development 3 s.h. Urban and regional economics from a sectoral, and locational perspectives; emphasis on modern theories of industrial location and spatial theories of firm growth. Prerequisite: 102:206 or consent of instructor.

102:295 Economic Development Policy 3 s.h. Analysis of policies and programs at the national, regional, state, and local levels that address problems of economic growth, development, decline. Prerequisite: 102:206 or consent of instructor.

102:298 Development Finance and Fiscal Analysis 1-3 s.h. Financial markets and institutions, discounting, bonds, financial statements; evaluation of government participation in small business financing; state and local government budgeting and finance; evaluation of tax and expenditure programs; fiscal impact assessment.

102:305 Readings arr. 1-3 s.h. 102:315 Independent Study in Planning 3-6 s.h. Research and analysis of a special planning problem; opportunity for student to apply knowledge in area of specialization.


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102:305 Readings arr. 1-3 s.h. 102:315 Independent Study in Planning 3-6 s.h. Research and analysis of a special planning problem; opportunity for student to apply knowledge in area of specialization.


102:291 Urban and Regional Development 3 s.h. Urban and regional economics from a sectoral, and locational perspectives; emphasis on modern theories of industrial location and spatial theories of firm growth. Prerequisite: 102:206 or consent of instructor.

102:295 Economic Development Policy 3 s.h. Analysis of policies and programs at the national, regional, state, and local levels that address problems of economic growth, development, decline. Prerequisite: 102:206 or consent of instructor.

102:298 Development Finance and Fiscal Analysis 1-3 s.h. Financial markets and institutions, discounting, bonds, financial statements; evaluation of government participation in small business financing; state and local government budgeting and finance; evaluation of tax and expenditure programs; fiscal impact assessment.

102:305 Readings arr. 1-3 s.h. 102:315 Independent Study in Planning 3-6 s.h. Research and analysis of a special planning problem; opportunity for student to apply knowledge in area of specialization.

WOMEN’S STUDIES

Chair: Susan Birrell
Professors: Janet Altman (French and Italian), Susan Birrell (Women’s Studies/Sport, Health, Leisure, and Physical Studies), Florence Boos (English), Patricia Cain (Law), Sharon Crow (Linguistics), Ursula Delworth (Psychological and Quantitative Foundations), Mary Dudzak (Law), Roslyn Frank (Spanish and Portuguese), Sarah Hartley (History), Linda Kerber (History), Kenneth Kutne (Religion), Jean Love (Law), Adelaide Morris (English), Catherine Ringen (Linguistics), Carol de Saint Victor (English), Margaret Wolf (Women’s Studies/Anthropology), Ann Roberts (Art and Art History), Rebecca Roberts (Women’s Studies/Women’s Studies), Jane Desmond (American Studies/Women’s Studies/Anthropology), Constance Berman (History), Florence E. Babb (Women’s Studies/Women’s Studies).

Associate professors: Roberta Biesecker (Rhetoric), Diana Cates (Religion), Anne Donadey (Women’s Studies/Comparative Literature), Michelle Elisson (Nursing), Lingxin Hao (Sociology), Kathleen Higgins (History), Kathleen Janz (Sport, Health, Leisure, and Physical Studies), Sally Kenney (Women’s Studies/Political Science), Kevin Kopelson (English), Sue A. LaFky (Journalism), Susan Lawrence (History/Medicine), Heather MacDonald (Urban and Regional Planning), Teresa Mangum (English), Kim Marra (Theatre Arts), Rebecca Rogers (History), Leslie Schwalmb (History), Robin Simon (Sociology), Claire Sponsler (English), Mary Whelan (Anthropology).

Graduate degree: minor in Women’s Studies

The Women’s Studies Program is a multidisciplinary program 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, which frequently is 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. These courses may be used to establish a field of concentration within the Women’s Studies Program or to apply to majors in other disciplines.

Undergraduate Study

Undergraduates interested in women’s studies may develop programs in relation to course work in a major, as part of an area of concentration within the Bachelor of Arts in interdisciplinary studies, as a minor, or as a set of electives to satisfy general interest.

It is strongly recommended that students contemplating a concentration in women’s studies take 131:101 Introduction to Women’s Studies.

Minor

Undergraduate students may complete a minor in women’s studies by taking 15 semester hours of courses associated with the program, including at least 12 semester hours taken at The University of Iowa in 100-level courses; they must maintain a 2.00 grade-point average in these courses.

It is strongly recommended that students minoring in women’s studies take 131:101 Introduction to Women’s Studies and 131:151 Feminist Theory. Only one section of 131:150 Topics in Women’S Studies may be counted toward the minor.

Since women’s studies is an interdisciplinary program, students contemplating a minor should choose their women’s studies course work from several different disciplines.

Graduate Study

Graduate students in master’s or doctoral programs may choose a comprehensive area in women’s studies within existing disciplines. Graduate students who want to pursue the Ph.D. in women’s studies should file a plan of study for the ad hoc interdisciplinary Ph.D. through the Graduate College. Students first must be granted admission by a department of the University.

Information on faculty members in various departments who direct graduate study is available from the Women’s Studies Program.

Associated Courses

The departmental courses listed below are associated with the Women’s Studies Program and may be applied toward a concentration or a
minor in women’s studies. Women’s studies courses for University credit also are offered by the Saturday and Evening Class Program and by Guided Correspondence Study.

In addition to the following courses, many departments sometimes offer additional courses focusing on women.

**AFRICAN-AMERICAN WORLD STUDIES**

129:120 Images of Black Women in Modern American Fiction 3 s.h.

**ANTHROPOLOGY**

133:132 Latin American Studies Seminar (Film and the Politics of Gender) 3 s.h.
113:140 Valuing Tradition(s) and Polities of Value 3 s.h.
113:147 Special Topics in Anthropology (Gender and Development Studies) 2-3 s.h.

**BUSINESS ADMINISTRATION**

6j. 242 Managing and Valuing Diversity 3 s.h.

**COMMUNICATION STUDIES**

*36R:602 Seminar: History of Rhetorical Theory (rhetoric, feminisms, and social change) 1-4 s.h.

**ENGLISH**

8G:15 Women and Literature 3 s.h.
87.74 Selected American Authors: Zora Hurston and Gloria Naylor 3 s.h.
8:99 Undergraduate Seminar: Women’s Fiction in Latin America 3 s.h.
*8.110 Selected Authors: Woolf and Lessing 3 s.h.
8:114 Post Colonial Studies (Women’s Writings of the Anglophone Caribbean) 3 s.h.
8:160 Selected Themes in Literary Works: Women in Medieval Literature 3 s.h.
8:177 Literature and Art: Virginia Woolf and the Bloomsbury Group 3 s.h.
8:246 Modernist Crosscurrents: Modernism and Gender 3 s.h.
*8:432 Seminar Victorian Literature: Victorian Women Poets 3 s.h.
*8:434 Seminar: Twentieth-Century British Literature 3 s.h.
*8:435 Seminar: Twentieth-Century British and American Literature: Breathing the Sequence: Modern and Post-Modern Women’s Experimental writing 3 s.h.

**HISTORY**

16:15 Issues: Women in Historical Perspective 3 s.h.
*16:159 Medicine, Science and Social Change 3 s.h.
16:210 Readings: Medieval Women 3 s.h.
16:258 Readings: Women in European History 3 s.h.
16:259 Seminar: Women in European History 3 s.h.
16:269 Readings on the American South: Gender and Race in American History 3 s.h.
16:281 Feminist Legal Harms Seminar: History and Theory 3-4 s.h.

**PSYCHOLOGICAL AND QUANTITATIVE FOUNDATIONS**

*7P:354 Seminar: Experimental Approaches in Counseling Research 3 s.h.

**RELIGION**

32:71 Sexual Ethics 3 s.h.

**RHETORIC**

*10:199 Special Projects (Rhetorics of American Feminisms) 3 s.h.
10:604 Seminar: Contemporary Rhetorical Theory: Rhetoric and French Feminism 2-4 s.h.

**SPANISH AND PORTUGUESE**

35:173 Latin American Women Writers 3 s.h.
35:184 20th Century Spanish Women Writers 3 s.h.

**THEATRE ARTS**

49:118 American Women Playwrights: 19th and 20th Century 3 s.h.

*Only certain sections of these courses are women’s studies courses.

**Courses**

### Core Courses

131:55 (Jender, Race, and Class in the United States: How the intersection of gender, race, class affects individual experience, national ideology, social institutions; interdisciplinary perspective) 3 s.h.
131:101 Introduction to Women’s Studies (Introduction to feminist interdisciplinary study of women’s lives, including work, family, sexuality, political and social change, race, class, sexual orientation, cultural traditions) 3 s.h.
131:102 Physiological Research on Women in sport (Physiological capabilities, responses to training, factors specific to pregnancy, childbirth, gender-related injuries) Same as 28:174. 3 s.h.
131:108 Women and Society (Role and status of women in society; sex differences, sex role socialization, theories about origin and maintenance of sexual inequalities, changes its social life cycles of women, implications for social institutions and processes; focus on contemporary United States. Same as 34:108) 3 s.h.
131:111 Religion and Women (Sexism and its disavowal in biblical narrative, law, wisdom texts, Gospels, epistles; contemporary impact. GER: humanities. Same as 32:121) 3 s.h.
131:119 Women, Marriage, and Family in Medieval Europe (GER: foreign civilization and culture. Same as 16E:119) 3 s.h.
131:124 Gender and the Environment (Relationships between gendered human activities and environmental problems in developed and less-developed regional contexts; role of women’s activism in environmental movements; analysis of ecofeminist perspective. Same as 44:124. Prerequisite: 44:19 or introductory women’s studies course) 3 s.h.
131:127 Black Women Writers (Same as 8:118, 129:127) 3 s.h.
131:128 The Black Woman in America (3 s.h. Position, experience, cultural interpretations, mythology, societal roles of Black women, especially in the Caribbean and the United States, through literary, historical, sociological, psychological, anthropological sources. Same as 129:128) 3 s.h.
131:140 The Culture of American Women (3 s.h. Women’s experience in America; focus on relationship between individual lives and broad social and cultural context. Same as 45:140) 3 s.h.

[Cross-Listed Courses](#)

131:40 Gender in the U.S. (Sex roles, gender relations and femininity) 3 s.h.
131:42 Women and Work in the U.S. (Women in American workplace, pink collar, housework; gender and division of labor; sexual harassment; affirmative action. Same as 45:42) 3 s.h.
131:44 Lesbian Lives in the U.S. (Diversity of lesbian experience in America; focus on issues of race, class, education, family and personal relationships. Same as 45:44) 3 s.h.
131:52 Gender and Film (Position of women in Hollywood, alternative cinemas; contributions of feminist film scholars, critics to field. Same as 36:52) 3 s.h.
131:87 Gender Roles and Communication (Analysis of research and theory on sex roles and communication processes, including function of communication in sex role development Same as 36C:87) 3 s.h.
131:102 Physiological Research on Women in sport (Physiological capabilities, responses to training, factors specific to pregnancy, childbirth, gender-related injuries) Same as 28:174. 3 s.h.
131:108 Women and Society (Role and status of women in society; sex differences, sex role socialization, theories about origin and maintenance of sexual inequalities, changes its social life cycles of women, implications for social institutions and processes; focus on contemporary United States. Same as 34:108) 3 s.h.
131:111 Religion and Women (Sexism and its disavowal in biblical narrative, law, wisdom texts, Gospels, epistles; contemporary impact. GER: humanities. Same as 32:121) 3 s.h.
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131:128 The Black Woman in America (3 s.h. Position, experience, cultural interpretations, mythology, societal roles of Black women, especially in the Caribbean and the United States, through literary, historical, sociological, psychological, anthropological sources. Same as 129:128) 3 s.h.
131:140 The Culture of American Women (3 s.h. Women’s experience in America; focus on relationship between individual lives and broad social and cultural context. Same as 45:140) 3 s.h.
131:146 Women and the City 1,3 s.h.
Implications of changing family structure and gender roles for
the urban environment and for planning and urban policy;
where women live and why, restructuring housing and
neighborhoods for women, economic development and
employment, the feminization of poverty, child care policy,
transportation and accessibility for women, in the global
economy. Same as 102: 146.

131:147 Language and Gender 3 s.h.
Gender related language variation; current research on
gender specific linguistic forms and usage in the United States,
other language communities; introduction to relevant principles
of linguistic theory, analysis. Same as 103: 150, 113: 173.

131:153 Women, Sport and Culture 3 s.h.
Feminist analysis of girls' and women's sports experiences,
including reproduction of gender through sport, recent changes
towards women's intercollegiate athletics, media representations
of women's sports, feminist critiques and alternatives to sport. Same
as 28:176.

131:156 Women's Roles in Cross-Cultural Perspective 3 s.h.
Theory, research on origins of women's oppression, current
status of women, work and family roles, links between sex,
race, class inequalities. Same as 113:156.

131:157 Gender on Stage 3 s.h.
How gendered bodies and roles are displayed on stage; popular,
elite, experimental, traditional, mass media theater, dance,
music; topics include performing gender in everyday life,
theorizing spectatorship, politics of drag. Feminist theater
Graduate standing or consent of instructor required. Same as
45:157.

131:159 Regional Women Writers 3 s.h.
Writings of women whose consciousness has been shaped
through association with cultural, political, and/or linguistic
pressures of a particular geographical location. Same as 8:159.

131:161 Women in Literature 2-3 s.h.
Women as portrayed in literature and as writers and/or readers
of literature; genres, periods, authors; feminist perspectives on
study of literature. Same as 1.8-161.

131:162 Women in African History 3 s.h.
Narratives of African women's lives in nineteenth and twentieth
centuries: gender relations in Africa; women and African
slavery; women's roles in economic development, urban society,

131:163 Post-Colonial Literatures by Women 3 s.h.
Contemporary works by women writers from North Africa,
West Africa, and the Caribbean. English translations of French
originals. Same as 48:163.

131:166 Themes and Modes in Literature by Women 3 s.h.
Specific theme, such as women and sexuality, or a particular
formal mode, such as experimental novel. Same as 8: 166.

131:169 Changing Concepts of Women in Literature 3 s.h.
Textual, cultural changes in concepts of women presented in
and between periods of literary history; changes in novel
conventions for portraying women from eighteenth through
nineteenth centuries, or changes in dramatic presentation of
women from Middle Ages through Renaissance. Same as 8:169.

131:171 Women in America: Colonial Period to 1870 3 s.h.
American history through women's eyes; emphasis on
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.

131:172 Women in America: 1870-Present 3 s.h.
From passage of Fourteenth Amendment to present; emphasis
on suffrage movement, economic roles, educational patterns.
Same as 16A: 172.

131:173 U.S. Women's Legal History 3 s.h.
Same as 16A:173.

131:180 Women and the Law 3 s.h.
How laws classify, construct, affect women; readings span
subfields including criminal, family, labor, constitutional law;
selected works of feminist jurisprudence. Same as 30: 174.

131:181 Society and Gender in Europe, 1200-1789 3 s.h.
How ideas about community were influenced by gender
discourses inscribed in patterns of authority-household, church,
state; ranges of human endeavor-intellectual, psychological,
biological; community organization-social, economic, legal,
sexual. GER: foreign civilization and culture. Same as 108:125.

131:182 Society and Gender in Europe, 1780-Present 3 s.h.
Social structures, gender roles in modern Europe; changes in
politics, social organization, social relationship of sexes
(education, sexuality, occupation), forms of social pretor
(feminism, socialism). GER: foreign civilization and culture.
Same as 16E:148.

131:18B Prose by Women Writers 3 s.h.
Nonfiction, largely contemporary; style and content, redefinition
of form and tradition of essay. Woolf, Dalston, Didier, Walker.
Same as 8:188.

131:190 Feminist Perspectives on Biology and Culture 3 s.h.
Feminist anthropological writings on gender in past cultures;
evolution and function of gendered roles; importance of gender
in human evolution; beginnings of state-type societies and
Subordination of women; cross-cultural variations in division of
labor; biological versus culturally constructed differences
between men, women. Same as 113:190.

131:194 introduction to Feminist Criticism 3 s.h.
Precursors, early formulations, debates between feminist critics,
feminist challenges to other theoretical models. Prerequisite:
101:101 or consent of instructor. Same as 8:194, 48:194.

131:197 Gender in Chinese Literature and Culture 3 s.h.
Changing image of woman in modern Chinese history through
analysis of literary texts, films by women authors of different
periods. Same as 39:197.

131:220 seminar: Feminist Anthropology 3 s.h.
Contemporary, traditional anthropological issues from a feminist
perspective. Prerequisite: background in feminist theory,
anthropology. Same as 113:220.

131:229 Feminist Ethics 3 s.h.
Same as 32:229.

131:240 Women and Television in American Culture 3 s.h.
Relationships between women and television through feminist
critical scholarship, cultural analysis. Same as 3BM:230,
45:240.

131:245 Seminar: Feminist Ethnography 3 s.h.
Feminist critiques of traditional ethnographies; analysis of
ethnographies informed by contemporary feminism. Consent
of instructor required. Same as 113:221.

131:246 Difference in Latin American Literature: The Representation of Gender Arrangements 3 s.h.
Construction of female identity in Latin American narratives,
short stories, poems, films; investigation of possibilities, impossibilities
of the feminine in Latin American literature. Same as 35:246.

131:254 History of Women in Sports 3 s.h.
Women's sport involvement from ancient times to present;
focus on social class, attitudes, religion, race, ethnicity, media
opinion, economic considerations, political events, educational
philosophies that have influenced women's sport participation.
Same as 28:278.

131:245 Feminist Criticism 3 s.h.
Central topic, such as new French feminists, Marxist
feminism, feminism and popular culture. Same as 8:265,
48:265.

131:269 Feminist Legal Thought 3 s.h.
Contemporary feminist critiques of legal doctrine, analysis,
method; redefinition of legal problems through application of
diverse feminist approaches; interdisciplinary comparison of
feminist legal thought to feminist scholarship in social sciences,
humanities. Same as 91:269.

131:270 Readings in American Women’s History arr.
Older literature as well as work of last decade; focus on use of
gender as an analytical device, changing social relations of the
sexes over long periods of time, concept of separate spheres, sex
segregation in workplace, gender and deviance, feminism and politics,
women's history as intellectual history. Same as
16:270.

131:283 Feminist Theory: Historians' Perspectives arr.
Same as 16:283.

Same as 16:284.

131:355 Women and Politics 3-4 s.h.
Same as 30:355.
College of Business Administration

Accounting . . . . . . . . . . . . . . . 265
Economics . . . . . . . . . . . . . . . . 267
Finance . . . . . . . . . . . . . . . . . . 269
Management and Organizations . . . 270
Management Sciences . . . . . . . . . 272
Marketing . . . . . . . . . . . . . . . . 273

Dean: Gary C. Fethke
Acting senior associate dean, academic affairs:
Colin E. Bell
Associate dean, undergraduate programs: Duane E. Thompson
Associate dean, graduate programs: W. Bruce Johnson
Assistant dean, operations: Myron P. Mustaine, Jr.
Assistant dean, management and business development: Nancy C. Noth
Degrees: B. B.A., M. B.A., M.A., Ph.D.

The John Pappaiohn Business Administration Building
The College of Business Administration is composed of six academic departments: accounting, economics, finance, management and organizations, management sciences, and marketing.

The undergraduate and graduate programs of the college are accredited by the American Assembly of Collegiate Schools of Business.

Research, executive development, and continuing education activities are supported by the centers and institutes of the college: the Office of Management and Business Development, Financial Markets Institute, Industrial Relations Institute, Institute for Economic Research, Management Center, Manufacturing Productivity Center, Institute for Entrepreneurial Management, Ira B. McGilladrey Institute for Accounting Research, and Small Business Development Center.

Undergraduate Program

Bachelor of Business Administration

The college offers the Bachelor of Business Administration (B.B.A.) in all six departments and in business administration. B.B.A. students complete background studies either in the College of Liberal Arts at the University of Iowa or at another institution and usually enter the College of Business Administration as juniors.

The B.B.A. degree currently requires 120 semester hours of credit, of which at least 48 semester hours must be earned in business courses and at least 48 in nonbusiness courses. Students admitted to the University in fall 1994 and after must earn at least 48 of the 120 semester hours in business courses and at least 60 semester hours in nonbusiness courses.

The last 30 consecutive (or at least the last 60) semester hours must be earned in residence following admission to the College of Business Administration. At least 24 semester hours of credit in courses offered by the College of Business Administration and at least two-thirds of the semester hours of credit 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 and all work by correspondence, including University of Iowa Guided Correspondence Study courses.

To graduate, B.B.A. candidates must have a cumulative grade-point average of at least 2.00 in all college course work attempted, all college course work attempted in business, and all college course work attempted in the major. They also must have a grade-point average of at least 2.00 at The University of Iowa in all course work attempted, all business course work attempted, and all course work attempted in the major.

Common Requirements

B.B.A. candidates admitted to the college fall 1994 and after must satisfy the following minimum common requirements or approved equivalents.

- Rhetoric 10:1 and 10:2, or 10:3 4-8 s.h.
- 22M:17 and 22S:4 Quantitative Methods I and II 8 s.h.
- Natural science (excluding math) 3 s.h.
- Historical perspectives 3 s.h.
- Foreign civilization and culture 3 s.h.
- Humanities (including 8G:1 Interpretation of Literature) 6 s.h.
- Social sciences (excluding 6E:1 and 6E:2) 6 s.h.

In addition, students must complete a major area of study. The majors offered by the college are business administration, accounting, economics, finance, industrial relations and human resources, management sciences, and marketing. With the exception of the major in business administration, the requirements for each are established by the departments of the college.

Students with Associate of Arts Degrees

Students who receive Associate of Arts (A.A.) degrees from Iowa Area Community Colleges participating in the Iowa Community College/Regents Articulation Agreement are considered to have met the rhetoric, natural science, historical perspectives, and humanities requirements, but not the foreign civilization and culture requirements. The program of study for which the A.A. was awarded must have included:

- a minimum of 60 semester hours (90 quarter hours) of credit acceptable toward graduation from The University of Iowa (mathematics courses comparable to 22M:1 Basic Algebra I, 22M:2 Basic Algebra II, and 22M:3 Basic Geometry are not accepted toward graduation);
- completion of the agreed-upon group of courses at the community college; and
- a 2.00 minimum grade-point average.

Students who use the provisions of the articulation agreement are granted a maximum of 60 semester hours of transferable credit from all sources toward the 120 semester hours required for a B.B.A. If a student has earned more than 60 semester hours of credit in completing the A.A., the excess credit is used in computing the grade-point average and may be used to satisfy course requirements, but it does not count toward the bachelor’s degree.

Transfer credits for business courses taken during the freshman and sophomore years are counted toward the B.B.A. only if such courses are usually offered as lower-division courses at The University of Iowa.

Transfer Students

Transfer students who have taken courses elsewhere that are similar to those approved for the common business requirements at Iowa may request that these courses be evaluated. Students who transfer fewer than enough hours to meet a common 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 requirements numbered 100 and above.

Major in Business Administration

This major permits students to pursue a less specialized curriculum than is provided by any of the other majors in the college. It also allows students to concentrate in areas in which majors are not available but in which courses are offered in departments within the college (e.g., international business). The requirements for the major in business administration are as follows.

Six business courses (total of 18 semester hours) numbered above 100, including at least four of these:

- 6A:113 Taxes and Business Decisions 3 s.h.
- 6F:117 Intermediate Financial Management 3 s.h.
- 6J:151 Human Resource Management 3 s.h.
- 6J:161 Individual Behavior in Organizations 3 s.h.
- 6K:183 Applied Information Systems 3 s.h.
- 6M:134 Marketing Research 3 s.h.
- *6E:125 International Economics 3 s.h.
- *6F:130 International Finance 3 s.h.
- *6J:146 International Business Environment 3 s.h.
- *6M:151 International Marketing 3 s.h.

*Students may choose only one of these four courses (total of 3 semester hours).

In addition to the required grade-point averages listed above, students in this major must have a 2.00 minimum grade-point average on all courses taken from the list above and on all business courses numbered above 100 (excluding 6B:165 Business Policy). Students in this major may not take business courses numbered above 100 pass/nonpass.

The business administration major may not be combined with any other business major.

Minors

Nonbusiness Minors

Undergraduate students in the College of Business Administration may elect to complete a minor in another college of the University. For example, students interested in international business might choose a foreign language as a minor. For the minor requirements, students should consult with an adviser in the relevant...
department. To have the minor recorded on their transcripts, students must complete the “minor” section on the B.B.A. degree application form before submitting it to the Office of the Registrar early in their final semester, or when they apply for the degree using the ISIS system.

Business Minor

Students majoring in another college of the University may elect a minor in business administration. The courses listed below, or their equivalents, satisfy all requirements for the minor. At least 15 semester hours of courses taken for the minor must be completed in residence at The University of Iowa. A 2.00 minimum grade-point average is required on all courses taken for the minor and on all of these courses taken at Iowa Courses for the minor may not be taken pass/nonpass.

Business calculus (22M:16, 22M:17, 22M:25, or 22M:35) 3-4 s.h.
Statistics (22S:8 or 22S:120) 3-4 s.h.
6A:1 Introduction to Financial Accounting 3 s.h.
6A:2 Introduction to Managerial Accounting 3 s.h.
6E:1 Principles of Macroeconomics 3-4 s.h.
6E:2 Principles of Macroeconomics 3-4 s.h.
*6F:100 Introductory Financial Management 3 s.h.
6J:47 Introduction to Law 3 s.h.
*6J:100 Administrative Management 3 s.h.
6K:70 Computer Analysis 3 s.h.
*6M:100 Introduction to Marketing 3 s.h.

*Must be taken in junior or senior year

Students who will have completed all requirements for the minor in business administration when they graduate should indicate a business minor on the application for degree form before submitting it to the registrar’s office early in their final semester, or when they apply for the degree using the ISIS system.

Recognition for Academic Achievement

Dean’s List

Students who achieve grade-point averages of 3.50 or higher on 12 or more semester hours of graded work during a given semester and who have no hours of I or O are recognized by inclusion on the dean’s list for that semester.

President’s List

Students who earn a 4.00 grade-point average for two consecutive semesters (excluding summer sessions) on at least 12 or more semester hours of graded work during a given semester and who have no hours of I or O those semesters, are recognized by inclusion on the president’s list.

Honors

The College of Business Administration Honors Program provides outstanding students in the college the opportunity to undertake advanced work and independent study in their majors and to work closely with faculty and other honors students. Its purpose is to challenge superior students to reach their academic potential. All juniors and seniors in the program participate in honors seminars. Successful completion of departmental and college requirements leads to a B.B.A. with honors (see “Graduation Honors,” below).

Probusiness students interested in the honors program are encouraged to participate in the University Honors Program until they are admitted to the College of Business Administration. This permits them to take advantage of the services offered by the Shambaugh House Honors Center. They also are encouraged to join the Association of Iowa Honors Students, which plans a variety of social and educational activities each year.

Students should apply for admission to the College of Business Administration Honors Program when they apply for admission to the college, and they must apply no later than the first semester of the junior year. For more information, students should contact the College of Business Administration Undergraduate Programs Office.

Graduation Honors

High scholastic achievement is recognized in two ways upon graduation: graduation with distinction based on grades only, and graduation with honors in business administration based on both grades and the completion of special work as outlined by the college.

To be eligible for either form of recognition, a student must complete 60 semester hours in residence as an undergraduate at The University of Iowa 45 of which must be completed prior to the final registration.

Graduation with Distinction

The Office of the Registrar certifies to the dean of the college 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 prior to their final registration.

Admission

Admission standards are set by the undergraduate program committee. The college usually admits undergraduate students at the beginning of their junior year. Students are eligible for admission to the college after they have completed 60 semester hours; have satisfied the common requirements in quantitative methods, accounting, and economics; and have submitted an application by the deadline (May 1 for summer or fall admission, December 1 for spring admission).

Students are guaranteed admission to the College of Business Administration if they meet the above admission requirements and have a 2.60 minimum grade-point average on the common requirements in quantitative methods, accounting, and economics; all college-level courses taken (including transfer courses); and all courses undertaken at The University of Iowa.

Students who have grade-point averages below 2.60 for one or more of the categories and above 2.25 for each of the categories are considered for comparative admission. The college considers the following factors in a comparative evaluation of applicants for admission:

- grade-point averages for each of the categories listed above;
- the pattern of grades over time; and
- other factors relevant to predicting success in the college.

The college provides information about characteristics of recently admitted students, thus enabling those interested in the program to judge how they are progressing toward admission.

Credit and Grading

Credit by Examination

Students may earn up to 32 semester hours of credit by examination. Selected tests from the College-Level Examination Program (CLEP) and the Advanced Placement Program (APP) of the College Entrance Examination Board are used. It is possible to receive credit for some of the common requirements of the college. Information on the CLEP and APP examinations is available from the University’s Evaluation and Examination Service.

Maximum Schedule

Course schedules of more than 18 semester hours for a semester or 9 semester hours for a summer session require approval of the associate dean for undergraduate programs.

Adding and Dropping Courses

Courses may be added during the first three weeks of the semester or first one and one-half weeks of the summer session with approval of the adviser and instructor. Courses may be dropped during the first ten weeks of the semester or first five weeks of the summer session with approval of the adviser and instructor. Students must have the approval of the associate dean for undergraduate programs in order to add or drop a course after these deadlines. Approval for adds or drops after these deadlines is granted only on extraordinary circumstances.

Undergraduates will receive the mark of W for any course dropped after the third week of the semester or first one and one-half weeks of the summer session.

Pass/Nonpass

Of the total semester hours required for a B.B.A., up to 16 may be taken on a pass/nonpass basis with the consent of the adviser and instructor. However, students may not count more than 8 semester hours of pass/nonpass credit in the last 60 semester
hours 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, common, or major business requirements. (Major business requirements include any course that could serve to fulfill a major course requirement.) Pass/nonpass registration must be completed during the first three weeks of a semester or the first one and one-half weeks of a summer session. It requires the approval of the instructor and the academic adviser. For courses taken on a pass/nonpass basis, an earned grade of C- or above is recorded as a P; an earned grade of D+ or below is recorded as an N.

Second-Grade-Only Option
This option is not available to students who were admitted to the college for spring semester 1990 or thereafter.

Correspondence Course work
B.B.A. candidates may not satisfy any requirement—general education, common, or major—through correspondence courses. Credit earned by correspondence study does not count toward the residency requirement.

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 undertaken, all course work undertaken at The University of Iowa all business course work undertaken, all business course work undertaken at The University of Iowa all course work taken to satisfy requirements for the major, and all course work taken at The University of Iowa to satisfy requirements for the major.

When all of the above grade-point averages equal or surpass 2.00, students are removed from probation. Usually, students are allowed only one session to return to good academic standing. Students on academic probation who withdraw registration after the deadline for dropping courses are automatically dismissed.

Students may be dismissed from the college at any time for unsatisfactory scholarship. While some probationary period usually precedes a dismissal, even students in good academic standing who complete a term with extremely unsatisfactory grades may be dismissed immediately. Students dropped from the college for poor scholarship may petition for permission to reregister, but usually only after the expiration of one calendar year following the end of the term in which the dismissal took place.

International Business Certificate
The College of Business Administration and the College of Liberal Arts offer a joint program leading to a Certificate in International Business. This program entails study of international business and economics, international relations and institutions, a foreign language, and related area studies.

It has been designed not only for undergraduate students who intend to pursue careers in international business but for any undergraduate 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 range of electives in the program permits students to tailor areas of specialization suited to their individual interests and to complement majors in both liberal arts and business administration.

Completion of requirements results in the notation “Certificate in International Business” on the student’s transcript. Questions should be directed to the College of Business Administration Undergraduate Programs Office.

Application Information
Interested students must declare their intention to pursue the certificate and file a plan of study at the Undergraduate Programs Office. In order to receive the Certificate in International Business, students must receive an undergraduate degree from The University of Iowa maintain a 2.00 minimum grade-point average on all course work taken for the certificate, and take at least 20 semester hours of course work (other than language) for the certificate at The University of Iowa or in approved study-abroad programs. A course may not be used to satisfy more than one certificate requirement.

Requirements
A complete listing of courses satisfying the following requirements is available from the Academic Programs Office.

INTERNATIONAL BUSINESS
6E:1 Principles of Macroeconomics
6E:2 Principles of Macroeconomics
Three courses in international business

INTERNATIONAL RELATIONS AND INSTITUTIONS
Two courses in international relations and institutions

FOREIGN LANGUAGE
Two to three years of college-level work (or equivalent) in one of the following languages: Chinese, French, German, Hindi, Italian, Japanese, Portuguese, Russian, Spanish, or Swahili

AREA STUDIES
Two courses that pertain to countries or areas in which the chosen language is spoken

Combined Degree in Business and Liberal Arts
The Colleges of Liberal Arts and Business Administration offer a combined degree program whereby students earn two University of Iowa baccalaureate degrees. Successful candidates are awarded a Bachelor of Business Administration (B.B.A.) by the College of Business Administration 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.) by the College of Liberal Arts.

To enter the combined degree program, students must be eligible for admission to the College of Business Administration. Interested students should schedule an appointment with an adviser in the Undergraduate Programs Office in the College of Business Administration. Students must be approved for candidacy in the combined degree program by the College of Business Administration and must be admitted to both the College of Business Administration and the College of Liberal Arts.

Students who enter the program are required to complete the General Education Requirements and the requirements for the chosen major in the College of Liberal Arts.

To qualify for both degrees in the combined degree program, candidates must complete an overall total of 150 semester hours, including at least 30 in courses offered by the College of Business Administration and at least 30 in courses offered by the College of Liberal Arts.

Interdepartmental Graduate Programs
The following interdepartmental graduate programs are offered in the College of Business Administration: Master of Business Administration (M.B.A.); Master of Arts (M.A.) in accounting, industrial relations, and management information systems; and Doctor of Philosophy (Ph. D.) in business administration. Dual degree options allow M.A. or M.B.A. candidates to pursue a second graduate degree in another college. For information on M.A. programs, see the respective departmental listings in this section of the Catalog. For information on graduate programs in economics, see “Economics” in this section of the Catalog.

School of Management-
Master of Business Administration
The University of Iowa School of Management offers a Master of Business Administration (M.B.A.) degree program that provides students with a foundation for future growth and flexibility in professional management. The program, which is fully accredited by the American Assembly of Collegiate Schools of Business (AACSB), enables students to build broad-based personal portfolios of analytical skills, knowledge, and professional experiences. The curriculum is rigorous, yet learning takes place in a collaborative environment that builds teamwork skills and encourages independent problem solving.

The M.B.A. requires 60 semester hours, including four courses in an area of concentration and four elective courses in business or from another area of the University. Students may transfer up to 9 semester hours from another AACSB-accredited institution.

Students in the Iowa M.B.A. program come from every region of the United States and from
countries throughout the world. They represent a variety of backgrounds, undergraduate majors, and prior professional experience. The curriculum is designed for college graduates in any field-previous course work in business is not required. Interested students should review a current M.B.A. brochure available from the School of Management, for complete program requirements.

Plan of Study

First Semester
6N:210 Models for Decision Support 3 s.h.
6N:211 Marketing Management 3 s.h.
6N:212 Administrative Science I 3 s.h.
6N:213 Managerial Economics 3 s.h.
6N:215 Accounting for Managers I 3 s.h.

Second Semester
6N:225 Managerial Finance 3 s.h.
6N:226 Statistical Methods 3 s.h.
6N:227 Administrative Science II 3 s.h.
6N:228 The Economic Environment of the Firm 3 s.h.
6N:229 Operations Management 3 s.h.

Third Semester
6N:230 Applied Strategic Analysis 2 s.h.
6N:235 Accounting for Managers II 1 s.h.
Electives 6 s.h.
Concentrations 6 s.h.

Fourth Semester
6N:240 Strategic Management and Business Policy 3 s.h.
Electives 6 s.h.
Concentrations 6 s.h.

Concentration Options
M.B.A. students choose an individual area of concentration after the first-year curriculum is completed. The concentration consists of 12 semester hours in a specific discipline. Main areas of concentration include accounting, corporate finance, investments, human resources management, leadership quality and team work, management information systems, production and operations, and marketing. Individual students may devise their own concentration area, subject to approval by the School of Management.

Electives
The student chooses 12 semester hours of graduate-level electives. Courses outside the College of Business Administration must be approved by the School of Management.

Drop Policy
The School of Management has an early deadline for students to drop any 6N departmental course. The last day to drop is the University’s last day to add courses. This typically falls at the end of the third week of fall or spring semester and at the end of the first week-and-a-half of the summer session. Drops after this date will be allowed only upon successful petition to the School of Management.

Daul Degree Programs
Dual-degree programs allow students to pursue concurrently an M.B.A. in the College of Business Administration and a J.D. in the College of Law, an M.A. in library and information science in the School of Library and Information Science, an M.A. in nursing in the College of Nursing, or an M.A. in hospital and health administration in the College of Medicine. These programs allow students to earn both degrees—a minimum of 72 semester hours-more rapidly than if each degree were pursued independently. Interested students must make separate applications to each degree program.

Accelerated Professional Track
Highly qualified undergraduate students in the Colleges of Liberal Arts or Engineering at The University of Iowa may be admitted to the Accelerated Professional Track (APT) program. These students begin taking the M.B.A. core courses as electives in their undergraduate program so they can earn both the bachelor’s and M.B.A. degrees in less time than would usually be required. APT students must complete a cooperative education experience while in the program.

Interested students must have completed 60 semester hours of undergraduate study, earned a 3.50 minimum grade-point average, and indicated the intent to pursue both degree programs on a full-time basis. Students admitted to the program are required to complete at least 30 semester hours of graduate-level course work upon completing the undergraduate degree.

More information on the APT program is available from the School of Management.

Part-time Evening M.B.A.
A part-time evening M.B.A. program is available with instruction offered in Cedar Rapids and the Quad Cities. This program, sponsored jointly by the College of Business Administration and the Division of Continuing Education, is identical to the full-time, on-campus program. Courses in Cedar Rapids and the Quad Cities are offered in conjunction with the Continuing Education Association; those in the Quad Cities are offered through the Quad Cities Graduate Study Center in Rock Island, Illinois.

Students pursuing the part-time evening M.B.A. program are able to complete the 60-semester-hour program in four years, taking five courses each academic year.

A limited number of M.B.A. courses are offered in Iowa City during the evening. Students admitted to the part-time evening program may take classes in Iowa City as space is available.

Executive M.B.A. Program
The Executive M.B.A. also leads to the Master of Business Administration degree. Admission is limited to experienced executives who want to broaden their management skills without interrupting their professional careers. Course work is presented in two academic years. Classes begin with one full week in Iowa City followed by classes one day a week on alternating Fridays and Saturdays. Participants progress through the program together as a single group.

Information about the program, fees, and application procedures may be obtained by writing or calling the School of Management.

Master of Arts
The Master of Arts program in business administration is designed for students seeking specialization in one of three areas of business administration. It permits a research emphasis that qualifies students for professional positions in business.

The program is available with or without thesis and is flexible, permitting specialization according to students’ interests and objectives. Students may select a major in accounting, industrial relations and human resources, and management information systems. A minor may be developed from approved course combinations within the College of Business Administration or from outside the college.

Specific program requirements are stated in the individual departmental listings in this section of the Catalog. Interested students should contact the department sponsoring the degree for complete program information.

Doctor of Philosophy
The Ph.D. program in business administration is designed for students preparing for research positions in business and government, or for research and teaching positions at academic institutions. The program is flexible, permitting students to choose an area of specialization according to their interests. Sufficient course work and related experience are provided, enabling students to achieve competence in economic theory, statistical methods, and behavioral science, as well as expertise in a major and minor area of study. Students also have opportunities to develop research and teaching skills.

Course work in the Ph.D. program consists of prerequisites (as necessary), the Ph.D. core, major and minor areas of study, and dissertation research. Most students (including all with master’s degrees from AACSB-accredited programs) take 60 semester hours of course work. Additional course requirements may be imposed to guarantee satisfaction of business prerequisites or the Graduate College minimum total credit-hour requirement (72 semester hours of graduate credit, including courses taken before entering The University of Iowa Ph.D. program). Interested students should contact the sponsoring department for complete program information.

Prerequisite Courses
The common body of knowledge requirements of the AACSB must be satisfied by undergraduate or graduate courses. These include courses in accounting, finance, management, marketing, organizational behavior, quantitative methods, and the economic and legal environment pertaining to profit and/or nonprofit organizations.
CORE COURSES
Core courses are designed to develop competence in research and to provide necessary background for study in more specialized courses. Graduate courses are required as follows: behavioral sciences (3 semester hours), economics (6 semester hours), issues in scientific inquiry (3 semester hours), and research methods/statistics/quantitative analysis (12 semester hours).

To reflect the background and interests of individual students, doctoral candidates consult with their advisers to establish satisfaction of core requirements.

MAJOR AREA OF STUDY
A minimum of 12 semester hours of approved doctoral-level courses must be completed in one of the following areas: accounting, finance, human resources management, industrial relations, management science, marketing, or organizational behavior.

MINOR AREA OF STUDY
A minimum of 9 semester hours of doctoral-level courses beyond the Ph.D. core course requirements must be taken. Available areas include all major areas of study listed in addition to concentrations outside the College of Business Administration.

COMPREHENSIVE EXAMINATIONS
Students must successfully complete a written examination in both the major and minor areas of study. The examination committee is made up of at least three faculty members.

Upon satisfactory completion of the written comprehensive examinations, students must pass an oral comprehensive examination encompassing subject matter in the major, minor, and related areas. The examination committee is made up of at least five faculty members.

DISSERTATION
A dissertation proposal must be presented before a forum attended by dissertation committee members and open to interested faculty and graduate students as established by departmental procedures. Students are required to complete 15 semester hours of dissertation credit. The completion of research and writing associated with the dissertation usually requires one year of full-time effort.

FINAL EXAMINATION
The completed dissertation must be defended in an oral examination attended by the dissertation committee members. It is also open to other interested faculty and graduate students.

Admission
Applicants to the M.B.A. or Ph.D. programs must submit the Graduate College application form and fee, official transcripts of all graduate and undergraduate course work, official Graduate Management Admission Test (GMAT) scores, and letters of reference. For some departments, the Graduate Record Examination (GRE) Aptitude Test scores may be submitted in place of GMAT scores for applicants to the Ph.D. program in business administration. Students should contact the sponsoring department and consult the Graduate College section of the Catalog for more information.

Application Information
A complete application file requires the following:
- a completed application form and fee;
- official transcripts of all undergraduate and graduate work submitted to the Office of Admissions by each institution attended;
- official Graduate Management Admission Test (GMAT) scores submitted to the Office of Admissions;
- the completed supplemental application form with essay responses and a résumé (for MBA applicants); and
- at least three references from former instructors or employers.

Foreign nationals whose primary language is not English must submit an official score of 600 or higher on the Test of English as a Foreign Language (TOEFL). Application packets may be obtained from the Office of Admissions.

Application Deadlines
The application deadlines for M.B.A., M.A., and Ph.D. programs in business administration are as follows.

M.B.A. Full-Time On-Campus Program (Fall Entrance Only)
April 15—Foreign applicants for fall (August). March is the latest acceptable GMAT test date.
April 15—priority deadline for fall (August) applications; U.S. citizens’ and permanent residents’ for fall admission after this date are reviewed on a space available basis. March is the latest acceptable GMAT test date.
July 1—U.S. citizens and permanent residents applying for fall (August). Applications received after July 1 are reviewed on a space available basis.

M.B.A.—Part-Time Evening Program (Fall and Spring Entrance)
November 15—U.S. citizens and permanent residents, and foreign applicants for spring (January). October is the latest acceptable GMAT test date.
April 15—Foreign applicants for fall (August). March is the latest acceptable GMAT test date.
July 1—U.S. citizens and permanent residents applying for fall (August). June is the latest acceptable GMAT test date.

M.A. in Accounting, Industrial Relations and Human Resources, and Management Information Systems (Summer, Fall, and Spring Entrance)
February 1—Foreign applicants for summer or fall who are applying for financial assistance from The University of Iowa
March 1—Foreign applicants for summer or fall who are not seeking financial assistance from The University of Iowa
May 1—U.S. citizens and permanent residents applying for summer enrollment.
July 15—U.S. citizens and permanent residents applying for fall enrollment.
October 1—Foreign applicants for spring enrollment.
December 1—U.S. citizens and permanent residents applying for spring enrollment.

Ph.D. in Business Administration (Summer, Fall, and Spring Entrance)
February 1—Foreign applicants for summer or fall who are applying for financial assistance from The University of Iowa
March 1—Foreign applicants for summer or fall who are not applying for financial assistance from The University of Iowa
March 1—U.S. citizens and permanent residents applying for summer or fall enrollment. Applications received by February 1 receive priority in consideration for financial aid.
October 1—Foreign applicants for spring enrollment.

October 1—U.S. citizens and permanent residents applying for spring enrollment.

Other Graduate Programs

M.A. in Accounting
See “Accounting” in this section of the Catalog.

M.A. and Ph.D. in Economics
See “Economics” in this section of the Catalog.

M.A. in Industrial Relations and Human Resources
See “Management and Organizations” in this section of the Catalog.

M.A. in Management Information Systems
See “Management Sciences” in this section of the Catalog.

Facilities
The College of Business Administration is located in the John Pappajohn Business Administration Building, at the heart of the campus. The Pappajohn Building contains
Management and Business Development

Executive Development Center

The Executive Development Center conducts training and development conferences for executives and senior-level management personnel in Iowa and the Midwest. The programs, ranging from two days to two weeks, offer the latest research and relevant information to management and government representatives in Iowa. The center disseminates current administrative, behavioral science, and management knowledge related to the working life of people in organizations through on- and off-campus conferences.

Manufacturing Productivity Center

The Manufacturing Productivity Center facilitates contractual arrangements with Iowa manufacturing firms. The agreements enable business faculty and graduate students, working with the firms’ managers and engineers, to jointly address ways to improve manufacturing productivity.

Ira B. McGladrey Institute for Accounting Research

The Ira B. McGladrey Institute for Accounting Research facilitates efforts of the college’s accounting faculty by providing staff and financial support.

Small Business Development Center

The Small Business Development Center was created in 1981 to provide management assistance without charge to small business owners and persons interested in starting a small business. The center provides individual counseling to small businesses and conducts workshops on topics related to small business management.

Placement Services

The placement needs of the college are served by the Office of Business and Liberal Arts Placement, located in Phillips Hall. A placement media library, student career planning advising, and interview facilities provide students and recruiting organizations with a full range of placement services. M.B.A. students also have access to placement resources in the School of Management.

Alumni Relations

The college maintains an Office of Alumni Relations to act as host during visits from alumni, friends, recruiters, and others interested in the college.

Interdepartmental Courses

For Undergraduates

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>6B:200</td>
<td>Cooperative Education Internship</td>
<td>0</td>
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<tr>
<td>6B:201</td>
<td>Cooperative Education Internship - M.B.A.</td>
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<tr>
<td>6B:202</td>
<td>Orientation to Business</td>
<td>1</td>
</tr>
<tr>
<td>6B:214</td>
<td>Honors Project</td>
<td>1</td>
</tr>
<tr>
<td>6B:215</td>
<td>Honors Project</td>
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<tr>
<td>6B:216</td>
<td>Cooperative Education Internship - M.B.A.</td>
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</tr>
<tr>
<td>6B:217</td>
<td>Cooperative Education Internship - M.B.A.</td>
<td>0</td>
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</tbody>
</table>

For M.B.A. Students

See individual department listings for M.B.A. elective courses.
6N:228 The Economic Environment of the Firm 3 s.h.
Measurement of economic activity; determinants of national income, investments, business fluctuations; money, prices, inflation; monetary and fiscal policy and forecasting. Prerequisite: 6N:213.

6N:229 Operations Management 3 s.h.
Production and service delivery strategy, capacity planning, product and process design, total quality management, demand management, production and service planning, scheduling, material control, emerging production and service technologies. Prerequisite: 6N:210.

6N:230 Applied Strategic Analysis 2 s.h.
Development of tools for modeling and analyzing management decisions with a strategic component; applications to functional areas via cases and complex problems. Prerequisite: 30 semester hours of M.B.A. core courses or consent of instructor.

6N:235 Accounting for Managers II 1 s.h.

6N:240 Strategic Management and Business Policy 3 s.h.
Nature, scope, complexity of chief executive’s job; functional integration of all managerial activities. Prerequisite: last 15 hours of M.B.A. program.

ACCTONING

Head: Willis R. Greer, Jr.
Professors: Daniel W. Collins (Henry B. Tippie Professor), Douglas V. De Jong (Director, Ira B. McCladrey Institute), Willis R. Greer, Jr., W. Bruce Johnson (Arthur Andersen Professor), Valdean C. Lembrke (Director, Professional Program Accounting) Professor emeritus: B.L. Barnes
Associate professors: Ramanurthy Balakrishnan, Joyce E. Berg, Richard A. Grimlund, Morton Pincus, Albert A. Schepanski, Richard M. Tubbs
Assistant professors: Thomas J. Carroll, Amy E. Dunbar

The Department of Accounting offers a broad education that prepares undergraduate and graduate students for careers as academicians and practitioners of accounting.

Professional Program

The professional program in accounting at The University of Iowa is a three-year, undergraduate and graduate program that leads to a B.B.A. in Accounting and a Master of Arts (M.A.)

The program draws on curricula that provide a strong base of traditional technical subject matter and a comprehensive perspective on decision making for complex business problems. This framework of study enables students to continue professional growth over the entire span of their careers. The professional program provides the academic background required for leadership positions in business, government, and public accounting. It also qualifies students to sit for the Certified Public Accountant (CPA) and Certified Management Accountant (CMA) examinations.

Completion of probusiness course work and acceptance to the College of Business Administration are required before entry into the professional program in accounting. Separate applications to the College of Business Administration and the professional program in accounting are made at the end of the sophomore year. If an applicant is accepted into the program at the beginning of his or her junior year, the student receives a B.B.A. after the successful completion of the first two years of the program. The nonthesis M.A. requires 30 graduate semester hours beyond the 120 undergraduate semester hours required for the B.B.A. in accounting. For more information, see “Program I,” below.

The first and second years of the professional program, taken during the junior and senior years, provide concentrated coverage of professional accounting subjects and closely related topics in economics, commercial law, business, and information systems.

The third year, taken during M.A. candidacy, emphasizes the conceptual and economic foundations of accounting. The program consists of a series of courses that merge concepts and techniques with applications to current and potential problems of professional practice. Graduate accounting courses are structured to encourage dialogue and interaction between students and accounting faculty members. Oral and written communication skills are emphasized during the third year through class presentations and papers.

Students in the first and second years of the professional program must maintain a 2.00 grade-point average in all courses and in upper-division accounting courses. Students in the third year of the professional program must maintain a 3.00 grade-point average in both graduate-level accounting courses and all other course work. Students who do not maintain these grade requirements are placed on departmental academic probation for one semester. If the minimum grade requirements are not met by the end of that semester, the student’s academic record is reviewed by the department faculty to determine whether the student will be permitted to continue in the program. Accounting majors also are subject to probation and dismissal rules for the college described in the College of Business Administration introductory section of the Catalog.

Students who seek admission to the third year of the professional program must apply to The University of Iowa’s Graduate College. Candidates applying for admission to the Graduate College must include scores attained on the Graduate Management Admission Text (GMAT). Admissions are considered throughout the calendar year.

Students accepted into the master’s program in accounting enter the third year of Program 1 (B.B.A. in accounting), Program 2 (B.B.A. in business but not in accounting), or Program 3 (undergraduate degree not in business). All programs are adjusted to reflect the particular academic background or deficiencies of the successful applicant.

Program 1

This program is for students who have completed their preprofessional program at The University of Iowa or qualified students from other institutions.

Undergraduate students entering the professional program must complete 60 semester hours of course work and be admitted to the College of Business Administration. The following general probusiness core courses must be completed prior to admission to the professional program.

6A:1 Introduction to Financial Accounting (with a grade of B- or higher) 3 s.h.
6A:2 Introduction to Managerial Accounting (with a grade of B- or higher) 3 s.h.
6E:1 Principles of Microeconomics 3 s.h.
6E:2 Principles of Macroeconomics 3 s.h.
22M:17 Quantitative Methods I 4 s.h.
22M:8 Quantitative Methods II 4 s.h.
6K:70 Computer Analysis 3 s.h.
6K:71 Statistical Analysis 3 s.h.

After successful completion of the first two years of the professional program, students receive the B.B.A. During the first two years in the program, undergraduate accounting students are expected to complete the Graduate Management Admission Test (GMAT). If they have been highly successful during the first two years of the program and have completed the GMAT with a sufficient score, they are admitted to graduate study and the third year of the program. After successfully completing the third year of the professional program (including an oral exam), students receive the M.A. in accounting.

FIRST YEAR (JUNIOR)

Fall Semester
6A:131 Income Measurement and Asset Valuation 3 s.h.
6A:133 Introduction to Taxation 3 s.h.
6F:100 Introductory Financial Management 3 s.h.
6J:100 Administrative Management 3 s.h.
6K:100 Operations Management 3 s.h.

Spring Semester
6A:130 Accounting for Management Analysis and Control 3 s.h.
6A:132 Valuation of Financial Claims 3 s.h.
6E:100 Economics for Business Decision Making 3 s.h.
6J:47 Introduction to Law 3 s.h.
or
6M:100 Introduction to Marketing 3 s.h.
6K:183 Applied Information Systems 3 s.h.

SECOND YEAR (SENIOR)

Fall Semester
6A:144 Auditing 3 s.h.
Accounting Elective* 3 s.h.
6M:100 Introduction to Marketing (if not previously taken) 3 s.h.
or
Electives 9 s.h.

Spring Semester
6A:148 Business Law 3 s.h.
6H:165 Business Policy 3 s.h.
Accounting Elective* 3 s.h.
Electives 6 s.h.

*Students choose two of the three following accounting courses during their senior year.

6A:141 Advanced Tax Topics 3 s.h.
THIRD YEAR (GRADUATE)

These courses may be taken only after unconditional admission to the third year of the professional program. A total of 30 semester hours beyond the B.B.A. is required. At least 15 semester hours must be graduate-level accounting courses. A total of at least 21 semester hours of 200-level courses must be completed.

Fall Semester
- 6A:220 Design and Use of Cost Management Systems 3 s.h.
- 6A:221 Financial Reporting: Theory and Practice 3 s.h.
- Electives* 6 s.h.

Spring Semester
- 6A:230 Advanced Auditing 3 s.h.
- 6A:231 Taxes and Business Strategy 3 s.h.
- Electives* 6 s.h.

Summer Session
- Electives* 6 s.h.

*Students must take a minor area of at least 6 semester hours chosen from elective categories. One of the following elective accounting courses, (which have not been taken during the first two years of the program), must also be completed.

6A:141 Advanced Tax Topics
6A: 145 Accounting for Multi-Segment Enterprises
6A: 146 Government and Not-For-Profit Accounting

Program 2

This program is for students with a bachelor’s degree in business who have concentrated their study in an area other than accounting (e.g., finance).

Typically, 51 semester hours are required for the master’s degree in accounting, including 21 semester hours of undergraduate accounting courses, 15 semester hours of graduate-level accounting courses, and 15 semester hours of other graduate-level courses. Specific content of elective course work is determined by each student’s background and areas of interest. A minor area chosen from elective categories must be taken. A total of at least 21 semester hours of 200-level courses must be completed.

Program 3

This program is for students who have earned a bachelor’s degree but who have limited or no prior academic study in business or accounting. Each student’s program is specially designed to eliminate academic deficiencies in quantitative methods, business, and accounting. Course work to eliminate these deficiencies is incorporated into a plan of study lasting approximately two-and-one-half calendar years.

For students with no previous accounting or business study, the following courses are required. (Total of 69 semester hours.)

ACCOUNTING
- 6A: 130 Accounting for Management Analysis and Control 3 s.h.
- 6A:131 Income Measurement and Asset Valuation 3 s.h.
- 6A:132 Valuation of Financial Claims 3 s.h.
- 6A: 133 Introduction to Taxation 3 s.h.
- 6A:141 * Advanced Tax Topics 3 s.h.
- 6A:144 Auditing 3 s.h.
- 6A:145* Accounting for Multi-Segment Enterprises 3 s.h.
- 6A: 146 Government and Not-For-Profit Accounting 3 s.h.
- 6A:220 Design and Use of Cost Management Systems 3 s.h.
- 6A:221 Financial Reporting: Theory and Practice 3 s.h.
- 6A:230 Advanced Auditing 3 s.h.
- 6A:231 Taxes and Business Strategy 3 s.h.
- *One of these can be replaced with one of the two available graduate-level accounting electives (6A:233 or 6A:245).

BUSINESS AND QUANTITATIVE METHODS
- 6A:148 Business Law 3 s.h.
- 6K:70 Computer Analysis 3 s.h.
- 6K:100 Operations Management 3 s.h.
- 6K:183 Applied Information Systems 3 s.h.
- 6N:210 Models For Decision Support 3 s.h.
- 6N:211 Marketing Management 3 s.h.
- 6N:212 Administrative Science I 3 s.h.
- 6N:213 Managerial Economics 3 s.h.
- 6N:215 Accounting for Managers I 3 s.h.
- 6N:225 Managerial Finance 3 s.h.
- 6N:226 Statistical Methods 3 s.h.

Joint Program in Accounting and Law

A joint program with the College of Law permits up to 12 hours of law courses to be applied as electives in the Professional Program in Accounting and up to 12 hours of graduate accounting courses to be applied as electives in the Juris Doctor (J. D.) degree program. A minimum of 18 semester hours of graduate course work in the accounting program is required for the joint J. D.-M.A. degree.

Graduate Program

Doctor of Philosophy

See “Interdepartmental Graduate Programs” in the College of Business Administration section of the Catalog.

Faculty

The department’s faculty members maintain currency through active participation in the production and dissemination of accounting-related knowledge. They keep abreast of the latest developments in the field of education and the profession.

Courses

Primarily for Undergraduates

6A: 000 Cooperative Education Internship 0 s.h.
6A:1 Introduction to Financial Accounting 3 s.h.
6A:130 Accounting for Management Analysis and Control 3 s.h.
6A:131 Income Measurement and Asset Valuation 3 s.h.
6A:132 Valuation of Financial Claims 3 s.h.
6A: 133 Introduction to Taxation 3 s.h.
6A:141* Advanced Tax Topics 3 s.h.
6A:230 Advanced Auditing 3 s.h.

For Undergraduates and Graduates

6A: 113 Taxes and Business Decisions 3 s.h.
6A:120 Financial Accounting Reporting 3 s.h.
6A:131 Income Measurement and Asset Valuation 3 s.h.
6A:132 Valuation of Financial Claims 3 s.h.
6A: 133 Introduction to Taxation 3 s.h.
6A:141* Advanced Tax Topics 3 s.h.
6A: 146 Government and Not-For-Profit Accounting 3 s.h.
6A:220 Design and Use of Cost Management Systems 3 s.h.
6A:221 Financial Reporting: Theory and Practice 3 s.h.
6A:230 Advanced Auditing 3 s.h.
6A:231 Taxes and Business Strategy 3 s.h.
- *One of these can be replaced with one of the two available graduate-level accounting electives (6A:233 or 6A:245).

6A:130 Accounting for Management Analysis and Control 3 s.h.
6A:131 Income Measurement and Asset Valuation 3 s.h.
6A:132 Valuation of Financial Claims 3 s.h.
6A:133 Introduction to Taxation 3 s.h.
6A:141* Advanced Tax Topics 3 s.h.
6A:144 Auditing 3 s.h.
6A:145* Accounting for Multi-Segment Enterprises 3 s.h.
6A: 146 Government and Not-For-Profit Accounting 3 s.h.
6A:220 Design and Use of Cost Management Systems 3 s.h.
6A:221 Financial Reporting: Theory and Practice 3 s.h.
6A:230 Advanced Auditing 3 s.h.
6A:231 Taxes and Business Strategy 3 s.h.
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Graduate Program

Doctor of Philosophy

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For Undergraduates and Graduates

6A: 113 Taxes and Business Decisions 3 s.h.
6A:120 Financial Accounting Reporting 3 s.h.
6A:131 Income Measurement and Asset Valuation 3 s.h.
6A:132 Valuation of Financial Claims 3 s.h.
Primarily for Graduates

6A:220 Design and Use of Cost Management Systems 3 s.h.
Product costing, performance evaluation in modern manufacturing environments; activity based costing, management. Graduate standing in business required. Prerequisite: 6A:130.

6A:221 Financial Reporting: Theory and Practice 3 s.h.

6A:230 Advanced Auditing 3 s.h.
Historical emergence of auditing; advanced issues such as ethics, independence, regulation and litigation, audit evidence, models of audit testing. Graduate standing in business required. Prerequisite: 6A:144.

6A: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. Graduate standing in business required. Prerequisite: 6A:133.

6A:232 Contemporary Issues in Accounting 3 s.h.
Consent of instructor required.

6A:233 Organization Design and Control 3 s.h.
Modern organization, role of information in organization design; performance evaluation, decision making schemes. Graduate standing in business required. 6A:220 recommended.

6A:236 Management Planning and Control Systems 3 s.h.
Product costing, performance evaluation roles of management accounting systems; activity based costing systems, impact of production philosophies such as JIT manufacturing, TQM on cost management systems. Prerequisite: 6N:215 or 6N:225 or equivalent.

6A: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: 6N:215.

6A:245 Financial Information and Capital Markets 3 s.h.
Use of corporate financial statements for investment, lending decisions; strengths, limitations of corporate accounting data in light of research in finance, accounting. Prerequisite: 6A:240 or equivalent.

6A:280 Seminar in Accounting Thought 3 s.h.
Research methods germane to accounting literature. Open only to doctoral students.

6A:281 Advanced Research Seminar 3 s.h.
Literature on economics of accounting choice, capital markets, audit policy and methods, behavioral accounting, principal-agent analysis modeling, experimental economics. Open only to doctoral students.

6A:286 Seminar in Accounting Research 3 s.h.
Focus on current research in accounting, related disciplines: faculty, student, open to Ph.D. dissertation proposals. Open only to doctoral students.

6A:287 Seminar in Selected Accounting Topics 1-3 s.h.
Individual study, research paper preparation. Consent of instructor required.

6A:290 Thesis: Accounting 1-6 s.h.
Consent of instructor required.

ECONOMICS
Chair: Robert Forsythe
Professor emeritus: Anthony Costantino
Adjunct professor: J. Richard Zechar
Associate professors: Michael Balch, Narayana Kocherlakota, John Solow
Assistant professors: Andreas Blume, Dean Corbae, Beth Ingram, Yong-Gwan Kim, Barbara McCutcheon, Robert Tanura

Undergraduate Programs

The baccalaureate programs in economics provide 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 is regarded as excellent preparation for law and for graduate study in fields such as business management, public administration, health and hospital administration, urban and regional planning, transportation, journalism, political science, and statistics.

The department offers three undergraduate degrees in economics—the B.A. and B.S. in the College of Liberal Arts and the B.B.A. in the College of Business Administration.

The B.A. program is designed to achieve a balance between economic theory, mathematical tools, and field applications. The B.S. program maintains the same balance but places more emphasis on developing analytic tools; it prepares students for graduate work in economics or related business and technical fields. The B.B.A. emphasizes the economic foundations of the various business fields: accounting, finance, marketing, business law, and management.

The requirements for the B.B.A. are described below; those of the B.A. and B.S. are described in the Catalog of the College of Liberal Arts section of the College of Business Administration.

Bachelor of Business Administration

In addition to the common requirements of the College of Business Administration, the B.B.A. in economics requires 15 semester hours in 100-level economics courses, including the following:

6E:105 Macroeconomics 3 s.h.
Two field courses numbered from 6E:170 through 6E:189 6 s.h.

Graduate Programs

Master of Arts

The Master of Arts is offered only to students working toward a Ph.D. or to those who earn a joint M.A. with geography or a joint M.A.-J.D. with law.

Joint M.A. Programs

The department collaborates with the Department of Geography in a joint M.A. and with the College of Law in a joint M.A.-J.D. In these programs, the economics department accepts up to 9 semester hours of course work from the other departments as credit toward the M.A. in economics, and the other departments accept graduate credits in economics toward their degrees.

Doctor of Philosophy

The Ph.D. program is designed to provide rigorous training in macroeconomic theory, mathematical economics, and econometrics. In addition, students select a major area for intensive study and specialization. The program has three components: a coordinated sequence of core courses, a set of major area courses, and a dissertation.

CORE SEQUENCE

First Semester
6E:220 Mathematics for Economists I 3 s.h.
6E:203 Macroeconomics I 3 s.h.
6E:204 Macroeconomics II 3 s.h.
Second Semester
6E:201 Statistical Methods 3 s.h.
6E:205 Macroeconomics II 3 s.h.
6E:206 Macroeconomics II 3 s.h.
Third Semester
6E:221 Econometrics 3 s.h.
Fourth Semester
6E:222 Applied Econometrics 3 s.h.

Written examinations in macroeconomics and macroeconomics before the second year and a substantial research paper before the beginning of the third year complete the core requirements.

FIELD COMPONENT

Each student chooses a major area of study in addition to the core courses. The requirement for the major area is a minimum of 24 semester hours of intensive study in a field and in courses that enable students to understand the relationship between their specialty and related fields. Students must achieve a 3.20 minimum grade-point average in the major area courses.
Dissertation
Students must present and defend a dissertation prospectus during their third year. Admission to candidacy is granted upon successful defense of the prospectus. Submission of the completed dissertation and an oral defense of the dissertation research completes the Ph.D. program.

Courses

Primarily for Undergraduates

Note: 6E:1 and 6E:2 may be taken in either order or simultaneously.

6E:000 Cooperative Education Internship 0 s.h.

6E:1 Principles of Microeconomics 3-4 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. GER: social sciences (except B.B.A., students)

6E:2 Principles of Macroeconomics 3-4 s.h.
National income and output, employment and inflation, money, credit; government finance; monetary, fiscal policy; economic growth; development; international finance. GER: social sciences (except B.B.A., students).

6E:7 Contemporary Economic Problems and Policy 3 s.h.
Economic concepts developed and applied to analysis of current social problems, issues, policies; representative topics include jobs versus environment, free trade versus protectionism, the war on drugs, American competitiveness, health care delivery costs and choices.

6E:50 Introduction to Economic and Social Statistics 3 s.h.
Statistical methods applied to problems in economics, other social sciences; graphical methods, descriptive statistics, sampling and inference, regression analysis, simple forecasting methods. Same as 44:85.

6E:99 Internship 1 am.
Open only to students participating in the Washington Center for Learning Alternatives, other approved internship programs. Consent of undergraduate director required.

6E:100 Economics for Business Decision Making 3 s.h.
Economic theories of consumer demand, producer behavior, and market equilibrium, with emphasis on applications to business decision making; organization and incentives, market imperfections and government policy; input markets. Prerequisites: 6E:1 or 6E:2, and junior standing; or consent of undergraduate director.

6E:104 Microeconomic Theory 3 s.h.
Economic theory of consumer behavior, producer behavior, role of markets in coordinating economic decisions; conditions for efficient resource allocation by market mechanisms; market imperfections, strategic behavior. Prerequisites: grade of C or higher in 6E:1 and 6E:2, or consent of undergraduate director.

6E:105 Macroeconomic Theory 3 s.h.
Measurement of national product, unemployment, inflation; determination of full employment; role of stabilization policies; economic growth, dynamics of inflation. Prerequisites: grade of C or higher in 6E:1 and 6E:2, or consent of undergraduate director.

6E:111 Labor Economics 3 s.h.
Macroeconomic analysis of labor markets, related institutions; labor supply decisions made by workers, labor demand decisions made by firms, market equilibrium; economic analysis of unions; return to education; family decisions. Prerequisite: 6E:1 or consent of instructor.

6E: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, and role of government. Prerequisites: 6E:1 and 6E:2, or senior standing.

6E: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: 6E:1 and 6E:2, or senior standing.

6E:119 Economics of the Government Sector 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: 6E:1 and 6E:2, or consent of instructor.

6E:125 International Economics 3 s.h.
Foreign exchange, balance of payments; international monetary arrangements, policy; Theory of international trade; role of tariffs, restrictions in international trade. Prerequisites: 6E:1 and 6E:2, or senior standing.

6E:129 Economic Growth and Development 3 s.h.
Determinants of rising living standards; accumulation of physical, human capital; predictions of economic growth models compared to changes in living standards. Prerequisite: 6E:1 or consent of instructor.

6E:133 Environmental and Natural Resource Economics 3 s.h.
Environmental, resource use problems; efficient mechanisms and other policies for environmental protection, management of common property resources. Prerequisites: 6E:1 and 6E:2, or senior standing, or consent of instructor.

6E: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: 6E:1 and 6E:2, or senior standing.

6E:141 Economics of American Industries 3 s.h.
Structural evolution; resource allocation and development of public policy on monopoly; selected industries. Prerequisites: 6E:1 and 6E:2, or senior standing.

6E:145 Introduction to the Economics of Transportation 3 s.h.
Same as 102:133, 144:133.

6E:150 Introduction to Economic History 3 s.h.
Western economic development from antiquity to present; evolution of population, technology, business organization, production, trade; dynamics of economic systems; methodology. Prerequisite: 6E:1 or equivalent.

6E:163 Comparative Economics 3 s.h.
Comparative study of organization, operation, performance of major economies around the world; private versus collective ownership, administrative versus market coordination, centralized versus decentralized decision making; privatization of industries, growth globalization of markets, apparent triumph of capitalism. Prerequisites: 6E:1 and 6E:2.

6E:164 Economics in Transition 3 s.h.
Theory, experience of central economic planning; causes of collapse of communism in eastern Europe, former Soviet Union; major episodes of economic reform; current problems of transformation to the market system. Prerequisites: 6E:1 and 6E:2.

6E:171 Antitrust, Legal and Economic Analysis 3 s.h.
Federal policy; monopolization, predatory pricing, collusion, vertical restrictions and resale price maintenance; enforcement; case law, economics literature. Prerequisite: 91:208 or 6E:100 or 6E:104 or consent of instructor. Same as 91:201.

6E:172 Law and Economics 3 s.h.
Law examined through analytic tools of macroeconomics; impact of legal rules on resource allocation, risk bearing, distribution of economic wellbeing. Prerequisite: 6E:100 or 6E:104 or consent of instructor. Same as 91:205.

6E:173 Advanced International Economics 3 s.h.
Neoclassical model of international trade, theory of comparative advantage, role of trade barriers, balance of payments, foreign exchange, macroeconomic policy in an open economy. Prerequisites: 6E:100 or 6E:104, and 6E:105; or graduate standing.

6E:174 Monetary Economics 3 s.h.
Demand for, supply of money; money's role in economy; empirical studies of money's impact; problems with monetary control. Prerequisite: 6E:105 or consent of instructor.

6E:175 Economic Analysis of Labor Markets 3 s.h.
Labor supply, demand; investments in human capital, compensating wage differentials, discrimination, long-term contracts, occupational choice, family decisions, unions. Prerequisites: 6E:100 or 6E:104, and elementary Calculus and Statistics.

6E:176 Public Sector Economics 3 s.h.
Economic functions, budgetary processes of government; effects of government expenditures, taxation on resource allocation, income distribution, economic growth and stability. Prerequisites: 6E:100 or 6E:104, and 6E:105; or consent of instructor.

6E:177 Industrial Organization 3 s.h.
Market structure, effects of business practices, informational problems on market structure, appraisal of antitrust policies, government regulation of business. Prerequisite: 6E:100 or 6E:104.

6E:178 American Economic History 3 s.h.
Emphasis on role of population, technology. Prerequisites: 6E:100 or 6E:104 for economics majors; 6E:1 and 6A:61 for non-economics majors. Same as 16A:144.

6E:179 History of Economic Thought 2-3 s.h.
Evolution, development of economics as a social science; ideas of Smith, Ricardo, Malthus, Walras, Marshall, Keynes, and their major critics. Prerequisite: 6E:100 or 6E:104 or 6E:105.

6E:184 Introduction to Econometrics 3 s.h.
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.

6E:187 Introduction to Mathematical Economics 3 s.h.
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. May be repeated. Prerequisite: 6E:100 or 6E:104 or consent of instructor.

6E:189 Topics in Economics 3 s.h.
Consent of instructor required.

For Advanced Undergraduates

6E:197 Honors Seminar 1 am.
Consent of instructor required.

6E:198 Senior Thesis in Economics 3 s.h.
Consent of instructor required.

6E:199 Readings and Independent Study in Economics 3 s.h.
Consent of instructor required.

Primarily for Graduates

With consent of the department chair, qualified undergraduate students may enroll in courses listed for graduate students.

6E:200 Mathematics for Economists 3 s.h.
Constrained optimization, derivative and integral equations, dynamic programming.

6E:201 Statistical Methods 3 s.h.
Probability theory, statistical inference, linear regression model, econometric methods. Prerequisite: one year of calculus and multivariate calculus.

6E:203 Microeconomics I 3 s.h.
Price theory; emphasis on problem formulation and solving; economic intuition; producer and consumer behavior, competitive and noncompetitive markets, welfare economics. Offered fall semesters. Consent of instructor required.

6E:204 Macroeconomics I 3 s.h.
Economic growth, business cycles, money and inflation. Offered fall semesters. Consent of instructor required.

6E:205 Macroeconomics II 3 s.h.
Neoclassical paradigm; axioms, essential conclusions; limitations of paradigm, alternative theories. Offered spring semesters.

6E:206 Macroeconomics III 3 s.h.
Dynamic macroeconomic models, stochastic macroeconomics, finite consistency, equilibrium business cycle theory. Offered spring semesters. Prerequisite: 6E:204 or consent of instructor.
6E:211 Mathematical Economics I 3 s.h.
Convex analysis in economic theory; ordinal, cardinal preference relations; concave numerical representations; separation principle for convex sets; linear programming; concave programming; Brouwer fixed point theorem, existence of competitive equilibrium. Prerequisites: 6E:205 and 6E:201.

6E:212 Mathematical Economics II 3 s.h.
Theories of n-person games, noncooperative or cooperative; applications to general economic equilibrium analysis. Prerequisite: 6E:211.

6E:217 The Economics of Uncertainty 2-6 s.h.
Information, informational equilibrium; risk and risk aversion; temporal resolution of uncertainty. Prerequisite: 6E:211.

6E:221 Econometrics 3 s.h.
Statistical inference in single, multiple equation stochastic models, models with nonidentified or nonidentically distributed error structure, dynamic models; OLS, GLS, IV, ML estimation; asymptotic distribution theory; exact, asymptotic hypothesis tests Prerequisite: 22S:154 or equivalent.

6E:222 Applied Econometrics 3 s.h.
Empirical problems; multiple linear regression, nonlinear regression, maximum likelihood, hazard functions, univariate and multivariate time series, flexible functional forms. Prerequisite: 6E:221.

6E:223 Econometric Theory I 3 s.h.
Statistical theory underlying econometric inference; emphasis on estimation, hypothesis testing in linear models. Prerequisite: 6E:221.

6E:226 Travel Demand Modeling 3 s.h.
Mathematical, statistical background; choice theories; random utility models; econometric methods for multinomial logit, related models; random utility models applied to travel demand forecasting; demand/performance equilibrium. Prerequisites: 6E:184 or 6E:221. Same as 44:236.

6E:231 Economic Development and Policy Alternatives 3 s.h.
Emphasis on theories of development, policy alternatives. Consent of instructor required.

6E:234 International Business - MBA 3 s.h.
Problems in international business; how to export; how to deal with import competition; international joint ventures; country studies. Consent of instructor required.

6E:235 International Trade Theory 3 s.h.
Tariff theory, policy. Consent of instructor required.

6E:236 International Monetary Economics 3 s.h.
Balance of payments adjustment; exchange controls; international investment; macropolicy in an open economy. Consent of instructor required.

6E:241 Microeconomics 111 2-6 s.h.
Current research in macroeconomics; development of research topics with emphasis on theoretical, empirical analysis. Prerequisites: 6E:205 and 6E:221.

6E:245 Monetary Theory 2-3 s.h.
Optimal quantity of money, models of monetary growth, overlapping generation models with applications to monetary economies; determinants of interest rates; effects of anticipated, unanticipated, money supply changes; empirical estimates of money's impact. Consent of instructor required.

6E:250 Labor Economics 3 s.h.
Problems, models, including neoclassical 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: 6E:205, and 6E:221 or 6E:184.

6E:251 Labor Economics 3 s.h.
Current research, with emphasis on prospects for original research; may include life cycle models of labor supply, dynamic labor demand models, compensating wage differentials, labor turnover, cyclical employment fluctuations, aspects of collective bargaining. Prerequisites: 6E:205, and 6E:221 or 6E:184.

6E:263 Economic History 3 s.h.
Western economies; emphasis on population trends and labor force growth, evolution of capital markets, patterns of capital accumulation, resultant rates of economic growth; analyses of technological progress, growth of open economies. Consent of instructor required.

6E:268 History of Economic Thought 3 s.h.
Development of neoclassical, Keynesian thought; American economic thought, including institutional economics, varieties of socialist economics; utopian tradition. Consent of instructor required.
Graduate Programs

**Master of Arts**

A Master of Arts with a major in industrial relations and human resources is available as a special nonthesis program for students who seek a professional degree in the field. The degree provides concentrated graduate study in labor relations, organizational behavior, and personnel management.

The M.A. requires 36 to 42 semester hours, depending on the student's previous academic work, and is designed to allow maximum flexibility in developing a plan of study that meets the student's needs. Courses are organized in five basic groups: a major area, an optional minor area, foundation courses, common body courses, and a research requirement.

**MAJOR AREA**

The student's career goals and previous academic work are considered in the selection of courses for the major area of study. With the approval of the adviser, six courses are selected from the following graduate courses in industrial relations and human resources, for a total of 18 semester hours.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>6J:152</td>
<td>Human Resource Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6J:153</td>
<td>Collective Bargaining</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6J:160</td>
<td>Organizational Design and Operations</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6J:163</td>
<td>Organizational Design and Operations</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**OPTIONAL MINOR**

With the consent of their advisers, students may take 6 of the 18 semester hours for the major with an optional minor area from a minor area outside the department.

**FOUNDATION COURSES**

A maximum of 13 semester hours of foundation courses are required of all master's students in the College of Business Administration. These requirements may be met through completion of courses in administrative management, economics, and statistics. Students who have fulfilled these requirements through previous course work may reduce their total required semester hours to the 36-semester-hour minimum.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>6J:259</td>
<td>Labor Arbitration</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**COMMON BODY COURSES**

Students with insufficient previous course work in accounting, finance, and economics must complete two 3-semester-hour courses in two of the three areas. Students who have previously
course work in these areas may take additional electives or reduce their total required semester hours to the 36-semester-hour minimum.

RESEARCH REQUIREMENT

A critical part of each student’s graduate education is the development of research skills. The program’s research component consists of a 3-semester-hour research methodology course and two 1-semester-hour independent research study courses, for a total of 5 semester hours. The product of these two 1-semester-hour courses is a research paper that is evaluated by a panel of three faculty members, who also serve as the student’s oral examination committee.

Doctor of Philosophy

Students seeking a Ph.D. in industrial relations and human resources will find degree requirements specified under “Interdepartmental Graduate Programs” in the College of Business Administration section of the Catalog.

Courses

Primarily for Upper-Division Undergraduates

6J:000 Internship in Management and Organizations 0 s.h.
6J:070 Introduction to Law 3 s.h.
6J:100 Administrative Management 3 s.h.
6J:101 Directed Readings in Industrial Relations and Human Resources Management arr.

Consent of instructor required. 6J:102 M.A. Research Report 1 s.h.
6J:201 Directed Readings in Management and Organizations arr.
6J:206 International Business Law 3 s.h.
6J:241 Total Quality Management 3 s.h.
6J:245 Training and Development 3 s.h.
6J:251 Concepts of Fair Employment 3 s.h.
6J:252 Collective Bargaining 3 s.h.
6J:253 Economics of Human Resource Management 3 s.h.
6J:254 public Sector Labor Relations 3 s.h.
6J:255 Managerial Decision Making 3 s.h.
6J:256 Dynamics of Negotiations 3 s.h.
6J:257 Legal Issues in Human Resource Management 3 s.h.
6J:258 Representation in Labor Arbitration 3 s.h.
6J:259 Labor Arbitration 3 s.h.
6J:260 Personnel Selection 3 s.h.
6J:261 Human Resource Management I 3 s.h.
6J:262 Human Resource Management II 3 s.h.
6J:263 Organizational Design, Change, and Transformation 3 s.h.
6J:264 Human Resources Management Ph.D. 3 s.h.
6J:265 Seminar in Organizational Theory 3 s.h.
6J:266 Behavioral Science and Business Organizations 1 s.h.
6J:268 Seminar in Behavioral Science Problems in Organizations 3 s.h.
6J:269 Meta-Analysis in Behavioral and Social Sciences 3 s.h.
6J:270 Research Seminar: Management and Organizations 3 s.h.
6J:271 Compensation Management 3 s.h.
6J:273 Measurement Theory and Methods in the Behavioral and Social Sciences 3 s.h.
6J:299 Field Studies in Management and Organizations 3 s.h.

Catalog.
Management Sciences

Chair: Kenneth O. Kortanek
Associate professor: Padmini Srinivasan
Associate professor emerita: Eleanor M. Birch
Assistant professors: Renato de Matta, Joline Morrison, Mike Morrison, June Park, Rodney Traub
Undergraduate degree: B.B.A. in Management Sciences
Graduate degrees: M.B.A.; M.A., Ph.D. in Business Administration

Undergraduate Program

Management sciences majors participate in a variety of educational experiences that develop their knowledge of managerial decision-making systems. Skills in applying this knowledge are acquired by developing quantitative models, utilizing computer technology, and creating database systems.

Students prepare for a variety of career opportunities in both manufacturing and service organizations. Typical starting positions include computer programmers, systems analysts, sales representatives with computer companies, and management trainees. Entry-level positions in operations management include materials management, line supervision, purchasing, and manufacturing systems.

Requirements for the Major in Management Sciences

6K:176 Managerial Decision Models
6K:178 Applications of Database Management Systems
6K:196 Introduction to Data Communications
22C:16 Introduction to Programming with Pascal
Additional computer science programming course (22C:9 or 22C:17 recommended, 22C:1 and 22C:5 not eligible)

Graduate Programs

Master of Arts

A nonthesis Master of Arts in management information systems is available to students with appropriate computer science experience, including a rigorous background in structured programming (for example, 22C: 16–17). Requirements include up to 12 semester hours of foundation courses (to satisfy the AACSBC Common Body of Knowledge requirement) and at least 35 additional semester hours of course work selected from the following.

Courses

Economics and Behavioral Science

Total of 3-6 semester hours
6N:213 Managerial Economics 3 s.h.
or
6N:228 The Economic Environment of the Firm 3 s.h.
6N:227 Administrative Science II 3 s.h.
Research Methodology
6N:226 Statistical Methods 3 s.h.

Management Information Systems

Total of 12-18 semester hours
6K:280 Management Information Systems-M.B.A. 3 s.h.
6K:281 Management Systems Design 3 s.h.
6K:282 Applied Database Management Systems 3 s.h.
6K:296 Business Telecommunications 3 s.h.
One or more of these:
6K:278 Forecasting 3 s.h.
6K:285 Research Seminar in Management Information Systems 3 s.h.
6K:294 Artificial Intelligence for Management 3 s.h.
6N:229 Operations Management 3 s.h.

Computer Science

Total of 6 semester hours
22C:180 Fundamentals of Software Engineering 3 s.h.
22C:144 Database Management Systems 3 s.h.

Students may substitute other computer science courses with the approval of their advisers.

Electives

Total of 3-9 semester hours

Doctor of Philosophy

Candidates who want to earn a Ph.D. in management sciences should refer to the description of the Doctor of Philosophy program in “Interdepartmental Graduate Programs” in the College of Business Administration section of the Catalog.

For Undergraduates and Graduates

6K:100 Operations Management 3 s.h.
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. Junior standing required. Prerequisites: 6K:70 and 6K:71
Consent of instructor required.
6L:176 Managerial Decision Models 3 s.h.
Mathematical programming, including linear, nonlinear, dynamic programming, with applications in economics; management; classical optimization techniques, transportation, network flow problems. Prerequisites: 6K:70 and 6K:71.
6K:180 Management Information Systems 3 s.h.
Information technologies critical to business firms’ strategic, managerial, and operational level activities, and information systems infrastructure; different types of business application software, including transaction processing, decision support, executive support, group support systems. Prerequisites: 6K:70, 6K:71, and 22C:16 or additional programming course.
6K:181 Systems Analysis and Design 3 s.h.
Design, implementation of an information system; student projects in determination of information needs, system design, information plan development; construction of prototype information system. Prerequisite: 6K:182.
6K:182 Applications of Database Management Systems 3 s.h.
Design, implementation of a database using relational DBMS; emphasis on issues of logical and physical design, database administration, concurrency control, maintenance. Prerequisite: 6K:180.
6K:183 Applied Information Systems 3 s.h.
Introduction to computer technology with emphasis on application to accounting and transaction processing systems; problem solving with microcomputer spreadsheets; databases; accounting cycle operations using accounting software. Prerequisites: 6K:1 6K:2, 6K:70, and 6K:71.
6K:184 Production Planning and Control 3 s.h.
Computer-based systems for production planning, scheduling, inventory control in operations management; emphasis on recent applications in industry, including material requirements planning (MRPII) and just-in-time (JIT) systems. Prerequisite: 6K:100.
6K:191 Introduction to Data Communications 3 s.h.
Computer communications: computer communication system, hardware, data transmission principles; examples of existing communication networks; related managerial issues. Prerequisite: 6K:180.

Primarily for Graduates

6K:201 Directed Readings arr.
Consent of instructor required.
6L:202 M.A. Research Report 1 s.h.
Open only to nonthesis M.A. candidates. Consent of instructor required.
6K:277 Management Science Topics 3 s.h.
Development of mathematical models for decision problems; linear, nonlinear, quadratic, integer, dynamic programming; selected stochastic, game theoretic systems. Consent of instructor required.
6K:279 Forecasting 3 s.h.
Ad hoc models such as moving average, exponential smoothing; structured models such as regression, Box–Jenkins time series models. Prerequisite: 6N:226 or equivalent.
6K:280 Management Information Systems-M.B.A. 3 s.h.
Software, hardware, organizational fundamentals of management information systems; hardware components and characteristics, operating systems, systems and applications software, system life cycle; management issues.
6K:281 Management Systems Design 3 s.h.
Structured approach to analysis, design of computer-based business information systems; structured analysis tools such as data flow diagrams, data dictionary, decision tables, Structured English, structure design tools such as structure charts, pseudocode, logical database design. Prerequisite: 6K:280 or consent of instructor.
6K:282 Applied Database Management Systems 3 s.h.
Hierarchical, network, relational data models; approaches to logical and physical database design, database administration; concurrency control, recovery, maintenance issues; design, implementation of a database using relational DBMS. Prerequisite: 6K:280.

6K:284 Manufacturing Automation 3 s.h.
Managerial perspective on development of automation in manufacturing, its use to achieve competitive advantages; new and emerging computer-integrated manufacturing technology; operating systems to manage CIM technology, impact of CIM technology on operational, financial, marketing aspects of firms. Prerequisite: 6N:229.

6K:285 Research Seminar in Management Information Systems 3 s.h.
Structured systems design, fourth generation languages, communications, economics of computers, computer security issues, expert systems, decision support systems. Consent of instructor required.

6K:286 Optimization Methods I 3 s.h.
Mathematical programming models, including linear programming, transportation models, network flow, polyhedral sets, theorems of the alternative, duality, sensitivity, simplex algorithms, decomposition, large-scale linear programming, interior-point algorithms, the linear complementarity problem. Prerequisite: linear algebra.

6K:287 Optimization Methods II 2-4 s.h.
Nonlinear programming theory and algorithms; unconstrained optimization, Newton's method, Kuhn-Tucker theory, sensitivity and stability; convex analysis; constrained optimization methods, non-polynomial cone, interior point algorithms for general linear programming. Prerequisites: 6K:286 and multivariable calculus.

6K:288 Applied Stochastic Processes 3 s.h.

6K:289 Research Seminar in Quantitative Methods 3 s.h.
Convex analysis, interior point methods, complementarily, large scale optimization and computation of equilibria, semi-infinite programming and games, stochastics modeling and applications, combinatorial optimization and applications. Consent of instructor required.

6K:290 Thesis in Management Sciences and Engineering 3 s.h.
Open only to Ph.D. candidates. Consent of instructor required.

6K:291 Operations Planning and Control 3 s.h.
Research on planning, control of production systems; aggregate production planning, production and work force scheduling, project planning and scheduling, vehicle scheduling, inventory theory, forecasting, purchasing models, manufacturing planning, control systems. Consent of instructor required.

6K:292 Operating Systems Design 3 s.h.
Design of production, logistics systems; facilities location and layout, assembly line planning, group technology, quality assurance and control, manufacturing process functions, capacity planning, product process development and design, technology management, manufacturing strategy. Consent of instructor required.

6K:293 Research Seminar in Operations Management 3 s.h.
Capacity planning, facilities management, technology management, product design and development, inventory theory, production scheduling. Consent of instructor required.

6K:294 Artificial Intelligence for Management 3 s.h.
Alternative AI knowledge representation, search methodologies; applications including expert systems, automated AI planning; practical experience with an AI programming language, expert system shell. Consent of instructor required.

6K:295 Logistics Management and Analysis 3 s.h.
Modeling of and solution methodology for problems in design, operation of logistics systems; location, routing, distribution, inventory, networks. Consent of instructor required.

6K:296 Business Telecommunications 3 s.h.
Transmission media and techniques, switching methods, network management, tariffs, examples of existing telecommunication networks Prerequisite: 6K:280.

6K:297 Applied Queueing Models 3 s.h.
Birth-death and general models of queueing systems including networks of queues, simulation of complex queueing systems; case applications to manufacturing and service decision problems. Consent of instructor required.

6M:100 Introduction to Marketing 3 s.h.
Philosophy and activities of marketing; marketing environment of an organization, strategies with respect to marketing decisions, buyer behavior, junior or higher standing required. Prerequisites: 6A:1 and 6E:1.

For Undergraduates and Graduates

Consent of instructor required.

6M:134 Marketing Research 3 s.h.
Marketing research methods; role of marketing research information as a tool in management decision making. Prerequisites: 6M:300 and 6K:71.

6M:135 Consumer Behavior 3 s.h.
Behavioral and social aspects of marketing; research methods and findings from behavioral sciences, their relation to consumption of products, services. Prerequisite: 6M: 100.

6M:137 Advertising Theory 3 s.h.
Advertising as a promotional force; emphasis on theory; planning resulting strategic and tactical decisions made by advertising executives. Prerequisite: 6M: 100.

6M:139 Sales Management 3 s.h.
Personal selling, management of sales force; emphasis on recruitment, selection, training of sales representatives; problems in all phases of sales effort, supervision, control. Prerequisite: 6M: 100.

6M:147 Marketing Management 3 s.h.
Marketing problems of organizations; emphasis on marketing management, role in developing, presenting goal oriented marketing strategies; application of marketing concepts to real business situations. Prerequisites: 6M: 134 and one additional marketing course.

6M:151 International Marketing 3 s.h.
International versus domestic marketing, cultural considerations, market entry strategies, applying marketing principles in foreign country marketing, currency markets, developing specific markets in Western Europe and the Pacific Rim, developing workable plans, programs. Open only to undergraduates. Prerequisite: 6M: 100.

6M:190 Topics in Marketing 3 s.h.
Topics not regularly offered in other courses. Consent of instructor required. Prerequisite: 6M: 100.

Primarily for Graduates

6M:201 Directed Readings in Marketing arr.
Consent of instructor required.

6M: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: 6N:2 1 1 and 6N:226. Recommended: 6N:210.

6M:231 Industrial Marketing 3 s.h.
Industrial buyer behavior, buyer seller relationships, interactive product policy and market segmentation, distribution and selling systems, skill development in formulating marketing strategies for industrial products and services, in industrial marketing problem solving and decision making. Prerequisite: 6N:211.

6M:232 Buyer Behavior 3 s.h.
Behavior of consumers, industrial buyers; research methods and findings from behavioral sciences in relation to consumption of products, services; application of consumer behavior concepts to managerial decision making. Prerequisite: 6N:211.

6M:233 Service Marketing 3 s.h.
Underfunding consumption and marketing of services; problems faced by service managers; development of an organizational marketing system for delivery of quality service. Prerequisite: 6N:211.

6M:234 Product Management 3 s.h.
Techniques of new product development, idea generation, concept screening, product design, market testing, forecasting and brand management issues over the product life-cycle. Prerequisites: 6N:211 and 6N:226.

Graduate Programs

See “Interdepartmental Graduate Programs” in the College of Business Administration section of the Catalog.

Courses

Primarily for Undergraduates

6M:005 Cooperative Education Internship 0 s.h.
Prerequisites: a 3.00 grade-point average in 6M: 100 and 6M: 134.

6M:290 Marketing . Business Administration 273
6M:235 International Marketing 3 s.h.
Entering overseas markets, conducting marketing operations on
international as opposed to domestic scale; focus on identifying
and evaluating opportunity in non-U.S. markets, developing
and adapting marketing strategies to specific national needs,
coordinating strategies for global marketing. Prerequisite:
6N:211.

6M: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. Open only to M.B.A.
students with no prior course work in advertising, marketing
communications, or promotion strategy. Prerequisite: 6N:211.

6M: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.

6M:238 Contemporary Topics in Marketing 3 s.h.
Topics not regularly offered in other courses. Open only to
graduate students. Prerequisite: 6N:211.

6M:239 Analysis for Marketing Decisions 3 s.h.
Analysis, decision making in context of marketing programs;
emphasis on functions of marketing research and models as they
affect marketing manager’s role; marketing cases structured

6M:241 Management Models-Ph.D. 3 s.h.
Analytic models that support marketing decision making;
emphasis on structure, use of models for decision situations;
case studies. Consent of instructor required.

6M:242 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. Consent of instructor required.

6M:243 Research in Consumer Behavior-Ph.D. 3 s.h.
Key facets of consumer behavior-information processing
perception, memory, learning, attitude formation, attitude
change; behavioral research methods. Consent of instructor
required.

6M:244 Multivariate Applications-Ph.D. 3 s.h.
Multivariate: principal components, factor analysis,
canonical correlation, discriminant analysis, linear structural
relations; emphasis on structural commonality across
procedures, applications of procedures to marketing research
problems. Recommended: substantial familiarity with linear
algebra and inferential statistics. Consent of instructor required.

6M:245 Research Workshop-Ph.D. 3 s.h.
Individual research topics. Consent of instructor required.

6M:246 Seminar in Marketing-Ph.D. 3 s.h.
Current literature, research. Consent of instructor required.

6M:290 Thesis in Marketing 3 s.h.
Consent of instructor required.
College of Dentistry

Dental Hygiene . . . . . . . . . . . . . . . 280
Endodontics . . . . . . . . . . . . . . . . . 280
Family Denistry . . . . . . . . . . . . . . 280
Hospital Family Dentistry . . . . . . 281
operative Dentistry . . . . . . . . . . . 281
Oral and Maxillofacial Surgery . . . 282
Oral Pathology, Radiology, and Medicine . . . . . . . . . . . . . . 283
Orthodontics . . . . . . . . . . . . . . . 285
Pediatric Dentistry . . . . . . . . . . 285
Periodontics . . . . . . . . . . . . . . . 286
Preventive and Community Dentistry . . . . . . . . . . . . . 287
Prosthodontics . . . . . . . . . . . . . . 288

Dean: James H. McLeran
Executive associate dean: John C. Montgomery
Associate dean, research: Christopher Squier
Associate dean, academic affairs: Nelson S. Logan
Associate dean, business and financial administration: M.J. Brennan
Interim assistant dean, clinical affairs: William R. Grigsby
Assistant dean, student affairs: Yvonne M. Chalkey
Director, oral science: Christopher Squier
Degrees: D. D.S., M. S., Ph.D.
Doctor of Dental Surgery

The College of Dentistry is both administratively and physically an integral part of the University. It draws on and contributes to the University’s diverse resources, and its students enjoy all the advantages and privileges enjoyed by the general student body. The college benefits particularly from its cooperative relationship with the Colleges of Medicine, Nursing, and Pharmacy in The University of Iowa Health Center, whose teaching, research, and service activities have earned international recognition.

The basic educational program leading to the Doctor of Dental Surgery (D. D. S.) consists of a minimum of three years of preprofessional study and four years of study in the College of Dentistry. The dental curriculum consists of five basic units.

Basic sciences: gross anatomy, biochemistry, histology, physiology, general pathology, oral pathology, pharmacology, microbiology

Restorative dental sciences: gross, microscopic, and radiographic dental anatomy, dental materials, endodontics, operative dentistry, fixed partial prostheses, removable prostheses

Oral medicine: preventive dentistry, oral diagnosis, dental radiology, oral pathology, anesthesiology and pain control, oral and maxillofacial surgery, periodontology

Community dentistry: ethics, epidemiology, nutrition, preventive dentistry, community health, principles of human behavior, dental economics, dental jurisprudence, geriatrics, communication

Pediatric dentistry: facial growth and development, pediatric dentistry and orthodontics

To achieve a close correlation of the basic sciences with clinical disciplines, the student is introduced to clinical patient-treatment situations during the first year.

The second-year program continues the basic sciences and technical courses, plus definitive clinical patient treatment.

Third-year dental students rotate through a series of clerkships that expose them to eight clinical disciplines.

Fourth-year dental students are involved in the delivery of comprehensive dental care in an environment that simulates conditions in private dental practice. They also are exposed to various extramural health programs that include hospitals, mental health institutes, nursing homes, and the Special Patient Care Clinic. They also may participate in the Colorado Migrant Worker Program or the Foreign Dental School Exchange Program, which give exposure to facets of dentistry usually not observable in an academic setting.

Promotions and 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 basic, 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, the student 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 previously has not been available or that, for some reason, 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

Iowa and the states of Colorado, Illinois, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, Wisconsin, and Wyoming belong to the Central Regional Dental Testing Service, which serves as the testing agency for clinical examinations for licensure in these states. Examinations are administered at several testing sites located at schools of dentistry within the region. Examination dates are determined by the Central Regional Dental Testing Service and are available from its administrative secretary.

For a five-year period, member states accept successful completion of Central Regional Dental Testing Service requirements in lieu of their individual state’s clinical examination requirements. The license application is then filed with the individual state board of dentistry.

All states also require the National Boards, conducted by the American Dental Association, in lieu of individual state written examinations. A jurisprudence examination also is required in many states, including Iowa

Student Organizations

All dental students are eligible for membership in the American Student Dental Association through its local chapter. There are also local chapters of the American Association of Dental Schools, the American Association of Dental Research, the American Association of Women Dentists, the American Society of Dentistry for Children, and the Student National Dental Association. Students who rank in the upper 12 percent of their senior class are eligible for election to Omicron Kappa Upsilon, national scholastic honorary dental society. Two national dental professional fraternities, Delta Sigma Delta and Psi Omega, have chapter houses at Iowa. Both fraternities have housing available to male and female dental students. In addition, they provide both academic and social activities for students and their spouses.

Expenses

The College of Dentistry maintains a Supply-Instrument Management System (SIMS), which provides students with instruments and supplies necessary throughout dental training. The SIMS usage fee for the D.D.S. is payable in installments over the first three years of the 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.

Financial Aid

Financial assistance for dental students is based on need. Students applying for Health Professions Loans must submit the Family Financial Statement (FFS), which includes an evaluation of parents’ income and assets. Needy dental students are eligible for Health Professions Loans, Perkins Loans, state grants, and Stafford Loans. Interest on these loans is deferrable 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 loans are available through the financial aid coordinator at the College of Dentistry.

See “Financial Aid” in the Learning at Iowa section of the Catalog or inquire at the Office of Student Financial Aid for updated information on financial assistance available to dental students.

Dental Research Awards (DRA)

Dental Research Awards are given each year to qualified entering dental students. The DRA provides financial support ranging from $2,000 to $8,500 per year for as many as four years, if the student maintains an appropriate level of performance. Awarders are engaged as assistants in research working with faculty mentors.

Minorities

Financial assistance (grants and loans) is available to minority students who qualify under The University of Iowa’s Educational Opportunity Program and the Opportunity at Iowa Program.

Arkansas Contract

Under an agreement with The University of Iowa College of Dentistry, the state of Arkansas makes supplemental tuition payments for its residents who are dentistry students at Iowa. These payments enable the Arkansas students to pay the equivalent of Iowa resident tuition for their study here.

Admission

Applicants must submit a completed application form to the American Association of Dental
Schools Application Service (AADSAS). The AADSAS forms are available from the University Office of Admissions or the College of Dentistry Academic Affairs Office.

Applications are accepted beginning June 1 of the year prior to the year for which application is made. Completed applications should be on file at AADSAS by November 30. Applicants should apply as early as possible and should not delay until after the Dental Admission Test (DAT) is taken. Notifications of acceptance are sent beginning December 1

Prospective dental students are encouraged to embark on an education program that leads to a standard bachelor’s degree. This allows students to consider a combined program that enables them to earn a standard bachelor’s degree from their undergraduate college upon completion of the freshman year in dentistry (see “Combined Liberal Arts-Dentistry Program” in this section of the Catalog).

Predental Studies

The basic academic requirement for admission to the College of Dentistry is the completion of no fewer than 94 semester hours of academic study at an accredited college. 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.

Mathematics: college mathematics (equivalent to 12 semester hours), including two semesters of basic algebra, trigonometry, and mathematics for the biological sciences, with instruction in relations, functions, coordinate systems, graphing, polynomials, logarithmic and exponential functions, and probability; calculus is recommended.

Physics: one year (equivalent to 8 semester hours), of which one-fourth must be laboratory work.

Chemistry: two years (equivalent to 16 semester hours), of which one year (equivalent to 8 semester hours) must be in organic chemistry; one-fourth of each year’s study must be laboratory work.

Biochemistry: highly recommended; will be required for fall 1997 admission.

Biological Science: one year (equivalent to 8 semester hours), 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, organismic biology, animal biology, genetics, development, ecology, and evolution; preference is given to applicants who have completed more than 8 semester hours. Courses in histology and cell physiology are strongly recommended.

Electives: sufficient course work in the social sciences, philosophy, psychology, history, foreign languages, and mathematics to provide a well-rounded educational background.

Grade-Point Average Requirement

Applicants should have a cumulative grade-point average of at least 2.50. 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 will be 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. Tests are given in spring and fall; The University of Iowa is a testing center.

Applicants must take the test no later than fall in order to be admitted for the following year. Test application forms are available from the University Office of Admissions; the College of Dentistry Academic Affairs Office; or the American Dental Association, 211 East Chicago Avenue, Chicago, Illinois 60611. Test application deadlines are typically 30 to 45 days prior to the exam.

Deposit by Accepted Applicants

Applicants accepted before February 1 are required to submit a $500 deposit within 30 days after notification of admission. 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 whom the dental program believes 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 Admissions

The College of Dentistry has an early admissions program set up with The University of Iowa Buena Vista College in Storm Lake, Cornell College in Mount Vernon, Grinnell College in Grinnell, and Luther College in Decorah, Iowa Augustana College in Rock Island, Illinois; and Prairie View A & M University in Prairie View, Texas.

The Deferred Admit Program (DAP) allows academically motivated students interested in a dental career to be admitted as early as the first year of their undergraduate college education while postponing matriculation to the College of Dentistry until they have completed at least three years of liberal arts education. During these three years, students are engaged in a liberal arts curriculum that incorporates the dental prerequisite courses. Once selected for the program, students must maintain a 3.20 grade-point average to assure matriculation to the University of Iowa College of Dentistry.

Combined Liberal Arts-Dentistry Program

Students who are enrolled in a baccalaureate program at The University of Iowa may be allowed to include the first year of dentistry to complete their elective hours requirements toward the bachelor’s degree.

The provision for acceptance by the College of Liberal Arts of 30 semester hours of elective credit earned in any other college of the University allows students who enter the College of Dentistry to obtain a bachelor’s degree from the College of Liberal Arts after successfully completing the freshman year in dentistry. To take advantage of this plan, students must fulfill all specific requirements for the bachelor’s degree, including the General Education Requirements and the requirements for a major. Students also must satisfy the College of Liberal Arts residence requirement before enrolling in the College of Dentistry. See “Early Admission to Medicine or Dentistry” in the College of Liberal Arts section of the Catalog.

Basic Sciences in the Dental Curriculum

The following science courses are offered by departments in colleges other than dentistry and are a required part of the dental curriculum.

60: 101 Human Gross Anatomy for Dental Students 6 s.h.
60:1 12 General Histology for Dental Students 4 s.h.
60:1 14 Oral Histology and Embryology 4 s.h.
61: 112 Health Sciences Microbiology 4 s.h.
69:133 Introduction to Human Pathology arr.
71:1 11 Pharmacology for Health Sciences: Dental 5 s.h.
72: 152 Mammalian Physiology 4 s.h.
99:161 Biochemistry for Dental Students 4 s.h.

Graduate and Postgraduate Study

Oral Science

The College of Dentistry offers programs of study leading to the Master of Science and the Doctor of Philosophy in Oral Science. Both programs require that students complete courses from a core curriculum and conduct independent research leading to a thesis. They are intended to equip graduates for a career in teaching and research.

Master of Science

The M.S. is awarded upon satisfactory completion of 30 semester from of graduate work, including the final examination. It is anticipated that candidates will complete the
program in two years of full-time residence. Candidates who also are involved in an advanced clinical program whose duration is two years should complete the M.S. program by the end of a third year of study.

ADMISSION
Applicants must hold a dental degree and should possess a cumulative grade-point average of at least 3.00 on a 4.00 scale; they also must take the Graduate Record Examination with a minimum combined score of 1600 for all three components (verbal, quantitative, and analytical) and a minimum score of 500 for any individual component. Students whose first language is not English must earn a score of 550 or better on the Test of English as a Foreign Language (TOEFL); candidates also may be asked to take the Test of Spoken English. These requirements are not absolute, but they carry considerable weight in the admission process. A personal interview may be requested.

Students pursuing the M.S. must be enrolled in a clinical training program or a department in the College of Dentistry. The program normally begins July 1 each year.

Doctor of Philosophy
The Ph.D. is awarded upon completion of an advanced course work and original research that culminates in successful defense of a dissertation. Candidates must earn a minimum of 72 semester hours of graduate credit, pass a comprehensive exam, prepare and gain approval of a research prospectus, and complete and successfully defend a dissertation that describes the results of the research. It is anticipated that candidates will complete the program in four years of full-time residence.

ADMISSION
Applicants must hold a dental degree and should possess a cumulative grade-point average of at least 3.00 on a 4.00 scale; they also must take the Graduate Record Examination with a minimum combined score of 1600 for all three components (verbal, quantitative, and analytical) and a minimum score of 500 for any individual component. Students whose first language is not English must earn a score of 550 or better on the Test of English as a Foreign Language (TOEFL); candidates also may be asked to take the Test of Spoken English. These requirements are not absolute, but they carry considerable weight in the admission process.

Applicants are asked to submit a statement describing past research experience and current research interests, and stating how completion of the Ph.D. program fits into their career goals. A personal interview may be requested.

COURSES

Oral Science
151:200 Seminars in Dental Research 1 s.h.
151:210 Dental Sciences Research Methodology arr. Practical, experimental procedures in dental research; literature and design; writing of research protocols.
151:220 Patho-physiology of Skin and Oral Mucosa 2 s.h. Biology of skin, oral mucosa; changes in behavior of the tissues of a variety of physiological, pathological conditions. Offered fall semesters of odd years. Prerequisite: 151:210.
151:230 Patho-physiology of Salivary Glands and Saliva 2 s.h. Intereation, 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 Patho-physiology of the Pulp-Dentin Complex 2 s.h. Biology of tissue; emphasis on pathological changes. Offered spring semesters of even years. Prerequisite: 151:210.
151:280 Advanced Dental Therapeutics 1 s.h. Antimicrobial, analgesic, related therapies; emphasis on drug-dentig interactions, treatment plan modification, case analysis of medically compromised patient. Offered spring semesters.

Facilities
The Dental Science Building, a major unit of the Iowa health center campus, enables the college to accelerate its research activities and facilitates the development of interdisciplinary communication in health center testing, research, and patient care activities. The health center includes the Colleges of Medicine, Nursing, and Pharmacy; the Bowen Science Building; The University of Iowa Hospitals and Clinics; and the Hardin Library for the Health Sciences. The Hardin Library houses all of the University’s special health science holdings, a total of 198,750 volumes, including more than 18,000 volumes on dentistry and allied scientific subjects, and more than 280 dental journals the college currently receives. This library receives more than 2,600 journals from the combined health professions.

The Dental Science Building consists of two connected, four-story wings located on either side of a mall. The south wing is devoted to clinical teaching, with various departmental clinical facilities, support laboratories, clinical research space, offices, and a cafeteria. The north wing houses teaching laboratories, research laboratories, administration area, educational media center, and programs in preventive and community dentistry.

Other Graduate Programs
Programs of study leading to the Master of Science are also offered by the Departments of Prosthodontics; Operative Dentistry; Oral Pathology, Radiology, and Medicine; Orthodontics; Pediatric Dentistry; Periodontics; and Preventive and Community Dentistry. Admission to these graduate programs requires satisfaction of all requirements for admission to the Graduate College, possession of the Doctor of Dental Surgery degree or its equivalent, and departmental approval.

Postgraduate Study
Departments also offer postgraduate programs of study designed as preparation for clinical specialty practice. These programs do not lead to an academic degree. A certificate is awarded upon satisfactory completion of the postgraduate programs.

Nondepartmental
112:100 Transfer Credits Accepted arr.
112:110 Issues in International Dentistry 2 s.h. World view of dental issues, including disease patterns, treatment philosophies, delivery systems, personnel; emphasis on how oral health and dentistry are influenced, valued by cultures worldwide.
112:115 Dental Materials 1 s.h. Composition, physical and chemical properties of restorative dental materials.
112:120 First-Year Continuing Session 0, 12 s.h.
112:145 Introduction to Geriatric Dentistry 2 s.h. Biological, psychological, social aspects of aging; normal aging, disease processes, pathological changes that affect treatment, patient management.
112:150 Second-Year Continuing Session 0, 12 s.h.
112:165 Bioscience Options arr. Special project courses; emphasis on clinical basis of dental practice.
112:168 Dental Therapeutics 1 s.h. Patients’ medications and their implications for dental treatment; review of medications that dentists may prescribe; guidelines for dental prescribing.
112:170 Third-Year Continuing Session 0, 12 s.h.
112:175 Program Abroad arr. Opportunities for foreign dental studies.
112:180 Fourth-Year Lectures and Clinics 0, 12 s.h.
112:190 Dental Student Research Honors program arr. Open only to dental students. Consent of mentor and program director required.
112:198 Advanced Clinical Dental Hygiene 0 s.h. Clinical experience for professional improvement. Prerequisite: completion of a dental hygiene program.
112:199 Advanced Clinical Comprehensive Dentistry 0 s.h. Clinic experience for professional improvement. Dental degree required.

Clinical Management Concepts
112:167 introduction to Quality Assurance 2 s.h. Patient management, quality assurance concepts; students coordinate treatment, patient relations, issues of quality assurance for a group of patients.
112:185 Clinical Admissions Emergency 1 s.h. Clinical evaluation, diagnosis, treatment of patients with dental emergencies; assessment of Patient for referral to appropriate department for treatment.
112:189 Advanced Topics in Quality Assurance 2 s.h. Quality assurance from viewpoint of practicing dental, dental educator, dental epidemiologist, court system; students analyze senior dental practice in relation to quality assurance criteria; ethical, moral dilemmas in relation to dental practice.
DENTAL HYGIENE

At the April 1992 meeting of the State Board of Regents, the Regents voted to close the Department of Dental Hygiene on June 30, 1992. No instruction in dental hygiene will be offered after May 1995. The Department of Preventive and Community Dentistry will administer some dental hygiene courses through that date. See “Preventive and Community Dentistry” in this section of the Catalog.

ENDODONTICS

Head: Richard E. Walton
Professor: Richard E. Walton
Professor emeritus: Anne M. Bjornadal
Associate professors: David R. Drake, William T. Johnson, Lisa R. Wilcox
Assistant professor: Eric M. Rivera
Graduate degree: M. S., Ph.D. in Oral Science

Predoctoral Program

Course work and clinical experiences in endodontics are of vital importance in the overall education of a dental student. 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, emphasizing the areas of diagnosis of pulpal and periapical disease and various specialized aspects of endodontics treatment. Students treat endodontics patients under direct supervision of faculty and staff.

Advanced Programs

The advanced programs offered by the Department of Endodontics are designed to prepare qualified dentists for the practice of endodontics and/or a career in dental education and research.

The department offers three types of post-D.D.S. programs.

The Master of Science program requires a minimum of 30 semester hours (three years) of graduate work, including an original research project and thesis. Students follow an individual plan of study.

The Ph.D. program requires a minimum of 72 semester hours of credit in addition to original research that culminates in successful defense of a dissertation. It is anticipated that candidates will complete the program in five years of full-time study.

The certificate program in endodontics involves course work for up to 60 semester hours and requires no formal thesis. Candidates are expected to write a scientific paper that is based on original research and is of publishable quality. An individual plan of study is prepared for each student.

A certificate in endodontics also is awarded with both the Ph.D. and M.S. degrees. These programs satisfy the training requirements of eligibility of the American Board of Endodontics.

Through the advanced programs, dentists develop their skills and acquire a broad knowledge of the endodontics specialty for teaching and practice; gain enough knowledge and experience in the educational process to be able to function confidently as dental educators; recognize the value of academic research; and develop the ability to plan, conduct, and report the results of research investigations.

Applicants for the advanced programs in endodontics must be graduates of an accredited U.S. college of dentistry or foreign equivalent and must comply with the requirements for admission to The University of Iowa Graduate College.

The advanced programs in endodontics begin July 1. Applications should be made by the preceding September 15. Students who have met the requirements for admission to the Graduate College may also be accepted into the certificate program by the Department of Endodontics. A personal interview with the applicant may be requested.

Students enrolled in the program must maintain a 3.00 grade-point average in order to receive a certificate or degree. Students who fail below this level are Wowed one semester to correct the deficiency. The circumstances creating the deficiency receive careful consideration.

Students enrolled in the advanced programs may not involve themselves in private practice outside the college. A student who does so will be asked to obligate himself or herself exclusively either to the program or the practice.

Persons applying to the advanced programs in endodontics must be able to support themselves financially for the time required to complete the program.

Courses

For Predoctoral Students

83:140 Endodontics 2 s.h.
Basic principles, concepts, technical procedures for treatment of pulpal problems.


83:165 Clinical Endodontic Seminar 1 s.h.
Tooth pain, anesthesia, pulpal and periapical reactions, endodontics radiologic interpretation, trauma diagnosis and treatment, surgical endodontics, endodontics implants, bleaching, retreatment, specification/appraisal.

For Graduate Students

83:200 Update in Endodontics 1 s.h.
Recent advances in diagnosis, treatment planning, clinical techniques.

83:225 Endodontics Literature Review I 2 s.h.
Current research.

83:226 Endodontics Literature Review II 2-3 s.h.
Continuation of 83:225.

83:227 Endodontics Literature Review III 2 s.h.
Continuation of 83:226.

83:228 Endodontics Literature Review IV 2 s.h.
Continuation of 83:227.

83:230 Research in Endodontics all.
Topic selection; protocol preparation and beginning of investigation; completed research investigation, data gathering, thesis, defense.

83:231 Thesis Preparation in Endodontics 3 s.h.

83:240 Endodontics Surgery Conference 2 s.h.
Evaluation of cases that require surgical treatment; treatment methods, photography; presentation of students’ surgery cases before, after treatment; surgical approach to treatment.

83:241 Advanced Clinical Endodontics arr.
Clinical treatment, from simple to advanced; implants, replants, transplants, apical surgeries, root resections, fillings.

83:250 Seminar in Endodontics I 1-2 s.h.
Pulp biology; histochernistry of tooth, hard structure, anatomy, physiology of supporting structures; basic philosophy, concept of endodontics, basic endodontics techniques.

83:251 Seminar in Endodontics II 1-2 s.h.
Biological concepts of pulpal, periapical pathology; emphasis on inflammatory, immunologic responses; oral pathology emphasizing bony lesions.

83:252 Seminar in Endodontics III 1-2 s.h.
Tooth procedures, how they relate to difficult cases; evaluation of case success, failure in relation to treatment procedures; surgical endodontics, concepts, techniques.

83:253 Seminar in Endodontics IV 1-2 s.h.
All areas of dental treatment related to endodontics: complex cases, difficult patient conditions; relationship of endodontics to other dental specialties; dentl practice management.

83:255 Practice Teaching in Endodontics SST.
are better able to plan and coordinate complete treatment for patients and to act as principal coordinators when specialists’ services are necessary.

Residents are exposed to a broad range of clinical experiences while delivering comprehensive care to an assigned group of patients who are treated solely by the residents. They have the opportunity to discuss treatment planning, progress, and outcome with other residents and faculty. They also are involved with financial management, auxiliary management, and appointment planning, thus adding to their practice management skills.

Approximately 85 percent of the program consists of general dental practice. Patient assignments are made to assure broad experience in type and complexity of treatment needs. The didactic portion constitutes approximately 15 percent of the total experience and consists of seminars by discipline-trained faculty in all specialty areas. Dental emergency responsibilities are included in the program, as are pretreatment, midtreatment, and posttreatment case presentations. Journal clubs help the residents become familiar with current literature and research.

The AEGD program lasts one year and carries a stipend. Recently, the program completed a federal training grant to expand experiences in pediatric dentistry and geriatric training in off-site facilities.

Applicants for the program must be graduates of accredited U.S. or Canadian dental schools. Further information is available from the Department of Family Dentistry. Applications should be received no later than October 15 for admission the following July 1.

**Courses**

**For Predoctoral Students**

114:184 Advanced DAU 1 s.h.
Delivery of comprehensive dental treatment in clinical setting, with chairside dental assistant; small-group seminars, individual clinical coaching, self instruction via a manual and supplemental media; instrument transfer techniques, operator positioning, gaining access and visibility, work simplification and motion economy, management skills, interpersonal skills, selection of dental equipment for four-handed dentistry.

114:185 practice Management Lecture 1 s.h.
Developing a dental practice: economics, managerial principles, management, leadership styles, marketing and communication, computerization, decision making, time utilization, insurance needs, banking accounting, legal considerations, risk management, and entering into an associate contract.

114:187 Family Dentistry Clinic I arr.
Management of treatment of patient’s total dental needs in Family Dentistry Clinic, integration of knowledge, experience for comprehensive dental care management.

114:188 Family Dentistry Clinic II arr.
Clinical experience in diagnosis, treatment planning and delivery; integrated, comprehensive dental care management.

114:194 Topics in Family Dentistry 3 s.h.
Current techniques, findings, applications for general practitioner; graduate specialty programs.

114:195 Treatment Planning and Sequencing 1 s.h.
Documentation of diagnostic procedures used in developing a treatment plan and sequence for selected clinical patients; student presentations.

**For Graduate Students**

114:202 Advanced Clinical Dentistry: 1 s.h.
Participation in treatment planning seminar, presentation of treatment plans for proposals for patients with complex needs.

114:203 Advanced Clinical Dentistry II 1 s.h.
Continuation of 114:202.

114:204 Advanced Clinical Dentistry 111 1 s.h.
Continuation of 114:203.

114:205 Advanced Clinical Dentistry IV 1 s.h.
Continuation of 114:204.

114:206 Thesis Preparation 1 s.h.
Research, completion of protocol, research project, data gathering, thesis and defense, comprehensive examination.

114:210 Advanced Diagnosis and Treatment Planning I 1 s.h.
Specialty and technical seminars; development of case reports.

114:212 Advanced Diagnosis and Treatment Planning II 1 s.h.
Continuation of 114:210.

**HOSPITAL FAMILY DENTISTRY**

**For Graduate Program**

**For Predoctoral Program**

Course work and clinical experiences in operative dentistry are fundamental to the dental student’s overall education. 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 the fourth year of training.

**Graduate Program**

The Department of Operative Dentistry offers advanced training designed to prepare dentists for teaching, research, and practice. Since operative dentistry is not a specialty area, there is ample opportunity for graduate students to take courses that are of particular interest to them. Students may earn either a Master of Science degree or a certificate in operative dentistry.

Requirements for the M.S. include satisfactory completion of 48 semester hours of specified graduate-level courses; preparation of an acceptable thesis based on original research; and formal defense of the thesis and an exam by an examining committee.

Students should plan to furnish their own financial support for the research and thesis. Applicants for the program must be graduates of recognized schools of dentistry and must comply with the admission requirements of the Graduate College. The department may request an interview with the applicant.
Courses

For Predoctoral Students

82:120 Dental Anatomy Didactic
Readings in dental nomenclature; detailed anatomy; eruption patterns of human primary, permanent dentition.

82:121 Dental Anatomy Laboratory
Human tooth morphology, function using wax replacement method, restorative materials, plastic teeth.

82:122 Operative Dentistry I
Dental nomenclature; principles of cavity preparation; manipulation placement of restorative materials; use of instruments in operative dentistry.

82:123 Operative Dentistry I: Laboratory and Clinic
Procedures for preparing human teeth to receive dental restorations; student preparation of different classes of cavities in plastic, natural teeth; use of dental materials in fabrication of restorations.

82:140 Operative Dentistry II
Principles, design of cavity preparations, restoration of teeth, patient management, pain control.

82:141 Operative Dentistry II Clinic
Procedures performed on operative clinic patients; based on maxima principles for preparation of cavities, restoration with appropriate materials.

82:160 Operative Dentistry III Clinic
Patient treatment; amalgam, composite resin, gold; emphasis on physiological, esthetic important of restorative treatment.

82:165 Operative Dentistry III Seminar
Clinical problems, restorative dental materials, treatment methods.

For Graduate Students

Discipline Studies

82:224 Graduate Restorative Materials
Basic concepts of cavity preparation, material placement.

82:225 Operative Dentistry Seminar I
Direct resin systems, bonding technology; their use in dental esthetic treatment.

82:226 Operative Dentistry Seminar II
Use of porcine in conventional, trended esthetic restorations.

82:228 Operative Dentistry Seminar IV
Principles for health professions educator.

Research Program

82:230 Operative Dentistry Research I
Thesis topic selection, committee selection, literature review.

82:231 Operative Dentistry Research II
Thesis protocol, research.

82:232 Operative Dentistry Research III
Thesis research, data gathering, writing.

82:233 Operative Dentistry Research IV
Thesis completion, defense.

82:234 Clinical Demonstrating
Teaching undergraduate dental students laboratory, clinic.

82:224 Operative Dentistry Advanced Clinic II
Patient treatment in operative clinic; basic operative procedures.

82:225 Operative Dentistry Advanced Clinic III
Patient treatment in operative clinic; direct, indirect, indirect restorative procedures.

82:226 Operative Dentistry Advanced Clinic IV
Patient treatment in operative clinic; advanced cast gold or esthetic restorative procedures.

82:227 Operative Dentistry Advanced Clinic V
Patient treatment in operative clinic; advanced cast gold or esthetic restorative procedures.

ORAL AND MAXILLOFACIAL SURGERY

Head: Daniel Lew

Director, graduate studies: Kirk L. Friedrich (Oral and Maxillofacial Surgery)

Professors: Leslie H. Higa, John C. Keller, James H. McLean, John C. Montgomery

Associate professor: Karen A. Baker, Kirk L. Friedrich, Sherwood Wolfson, Deborah L. Zetler

Assistant professor: Daniel S. Sarasin

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 division of oral and maxillofacial surgery at The University of Iowa Hospitals and Clinics. Graduate study is based primarily in the residency training program at The University of Iowa Hospitals and Clinics.

Prodoctoral Program

The prodoctoral curriculum is designed to develop a foundation of professional knowledge, coupled with surgical skills, to enable students to diagnose and manage surgical problems related to the practice of general dentistry. Emphasis is placed on reinforcing high ethical standards and developing good surgical concepts, clearly indicating the moral responsibility assumed for the surgical problems undertaken.

The clinical portion of the curriculum allows students to develop surgical skills and apply the theoretical knowledge acquired in the didactic courses. The theory and application of anesthesia, analgesia, intravenous sedation, and nitrous oxide analgesia techniques are presented through didactic and clinical experiences.

Graduate Programs

Residency Program

The 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; however, 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 Society 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 the principles of surgery, and familiarization with the various aspects of health services.

Competence in clinical oral and maxillofacial surgery requires knowledge of the basic medical sciences related to the specialty. Therefore, 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, anesthesiology, 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 The University of Iowa Hospitals and Clinics and at 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.

Master of Science

Requirements for the M.S. maybe completed during residency. The M.S. program is a four-year course of integrated didactic and clinical study, including a research project and preparation of a thesis.

Admission

Students may begin the full four-year program only on July 1. The application deadline in oral and maxillofacial surgery is September 1 for admission on July 1 of the next year.

Applicants must take the Graduate Record Examination (GRE) General Test, must be a graduate of an accredited college of dentistry, must be licensed to practice dentistry in the United States, and should be in the upper one-third of their graduating class.

Documents required include application for graduate oral and maxillofacial surgery;
applicants are selected through a postdoctoral dental matching program sponsored by the American Association of Oral and Maxillofacial Surgeons. Appointments are made after the match results are revealed and the staff selects to take official action. All appointments should be tendered on or before February 1 prior to the July 1 effective date.

The Office of Graduate and Professional College Admissions sends admission forms to applicants. The forms must be completed for the Graduate College by March 1.

Facilities

The University of Iowa Health Center has outstanding basic and clinical science departments that stimulate and support scholarly research and superior clinical practice. The facilities of The University of Iowa Hospitals and Clinics, the Veterans Affairs Medical Center, and the Colleges of Dentistry and Medicine provide an appropriate environment for residency training in oral and maxillofacial surgery.

Courses

For Dental Hygiene Students

87:104 Anesthesia and Analgesia 1 s.h.
Principles, techniques, for using local anesthesia; their practical application.

For Predoctoral Students

87:115 Anesthesia and Pain Control I 1 s.h.
Principles, techniques of complete medical history, head and neck examination, cardiovascular and respiratory examination; psychophysiological aspects of pain; pharmacologic action and techniques for using local anesthetics.

87:130 Basic Oral and Maxillofacial Surgery 2 s.h.
Principles; indications, contraindications for extractions; evaluation of patient’s related medical history; techniques of extraction, minor oral surgery procedures.

87:145 Anesthesia and Pain Control II 1 s.h.
Theory, application, instrumentation of nitrous oxide sedation; emphasis on cardiovascular, respiratory physiology; evaluation of patients; practice techniques for nitrous oxide sedation.

87:155 Advanced Oral and Maxillofacial Surgery 1 s.h.
History, examination, diagnosis, treatment of diseases and traumatic injuries of oral cavity.

Clinical experience at the College of Dentistry; The University of Iowa Hospitals and Clinics Veterans Affairs Medical Center.

For Graduate Students

87:201 Hospital Procedures 1 s.h.
Hospital rules, regulations, patient, department records; information concerning hospitalized patients.

87:202 Basic Science Review 4 s.h.
Head, neck anatomy, dissection; bacteriology, pathology.

87:207 Surgical Anatomy 1 s.h.
Head, neck structures in major oral surgery procedures; emphasis on maxillofacial problems, surgical emergencies; may include animal surgery.

87:208 Pain and Anxiety Control 1-3 s.h.
Nitrous oxide; intravenous, oral, intramuscular anxiety and pain control; pharmacology of agents; complications, their management.

87:209 Principles of Anesthesia 2 s.h.
General anesthesia; agents and their effects on respiratory, cardiovascular systems; literature.

87:211 Literature Seminars and Journal Club 1 s.h.

87:212 Surgical Case Reports 1 s.h.

87:214 Roentgen Interpretation Theory, technique.

87:215 Physical Diagnosis 2 s.h.

87:218 Oral Pathology Conference Current clinical specimens.

87:220 Oral and Maxillofacial Surgery Seminar I 1 s.h.

87:226 Oral and Maxillofacial Surgery Seminar II 1 s.h.

87:227 Oral and Maxillofacial Surgery Seminar III 1 s.h.

87:230 Oral and Maxillofacial Surgery Research I 2 s.h.
Thesis topic and review committee selection, literature review.

87:231 Oral and Maxillofacial Surgery Research II 3 s.h.
Thesis protocol, research.

87:232 Oral and Maxillofacial Surgery Research III 3 s.h.
Thesis research complete; data gathering.

87:233 Oral and Maxillofacial Surgery Thesis 3 s.h.
Thesis defense; comprehensive examination.

87:240 Clinical Oral and Maxillofacial Surgery 1 arr.
Surgery, technic, patient treatment; clinical practice on assigned patient problems.

Surgery, technic, patient treatment; clinical practice on assigned patient problems.

Graduate Programs

Master of Science

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 a plan for therapeutic management.

The postdoctoral programs are diverse and flexible, emphasizing oral pathology, oral and maxillofacial radiology, or oral medicine. Three educational tracks, emphasizing oral pathology, oral and maxillofacial radiology, or oral medicine, allow postdoctoral students to obtain advanced clinical, didactic, and research-related education while pursuing a Master of Science degree in stomatology.

Students also may choose to apply for acceptance into the collegiate master of degree program in oral science (see “Oral Science” in the dentistry introductory of the Catalog).

MS. in Stomatology with Oral Pathology Emphasis

Dental school graduates in this program pursue comprehensive study of basic biologic and health sciences in preparation for teaching and research. A minimum of 30 semester hours of satisfactory graduate credit is required.

Candidates for the M.S. prepare and submit a thesis based on the results of research conducted during their course of study.

Certificate in Oral Pathology and M.S. in Stomatology with Oral Pathology Emphasis

This program combines the minimum requirements of the certificate and master’s degree programs. Completion time is usually 36 to 48 months. The educational requirements of the certificate program in oral pathology meet the requirements for the preparation of dental specialists as set forth by the Council on Dental Education of the American Dental Association and the American Board of Oral Pathology.

M.S. in Stomatology with Oral and Maxillofacial Radiology Emphasis

Dental school graduates in this program pursue comprehensive study of basic and health sciences in preparation for teaching and research. A minimum of 44 semester hours of satisfactory graduate credit is required.

Candidates for the M.S. prepare and submit a thesis based on the results of research conducted during their course of study.

Certificate in Oral and Maxillofacial Radiology and M.S. in Stomatology with Oral and Maxillofacial Radiology Emphasis

This program combines the minimum requirements of the certificate and master’s degree programs. Completion time is usually 36
to 48 months. The educational requirements of the certificate program in oral and maxillofacial radiology meet the requirements for preparation of dental specialists as set forth by the American Board of Oral and Maxillofacial Radiology.

**M.S. in Stomatology with Oral Medicine Emphasis**

Students in this program pursue comprehensive study of health sciences in preparation for teaching and research. A minimum of 30 semester hours of graduate credit is required, which includes thesis preparation based on research conducted during the program.

**Certificate in Oral Medicine and M.S. in Stomatology with oral Medicine Emphasis**

This program combines the minimum requirements of the certificate and master’s degree programs. Completion time is usually 24 to 36 months. The certificate program in oral medicine meets the requirements for preparation of dental specialists set forth by the American Board of Oral Medicine and the American Academy of Oral Medicine.

**Program of Study**

Students in all six programs must complete the core courses listed below. They also must complete the basic science and departmental courses appropriate to their track, listed as “additional required courses.”

**CORE COURSES**

- 68:202 Advanced Anatomy for Head and Neck Surgery 2 s.h.
- 69:201 General Pathology for Medical Students 3 s.h.
- 69:202 Systemic Pathology for Medical Students 10 s.h.
- 86:200 Stomatology Literature Review 1 s.h.
- 86:226 Physical, Laboratory, and Historical Features of Disease 2 s.h.
- 86:230 Research in Oral Pathology, Radiology, and Medicine 2 s.h.
- 86:242 Clinical Oral and Maxillofacial Radiology 2 s.h.
- 111:202 Research Protocol Seminar 2 s.h.
- 111:212 Statistical Methods for Dental Research 3 s.h.
- 151:210 Dental Sciences Research Methodology 3 s.h.
- 151:260 Bone and Tooth Support Structures and Implants 2 s.h.

**ADDITIONAL REQUIRED COURSES**

**Oral Pathology Track**

- 86:225 Manifestations of Oral and Paroral Disease 2 s.h.
- 86:227 Surgical Oral Pathology 1 s.h.
- 86:240 Histopathology 1 s.h.
- 86:241 Hospital Oral Pathology, Radiology, and Medicine 1 s.h.
- 151:220 Patho-physiology of Skin and Oral Mucosa 2 s.h.
- 151:270 Infectious Diseases 2 s.h.

**Oral and Maxillofacial Radiology Track**

- 77:103 Introduction to Radiobiology and Radiology 4 s.h.
- 77:106 Environmental and Radiological Health Physics 4 s.h.
- 77:220 Human and Mammalian Radiobiology 4 s.h.
- 77:223 Cellular Radiobiology 4 s.h.
- 86:245 Head and Neck Radiology 2 s.h.

**Oral Medicine Track**

- 86:225 Manifestations of Oral and Paroral Disease 2 s.h.
- 86:228 Introduction to Histopathology 1 s.h.
- 86:244 Technical Oral and Maxillofacial Radiology 1 s.h.
- 86:247 Clinical Laboratory Medicine 1 s.h.
- 86:248 Advanced Complex Hospital Dental Care 1 s.h.
- 86:249 Seminars in Oral Medicine 2 s.h.
- 87:215 Physical Diagnosis 2 s.h.
- 151:220 Patho-physiology of Skin and Oral Mucosa 2 s.h.
- 151:270 Infectious Diseases 2 s.h.
- 151:280 Advanced Dental Therapeutics 1 s.h.

**Facilities**

Facilities reserved exclusively for the Department of Oral Pathology, Radiology, and Medicine include a radiology special procedures area, interpretation room, seminar mom, tutorial laboratory for training small groups of graduate and undergraduate students, computer monitoring area, surgical oral pathology laboratory, and a clinical pathology laboratory with areas for histopathology, hematology, clinical chemistry, and immunology.

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. The department also maintains a library/seminar mom.

**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 qualify for admission to The University of Iowa Graduate College. To be considered for admission, applicants must have a 2.70 cumulative grade-point average on a 4.00 scale.

All applicants must take the Graduate Record Examination (GRE). The General Test. Students from countries whose primary language is not English must present evidence of satisfactory performance on the Test of English as a Foreign Language (TOEFL) and the Test of Spoken English (TSE).

Final decisions on acceptance of applicants who meet the requirements for admission are made by the department faculty. A personal interview may be requested.

**Courses**

**For Dental Hygiene Students**

- 86:101 Introduction to Oral Pathology 1 s.h.
- 86:102 Oral Pathology for Dental Hygienists 3 s.h.
- 86:104 Dental Radiology for Dental Hygienists 1 s.h.

**For Predoctoral Students**

- 86:120 Foundations of Oral Radiology 1 s.h.
- 86:145 Introduction to Clinical Oral Radiology 1 s.h.
- 86:155 Systemic Disease Manifestations 1 s.h.
- 86:160 Clinical Oral Diagnosis 1 s.h.
- 86:161 Clinical Oral Radiology 1 s.h.

**For Graduate Students**

- 86:328 Introduction to Radiobiology 1 s.h.
- 86:240 Radiobiology and Historical Features of Disease 1 s.h.
- 86:227 Surgical Oral Pathology 1 s.h.
- 86:230 Research in Oral Pathology, Radiology, and Medicine 1 s.h.
- 86:235 Introduction to Histopathology 1 s.h.
Satisfactory completion of a 23-month period of intensive study, including lecture courses, seminars, clinical practice, and a research paper, qualifies students for the Certificate of Orthodontics. If students satisfactorily complete a thesis based on an original research project, they qualify for an M.S. degree in addition to the certificate.

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.

Admission

Admission requires the D.D.S. or its equivalent and satisfaction of Graduate College requirements. Application deadline is October 1 for the class starting July 1. Applicants are required to come to the University for interviews with department faculty.

Courses

For Predoctoral Students

89:115 Growth and Development 1 s.h.
Normal human growth and development; emphasis on craniofacial region.

89:130 Orthodontic Diagnosis and Its Biological Foundations 1 s.h.
Concepts of craniofacial biology make orthodontics possible. Philosophy of orthodontic problem management; development of dentition, physiology of stomatognathic system, and participation in four clinical specialty areas-biochemistry, immunology, microbiology.

89:203 Advanced Orthodontic Technique 2 s.h.
Knowledge of orthodontic principles; philosophy of orthodontic problem management; development of dentition, and continued participation in four clinical specialty areas: chemistry, immunology, microbiology.

89:212 Research Orthodontics 1 s.h.
Research, biodynamics analysis of pathologic processes, diagnostic interpretation; content adapted to student interests. Consent of instructor required.

89:229 Anatomy 1 s.h.
Instruction on anatomy, physiology, and rehabilitation of craniofacial structures.

89:220 Oral Pathology 1 s.h.
Clinical practice.

89:221 Orthodontic Seminar 1 s.h.
Clinical practice.

89:215 Orthodontic Journal Club 1 s.h.
Current biological, technical publications.

89:227 Biophysics 1 s.h.
Literature on anatomy, physiology, and rehabilitation of craniofacial structures.

89:216 Orthodontic Clinical Practice 1 s.h.
Clinical practice.

89:217 Orthodontic Radiology 1 s.h.
Current biological, technical publications.

89:204 Biomechanics 1 s.h.
Current biological, technical publications.

89:205 Oral Pathology 1 s.h.
Clinical practice.

89:207 Orthodontic Seminar 1 s.h.
Clinical practice.

89:208 Orthodontic Journal Club 1 s.h.
Clinical practice.

89:292 Basic Orthodontics for Pedodontist 2 s.h.
Background for graduate pediatric dentistry residents; didactic, laboratory, and participation in pediatric special education.

89:293 Basic Orthodontics for Pedodontist 2 s.h.
Background for graduate pediatric dentistry residents; didactic, laboratory, and participation in pediatric special education.

89:270 Orthodontic Clinic II 1 s.h.
Clinical experience in orthodontic diagnosis, treatment planning, and treatment of patients with preventive and interceptive orthodontic problems; patients followed from initial records to completion of treatment.

Prodoctoral Program

The purpose of the prodoctoral program in orthodontics is to enable the general practitioner of dentistry to recognize, diagnose, and treat with competence limited malocclusions of the teeth. Lecture courses guide the student in learning basic concepts of dental and facial growth, as well as treatment-oriented subject matter. In a laboratory course, diagnostic records are taken and evaluated and treatment appliances are fabricated. The department supervises a volunteer program for clinical treatment of selected patients.

Graduate Program

The purpose of the graduate program in orthodontics is to educate specialists capable of diagnosing and treating any malocclusion of the teeth requiring comprehensive care. The specialist should be familiar with and able to critically analyze biologic, biomechanic, diagnostic, and treatment concepts in orthodontics.

ORTHODONTICS

Head: John S. Casko
Professors: Samir E. Bishara, Richard M. Jacobs, Robert N. Staley
Associate professors: Karin A. Southard, Thomas E. Southard
Graduate degree: M.S. in Orthodontics

PEDIATRIC DENTISTRY

Head: Jimmy R. Pinkham
Associate professor: Kevin J. Donley
Adjunct clinical associate professor: Donald Conlon
Assistant professor: Michael J. Kanelis
Adjunct clinical assistant professor: David Blaha, Alex Brandtner, Chris Cannon, Rhys Jones, Steve Kelly, Claudine Matinelli
Assistant in instruction: Eileen J. Hermiston, Catherine M. Skotoski
Graduate degrees: M.S., Certificate in Pediatric Dentistry

The Department of Pediatric Dentistry instructs dental 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 disabilities. It also emphasizes efficient treatment through proper use of dental auxiliary personnel and record management.
Graduate Program

Graduate study in pediatric dentistry leads to both certification and a master's degree. The program gives special emphasis to preparation for certification by the American Board of Pediatric Dentistry. It is fully accredited by the Commission on Dental Accreditation of the American Dental Association. Students are trained in all phases of pediatric dentistry and have career choices in practice, education, or research. Approximately 50 percent of the program is devoted to advanced clinical activity, 20 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 elective selections determined by students' individual interests. Development of a minor subject area is recommended.

Close associations with the Department of Pediatrics in the College of Medicine and with the University Hospital School and The 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.

Research Opportunities

Research carried out by faculty and graduate students in pediatric dentistry has been selected regularly for national awards and journal publications. Clinical and laboratory research projects are in progress, with financial support from federal agencies and other sources. Significant contributions have been made in the areas of cariology, dental materials, dentistry for persons with disabilities, growth and development, fluoride therapy, and child behavior management.

Faculty

Faculty members hold numerous national and state offices, committee memberships, consultantships, and honors in professional organizations. They serve as reviewers for several professional journals and federal granting agencies. They also participate regularly in continuing education programs for dentists and other health science personnel. Eight of the department's professors are diplomates of the American Board of Pediatric Dentistry.

Admission

Prospective students must apply to the Graduate College.

Financial Aid

Stipend support is available to qualified students through a grant from the Office for Maternal and Child Health, Bureau of Community Health Services, Department of Health and Human Services.

Courses

For Predoctoral Students

90:140 Pediatric Dentistry Diagnosis and Treatment 2 s.h.
90:160 Clinic Pediatric Dentistry arr.
90:165 Clinic Seminar in Pediatric Dentistry 1 s.h.
90:220 Social/Cultural/Public Health Issues in Pediatric Dentistry 1 s.h.
90:225 Advanced Didactic Pediatric Dentistry arr.
90:230 Research in Pediatric Dentistry arr.
90:231 Thesis Preparation arr.
90:232 Pediatric Dentistry for Dental Practitioners arr.
90:240 Advanced Pediatric Dentistry arr.
90:241 Pediatric Physical Diagnosis for Dental Practice arr.
90:245 General Anesthesia Rotation arr.
90:250 Practice Teaching in Pediatric Dentistry arr.
90:270 Pediatric Dentistry Case Review arr.

Graduate Programs

Master of Science

The Master of Science program is designed to provide training for teaching, research, and specialization in periodontics. The program 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 and complies with regulations of the Graduate College for programs of higher education in dentistry.

The program requires satisfactory completion of required and elective course work, preparation and defense of an acceptable thesis based on original research, and satisfactory completion of comprehensive written and oral examinations. Completion of the program requires a minimum 36 calendar months of full-time study.

Certification

The certification program provides a sound foundation for the clinical practice of periodontics and may be combined with a Ph.D. program. The program 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.

Completion of the program requires 36 calendar 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.

Admission

Admission to graduate study in periodontics requires the D.D.S. or its equivalent and satisfaction of Graduate College admission requirements. (See the Graduate College section of the Catalog.) National Dental Board Examination scores, if available, are required. Interviews are encouraged but not mandatory.

Facilities

The department has 20 modem, well-equipped operatories devoted exclusively to periodontics, and access to hospital experience in The University of Iowa Hospitals and Clinics and the Veterans Affairs Medical Center, both nearby. Research facilities include a departmental research laboratory and collegiate laboratories in histology, microscopy, biomaterials, quantitation, tissue culture, molecular biology and biochemistry, and microbiology, as well as animal facilities. These collegiate facilities are in addition to those available by arrangement with The University of Iowa Hospitals and Clinics, Eckstein Medical Research Building, and

Periodontics

Head: Phillip A. Lainson
Associate professors: William R. Crigsby, Frank J. KohouL
Affiliate professors: Paul J. Collins, Benny F. Hawkins, Georgia K. Johnson, Christine D. Wu-Yuan
Assistant professor: James D. Spivey
Adjunct clinical assistant professors: Steven H. Cooper, Allen P. Kvidera
Assistant in instruction: Nancy A. Slach
Graduate degree: M.S.
Financial Aid
Applicants must be financially prepared to undertake uninterrupted studies. Assistantships and loans are offered, depending on available resources.

Courses
For Dental Hygiene Students
92:104 Introduction to Periodontology 2 s.h.
Fundamental concepts of periodontology.
92:105 Advanced Periodontics for Dental Hygiene Students 2 s.h.
Differential diagnosis, prevention of disease, mechanisms of destructive periodontal disease, maintenance of treated periodontium.

For Predoctoral Students
92:140 Periodontics Methods I 1 s.h.
Normal periodontium, gingivitis, periodontitis, diagnosis, prognosis, treatment planning.
92:141 Periodontics Methods II 1 s.h.
Initial phase of periodontal therapy, treatment of acute periodontal problems, curettage, gingivectomy, periodontal flap procedures, including osseous considerations.
92:160 Periodontics arr.
Comprehensive clinical management of periodontal patient.
92:165 Periodontology 1-2 s.h.
Comprehensive concepts of periodontology, clinical management of patients.

For Graduate Students
92:201 Advanced Periodontology arr.
Review of current concepts, ideas.
92:202 Clinical seminar in Periodontics arr.
Comprehensive management of the periodontal patient; emphasis on treatment planning and case documentation, presentation for complete dental therapy.
92:205 Methods of Instruction in Periodontics arr.
Course design, behavioral objectives, methods of evaluation.
92:207 Practice Teaching in Periodontics arr.
Experience in directing seminars, clinical teaching.
92:208 Recent Advances in Periodontics arr.
92:210 Periodontology Pathology Seminar Differential diagnosis, histopathology of oral lesions often encountered in clinical practice.
92:212 Applied Oral Microbiology arr.
Microbiology applied to oral health problems.
92:225 Periodontology Literature Review I arr.
92:226 Periodontology Literature Review II arr.
92:227 Periodontology Literature Review III arr.
92:228 Periodontology Literature Review IV arr.
92:240 Advanced Clinical Periodontics Comprehensive clinical management of periodontal patient, emphasis on complex cases.

Preventive and Community Dentistry

Preventive and Community Dentistry

Head: Jed S. Hand
Professors: Jed S. Hand, Steven M. Levy, Henrietta L. Logan, Nelson S. Logan
Professors emeriti: Naham C. Cons, Philip Phair Associate professor: Pauline F. Brine, Marsha A. Cunningham, Howard M. Field, Kay D. Mescher, Elizabeth L. Pelton, Nancy J. Thompson, Derek H. Willard

Adjunct associate professors: Hermine McLeren, Jamie Sharp

Clinical associate professor: Eugene W. Young
Assistant professor: Aljernon J. Bolden, Peter C. Damiano

Adjunct assistant professor: Teresa A. Marshall, Darrell W. Yeane

Clinical assistant professor: Howard J. Cowen, Jane A. Rowat

Adjunct instructors: Michelle Larpme-Ammentorp, Linda K. Rowe

Graduate degree: M.S. in Dental Public Health

Predoctoral program
Programs in preventive, community, and geriatric dentistry are designed to increase students’ awareness of preventive dental practices, aspects of dental practices affected by community factors, and care of compromised adult patients.

Extramural programs give students opportunities to interact with health care teams and community members in Iowa and worldwide. The department conducts off-site extramural programs throughout the state, the nation, and the world.

Using the community as the classroom, students are able to observe and participate in a variety of activities intended to make them aware of the societal obligations they must assume in order to practice effectively.

Graduate Program
The M.S. program prepares dentists and dental hygienists to be specialists in dental public health. It has a research emphasis and requires a research project culminating in the completion and defense of a thesis.

The program, designed to be completed in two academic years of full-time study, requires a minimum of 40 semester hours of course work. Successful dentist graduates meet the educational requirements for eligibility for the certifying examination of the American Board of Dental Public Health.

Courses
For Dental Hygiene Students
In April 1992, the State Board of Regents voted to close the Department of Dental Hygiene on June 30, 1992. The Department of Preventive and Community Dentistry will administer the following dental hygiene courses through May 1995. No instruction in dental hygiene will be available after that date.

Dental hygiene courses are open only to dental hygiene students.
88:101 Dental Anatomy 2 s.h.
Dental terminology, morphological characteristics of teeth, their positional relationships and functional considerations; emphasis on relationship of dental morphology to clinical dental hygiene practice.
88:102 Head and Neck Anatomy 1 s.h.
Includes neuroanatomy.
88:103 Dental Hygiene Core I 5 s.h.
Clinical hygiene theory, practice: assessment of patients’ oral and general health status, its role in providing complete dental hygiene assessment and treatment services.
88:104 Introduction to Clinical Dental Hygiene 2 s.h.
Clinical application of content from 88:103, which is corequisite.
88:105 Dental Hygiene Core II 3 s.h.
Continuation of 88:103; emphasis on assessment of health status, prevention of oral disease.
88:106 Fundamentals of Clinical Dental Hygiene 3 s.h.
First-level practicum; essential preventive dental hygiene treatment for patients who have simple to moderately complex needs and assessment, planning and provision of treatment, patient referral.
88:111 Independent Study arr.
Additional study or career issues in dental hygiene practice, education, research, public health.
88:112 Clinical Dental Hygiene 7 s.h.
Provision of advanced dental hygiene care; emphasis on comprehensive preventive, clinical services.
88:114 seminar: Dental Hygiene Concepts and Practice 5 s.h.
Research, advances in preventive procedures; ethical, legal, social responsibilities of health care providers; current, extended roles in dental hygiene practice.
88:122 Practicum Community Dental Hygiene 7 s.h.
Application of principles and techniques, including educational methodology, clinical dental hygiene skills, writing and word processing skills, decision making, assessment, planning, implementation, evaluation.
88:123 seminar: Community Dental Health 4 s.h.
Oral health for the public; oral health status, environmental factors, self-diagnosis and care, professional intervention.

For Predoctoral Students
111:16 Fundamentals of Clinical Dentistry 3 s.h.
Identification of health and disease in the mouth; practical methods of disease control, philosophy of preventive dentistry; patient assessment, clinical diagnosis, clinical diagnosis, Fall semesters.
111:177 Cariology and preventive Therapies 1 s.h.
Multifactorial etiology of dental caries; support data for use of sealants, plaque control mechanisms in control, prevention of caries; cost study approach. Offered spring semesters. Prerequisite: II 1-16.
111:118 Preventive Dentistry, Communication, and Patient Care 2 s.h.
Concepts, skills in instrumentation for detection, removal of calculus deposits, communication, patient management skills; prophylaxis, oral hygiene instruction for college recall patients. Offered summer sessions. Prerequisite: II 1-1.7.
111:145 Clinical Preventive Dentistry 2 s.h.
Provision of complete prophylaxis and preventive services for college patients; development of communication skills in a clinic setting. Prerequisite: II 1-1.18.
111:160 The Practice of Dentistry in the Community 1-2 s.h.
Dental public health, history of dentistry, dental personnel, organized dentistry, professional issues, evaluation of scientific research. Offered fall semesters.
111:161 The practice of Dentistry in the Community 1-2 s.h.
Factors that affect profession, practice of dentistry: legal and malpractice issues, supply and demand, types and practice organization, financing and quality of care. Offered spring semesters.
111:185 Broadview Medical Center
Provision of dental care to low-income patients in a metropolitan hospital-based clinic; community-related assignments, on-call assignments in hospital, emergency department; student team experience in Des Moines.
11 1:186 Colorado Migrant Program arr. Provision of primary dental care, outreach services to a migrant population; broad understanding of needs, resources for migrant, low socioeconomic populations.

11 1:187 Community Health Care: Davenport Iowa arr. Experience as part of health care team at medical/dental/ambulatory health care facility serving Scott County; eight operative dental clinics.

11 1:188 Dental Health Center-East Central Iowa arr. Provision of clinical, 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 socioeconomically clients.

11 1:189 Special Care Program arr. Provision of dental care to physically and medically compromised adult patients; use portable dental equipment to care for nursing home residents.

11 1:191 Private Practice Preceptorship arr. Provision of dental care under supervision of a dental preceptor; practicing in Iowa various aspects of practice, including office management, community affairs.

11 1:193 Veterans Administration Medical Center: Kansas City arr. Provision of dental care to inpatient and outpatient veterans in a VA hospital and geriatric hospital; observation of other hospital departments, such as physical therapy, rehabilitative medicine, psychiatry.

11 1:194 Spedat Field Clinic Extramural experiences developed according to student needs, extramural opportunities. Approval of department required.

11 1:195 Hospital Extramural Extramural experience in alternate dental care delivery systems; usually out of state. Department approval of program required.

For Graduate Students

11 1 1:200 Introduction to Dental Public Health Science, philosophy, practice of public health. 2 s.h.

11 1:201 Literature Review Methods: Dental Public Health 2 s.h. Initial literature review in area of student’s interest.


11 1:203 Independent Study: Dental Public Health Arr. Approval of faculty supervisor required.

11 1:204 Principles of Oral Epidemiology 3 s.h. Retrospective, prospective studies; study design; validity and reliability; distribution and determinants of oral diseases; periodsontal diseases, oral cancer, malocclusion. fluorosis HIV infection.

11 1:205 Administration of Public Dental Programs 2 s.h. Application of general management concepts; practical aspects of planning financing, staffing, implementing, operating, evaluating dental public health programs at federal, state, local levels.

11 1:206 Preventive Programs in Dental Public Health 2 s.h. Prevention, control methods for major dental conditions, primarily dental caries, periodontal disease; clinical efficacy, cost-effectiveness; development of comprehensive preventive oral health plan for a community.

11 1:207 Social Science in Dentistry 2 s.h. Literature in social behavioral sciences applied to dentistry analysis of research.

11 1:208 Field Experience in Dental Public Health Arr. Arrangement with public and voluntary health agencies according to students’ and agencies’ needs.

11 1:211 Thesis: Dental Public Health Arr. Preparation for research, literature review, organization; writing, defense of research.

11 1:212 statistical Methods for Dental Research 3 s.h. 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.

11 1:214 Financing Dental Care 2 s.h. Payment mechanisms for health care service providers.

11 1:214 1004 Health Insurance and Community Dentistry 2 s.h. Health insurance and dental insurance systems.

11 1:215 Introduction to Statistical Computing 2 s.h. Use of statistical packages in a mainframe or personal computer for data management and analysis.

11 1:216 Teaching Practicum 2 s.h. Group experience in teaching techniques and methods.

11 1:217 Practicum in Preventive Dentistry 2 s.h. Philosophy of preventive dental care, teaching methodologies and evaluation; review of historical and current concepts; practical experiences from supervised didactic and clinical teaching in 1 1 1:189.

11 1:218 Teaching Practicum: Preventive Dentistry 2 s.h. Philosophy of preventive dental care, teaching methodologies and evaluation; review of historical and current concepts; practical experiences from supervised didactic and clinical teaching in 1 1 1:189.

11 1:219 Teaching Practicum: Community Dentistry 2 s.h. Philosophy of dental care, teaching methodologies and evaluation; review of historical and current concepts; practical experiences from supervised didactic and clinical teaching in 1 1 1:189.

11 1:220 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; analysis of statistical tests to design.

11 1:220 Geriatric Care I Arr. Diagnosis, management of geriatric dental health care problems; emphasis on clinical dental treatment; see study approach.

11 1:220 Geriatric Care II 2 s.h. Continuation of 1 1:220 which a prerequisite.

11 1:220 Geriatric Care III Continuation of 1 1:220, which is prerequisite.

11 1:223 Geriatric Care IV Continuation of 1 1:220, which is prerequisite.

11 1:230 Prosthodontics 2 s.h. Certification in prosthodontics is to train and prepare dentists for careers in prosthodontic education and/or research. The certificate program is designed primarily for individuals who want to prepare themselves further for private practice in prosthodontics. Both programs satisfy the educational requirements for eligibility for the American Board of Prosthodontics examination. Students must meet all the requirements for the master’s degree as outlined in the Manual of Rules and Regulations of the Graduate College.

Master of Science

The M.S. program prepares dentists for the practice of prosthodontics with a strong background in dental research. Students must complete a core curriculum, which includes basic sciences, research methodology and thesis, and clinical prosthodontics. The clinical portion includes fixed, removable, maxillofacial and implant prosthodontics. The thesis is based on students’ original research with the aid of an adviser and thesis committee. In addition, students are required to satisfactorily complete an oral and/or written examination over the thesis and prosthodontics.

Certificate Program

The certificate program provides more clinical experience than the M.S. program and does not require a thesis. Students must complete a core curriculum, which includes basic sciences, research methodology, and clinical practice-fixed, removable, maxillofacial, and implant prosthodontics.

Admission

Minimum requirements for admission to both programs correspond to the minimum requirements for admission to the Graduate College. In addition, applicants must hold a D.D.S. or D.M.D. or its foreign equivalent. An interview may be requested. Both programs last a minimum of 24 months and usually begin July 1. Application deadline is November 1.

Courses

For Predoctoral Students


14:414 Prosthodontic Technique Lecture 3 s.h. Technical procedures for construction of complete and removable partial dentures.

14:414 Prosthodontic Technique Laboratory 3 s.h. Laboratory exercises.

14:414 Fixed Prosthodontic Technique Lecture 3 s.h. Techniques, materials, techniques for construction of metal, porcelain fixed restorations.

14:414 Fixed Prosthodontic Technique Laboratory 3 s.h. Technical procedures for construction of fixed prostheses.
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>84:166</td>
<td>Dentistry Clinic</td>
<td>1 s.h.</td>
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<td></td>
<td>Experience supplemented by individual</td>
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<td>supervision, demonstration.</td>
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<td>84:169</td>
<td>Prosthodontics Seminar</td>
<td>2 s.h.</td>
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<td>Knowledge in biological, basic sciences</td>
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<td>and technique applied to clinical fixed</td>
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<td>and removable prosthodontics procedures.</td>
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**For Graduate Students**

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
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<td>84:220</td>
<td>Fixed Prosthodontics Seminar I</td>
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<td>Procedures; research literature.</td>
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<td>84:221</td>
<td>Fixed Prosthodontics seminar II</td>
<td>1 s.h.</td>
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<tr>
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<td>Porcelain restorations, esthetics; research</td>
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<tr>
<td>84:222</td>
<td>Fixed Prosthodontics Seminar III</td>
<td>1 s.h.</td>
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<tr>
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<td>Diagnosis, treatment planning.</td>
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<tr>
<td>84:223</td>
<td>Occlusion seminar</td>
<td>1 s.h.</td>
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<td>Research topics.</td>
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<td>84:224</td>
<td>Graduate Restorative Materials</td>
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<td>Dental materials science: composition and</td>
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<td>properties of dental alloys, polymers,</td>
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<td>ceramics. Same as 82:224</td>
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<td>84:225</td>
<td>Complete Denture Seminar I</td>
<td>1 s.h.</td>
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<tr>
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<td>Principles, practices, concepts of</td>
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<td>construction; current research.</td>
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<tr>
<td>84:226</td>
<td>Removable Partial Denture Seminar I</td>
<td>1 s.h.</td>
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<td>Principles, practices, concepts of</td>
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<td>construction; current research.</td>
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<tr>
<td>84:227</td>
<td>Complete Denture Seminar II</td>
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<td>construction; past research.</td>
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<td>84:228</td>
<td>Removable Partial Denture Seminar II</td>
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<td>construction; past research.</td>
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<td>84:230</td>
<td>Research: Prosthodontics</td>
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<td>Literature review; protocol preparation,</td>
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<td>data collection for research project</td>
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<td>84:231</td>
<td>Thesis Preparation: Prosthodontics</td>
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<td>Thesis preparation, defense.</td>
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<td>84:236</td>
<td>Bionaterials Research</td>
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<td>Dentistry; use of equipment. Same as</td>
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<td>82:236</td>
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<td>84:240</td>
<td>Advanced Clinical Removable</td>
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<td>Prosthodontics</td>
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<td>Patient treatment.</td>
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<td>84:241</td>
<td>Technique Methods: Removable</td>
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<td>Prosthodontics</td>
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<td>Methods for construction of complete</td>
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<td>removable partial dentures.</td>
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<tr>
<td>84:244</td>
<td>Practice Teaching: Prosthodontics</td>
<td>1 s.h.</td>
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<tr>
<td></td>
<td>Clinical, classroom teaching experience.</td>
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<tr>
<td>84:245</td>
<td>Advanced Clinical Fixed Prosthodontics</td>
<td>1 s.h.</td>
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<tr>
<td></td>
<td>Patient treatment.</td>
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<td>84:246</td>
<td>Technique Methods: Fixed</td>
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<td>84:250</td>
<td>Journal Club</td>
<td>1 s.h.</td>
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<td>Prosthodontics current literature</td>
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<td>84:251</td>
<td>Clinical Issues and Treatment Planning in</td>
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<td>Prosthodontics</td>
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College of Education

Counselor Education ............. 295
Curriculum and Instruction ....... 298
Planning, Policy, and
   Leadership Studies .......... 319
Psychological and Quantitative
   Foundations ............... 325

Dean: Steven R. Yussen
Associate deans: Ursula M. Delworth, Gary F.
   Hansen
Director, Connie Belin National Center for Gifted
   Education: Nicholas Colangelo
Director, educational placement: Judith D.
   Hendershot
Director, Iowa Testing Programs: Leonard S. Feltz
Degrees: B.A., B.S. (undergraduate degrees granted
   through College of Liberal Arts); M.A.T., M.A., M.S.,
   Ed.S., Ph.D.
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 in the basic pattern that governs it today, was founded in 1913. The growth of the college has corresponded to 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 divisions: Counselor Education; Curriculum and Instruction; Planning, Policy, and Leadership Studies; and Psychological and Quantitative Foundations.

Teacher Education Programs

The College of Education at The University of Iowa offers three major baccalaureate degree-based teacher preparation programs. Two of these, elementary education and health occupations education, involve professional education majors. The third program consists of the professional course work and academic majors required for secondary school teaching.

The college also provides numerous specialized elementary (including early childhood) and secondary teaching endorsement programs.

Preparation for special education teaching is offered at the graduate level. A limited number of undergraduate special education courses also are open to all students having an interest in this area, to those from other teacher education programs, and to those planning to pursue graduate degrees in special education.

All students admitted to a teacher education program (TEP) must complete College of Liberal education majors. The third program consists of the professional course work and academic majors required for secondary school teaching.

Undergraduate Admission to Teacher Education Programs

Undergraduate applicants to The University of Iowa who are interested in becoming teachers indicate their interest in the elementary major, health occupations major, or a specific secondary-level endorsement program on their application for admission. This results in a “Pre-Elementary Major” (7EP) or a “Secondary Interest (7SP) notation on the student’s official records. Eligible transfer students are automatically sent TEP application materials from the Office of Admissions upon final admission to the University. All others must obtain application materials from the Office of Student Services in the College of Education.

Application Deadlines

The deadline for application to teacher education programs is June 15. Applicants who do not meet the deadline may submit applications by either October 15 or March 15 for consideration and may be accepted if qualified and if openings in the program occur.

General Requirements

Admissions to teacher education programs are competitive. Admission requirements may vary by program area and are based on demand and faculty availability. In order to be considered for admission to a teacher education program, an undergraduate student must have:

- been admitted to The University of Iowa as a degree candidate;
- completed the American College Tests (ACT) or the Scholastic Aptitude Test (SAT);
- attained sophomore standing (completed 30 semester hours) prior to the semester during which enrollment is made in the teacher education sequence of courses;
- achieved a 2.50 grade-point average on all college course work as well as course work completed at The University of Iowa and applied for admission to a teacher education program.

Honors in Education

The College of Education Honors Opportunities Program is open to juniors and seniors who have attained a 3.50 grade-point average. Students with lower GPAs who have demonstrated their research potential may be accepted on the basis of an interview with the director. The Honors Opportunities Program consists of three components: 7X:100 Honors Seminar in Education, a research mentorship, and a student development program including career counseling and social activities. Successful completion of a research project results in an honors designation on the diploma. The Honors Opportunities Program is housed in and administered by the Connie Belin National Center for Gifted Education.

Graduate or Postbaccalaureate Admission

Students who have completed a baccalaureate degree may be admitted to a teacher preparation program in one of two ways.

- They may apply to the Graduate College with their objective stated as “certification only” or in some secondary teaching areas with a Master of Arts in Teaching (M.A.T.) objective. Students selecting this route must satisfy the following conditions:
  - admission to the Graduate College;
  - completion of the Graduate Record Examination (GRE) General Test;
  - a cumulative grade-point average of not less than 2.50 on undergraduate work and 3.00 for M.A.T. objective; and

- admission to a specific certification program (e.g., elementary education, special education, or secondary English).

- They may apply to the College of Liberal Arts as postbaccalaureate students with senior standing. Students selecting this option should not apply as special students. Instead, they must apply to the appropriate teacher education program following the undergraduate admissions procedure and must meet the general requirements stated in the undergraduate admissions section.

The deadline for graduate-level application to the teacher education program is May 15. Applicants who do not meet the deadline may submit applications by either September 15 or February 15; when qualified, they may be accepted if openings in the program occur.

Application deadlines for postbaccalaureate students with senior standing are the same as those for undergraduates.

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. Periodic seminars provide for discussion and evaluation of student teachers’ experiences. The student teaching requirement may not be met by transfer credit except under unusual circumstances and with advance approval.

Admission to the senior year student teaching semester requires separate application. Applications must be submitted to the Office of Student Services in the College of Education by February 15 of the academic year preceding the one during which the student teaching is to be completed. Opportunities for overseas and urban student teaching experiences are available.

Admission to student teaching requires program area faculty approval as well as verification of satisfactory progress in meeting both College of Education standards and program area standards, which are set at the time of admission to the TEP and in some programs are higher than the college minimum grade-point average of 2.50.

Students should consult with their advisers regarding specific requirements for the program areas.

waivers

Students who have completed practicum-type experiences or courses that they want to have considered in lieu of program requirements should consult with their advisers.

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. Popular settings for urban student teaching include the CUTE Program (Cooperating Urban Teacher Education) in Kansas City, Kansas, and in the Aldine, Texas (Houston suburb) Independent School District. These options are open to all education majors who meet the requirements for student teaching.
Overseas Student Teaching

Overseas student teaching experience is available in cooperation with the University of Wisconsin–River Falls. The overseas sites available include Ireland, England, Scotland, Wales, and Australia. In most locations, students are assisted with housing by the on-site coordinator. Interested students must meet the regular requirements for student teaching and must have the approval of their adviser and the appropriate program coordinator. Overseas assignments are for seven weeks. Secondary education students in some program areas are required to complete a full semester in a U.S. assignment before student teaching overseas. Elementary education students complete a two-week classroom management course followed by seven weeks in a U.S. assignment and seven weeks overseas during one semester.

State Requirements

All students seeking an Iowa teaching license must complete a course in human relations and mainstreaming the exceptional learner. These requirements can be met by completing 7E:180 Human Relations for the Classroom Teacher and 7U:100 Mainstreaming the Exceptional Learner.

Teacher Education Minors

Acceptance into a teacher education program is a prerequisite to registration for most College of Education undergraduate courses. However, the College of Education does offer four minors for students interested in being better informed about education: general education, science education, human relations, and educational psychology. These minors may help students prepare to be better informed as parents, as taxpayers, or as future members of local boards of education. They also may help support students’ future career objectives. Descriptions of the minors are available in the Office of Student Services.

Teacher Licensure/Certification Services

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 semester hours of course work applied to meet program requirements must be earned at The University of Iowa.

The College of Education Office of Student Services provides Iowa application forms and licensure/certification assistance to all students completing approved programs offered by the college. Assistance also is provided to individuals interested in adding endorsements to their Iowa license based on completion of State of Iowa minimum licensure requirements.

Graduate Programs

Graduate study in the College of Education is guided by the general regulations of the Graduate College, with additional requirements set by College of Education faculty. Graduate students in education register in the Graduate College and receive their degrees from that college. Graduate programs are available in the following areas of study.

Counselor Education

M.A., Ed. S., Ph.D.
Counseling and Human Development–M.A., Ed. S., Ph.D.
Rehabilitation Counseling–M.A., Ph.D.
Student Development in PostSecondary Education–M.A., Ed. S., Ph.D.
Substance Abuse Counseling–M.A.
Rehabilitation Psychology–Ph.D.
Curriculum and Instruction

M.A., M.A., M.S., Ed.S., Ph.D.
Art Education–Ph.D.
Behavior Disorders–M.A.
Curriculum and Supervision–M.A., Ed. S., Ph.D.
Developmental Reading–M.A.
Early Childhood Education–M.A.
Early Childhood Special Education–M.A.
Elementary Education–M.A., Ph.D.
Elementary Science Education–M.A.
English Education–M.A., M.A., Ph.D.
Foreign Language Education–M.A., M.A.
Learning Disabilities–M.A.
Mathematics Education–M.A., Ph.D.
Mental Retardation, Mild/Moderate–M.A.
Mental Retardation, Moderate/Severe/Profound–M.A.
Multicategorical Resource–M.A.
Multicategorical Special Class with Integration–M.A.
Science Education–M.S., M.A.T., Ed.S., Ph.D.
social Studies Education–M.A., Ph.D.
Special Education–Ed. S., Ph.D.
Special Education Administration–Ed.S.
Planning, 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.
Social Foundations of Education–M.A., Ph.D.
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.
Instructional Design and Technology–M.A., Ed.S., Ph.D.
School Psychology–Ed.S., Ph.D.

Master of Arts in Teaching

The M.A.T. program is a 42-semester-hour (minimum) nonthesis program designed for academically superior liberal arts graduates who completed few or no professional education courses in their undergraduate program.

Requirements are listed under “Curriculum and Instruction” in this section of 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. A grade-point average of at least 3.00 on undergraduate course work is required for admission. At least 18 semester hours of graduate course work in the student’s teaching field must be completed. A minimum of 20 semester hours of graduate work in education must be taken to satisfy licensure requirements.

Master of Arts

The College of Education offers a Master of Arts with or without thesis. The nonthesis M.A. program usually provides more specialized coursework than does the thesis program. The nonthesis program is not necessarily a terminal program, but students who expect to continue their studies in a doctoral program are urged to select the M.A. thesis program since it offers more experience in research procedures.

Students who complete a nonthesis M.A. program and are admitted to a Ph.D. program may be asked to submit evidence of writing and research skills to their adviser or division during the early part of their doctoral program. Course credits earned more than ten years before the session in which the degree is to be conferred are not counted toward fulfillment of requirements for any master’s degree. Of the minimum 30 semester hours required for the degree, at least 24 must be earned in University of Iowa courses after formal admission to the program, and at least 8 must be completed on campus.

Master of Science

Thesis and nonthesis programs are available for students in science education. The degree requirements are similar to those for the Master of Arts.

Specialist in Education

This degree is granted upon completion of a prescribed two-year postbaccalaureate program designed for students preparing themselves professionally in such fields as teaching, administration and supervision, and special services. Of the minimum 60 semester hours required for the degree, 28 must be in the area of specialization; the rest may be earned in cognate fields, supervised research, and elective courses. The research must culminate in a written report. Other requirements and regulations for the Ed.S. are the same as for the master’s degree, except that 15 semester hours of resident work on campus are required in one 12-month period or in two summer sessions, and course work completed ten years prior to the final examination must be evaluated to determine the amount of credit.
that may be accepted toward fulfillment of the program requirements.

Doctor of Philosophy
The Ph.D. is the highest 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
Students are admitted to professional improvement status in a division rather than to degree candidacy. This option is appropriate only for persons who are seeking to update their knowledge or are temporarily undecided about career plans. Students should file a change of status stating a specific program objective at the earliest opportunity.

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. There are, however, special regulations governing such course work. Students should obtain prior approval from their program advisers before registering in extramural courses. Students not regularly admitted to The University of Iowa also may register in extramural courses, but credit earned prior to admission will not count toward residency requirements.

Support Units and Special Resources

Student Services
The Office of Student Services assists students, faculty, staff, and the general public in matters of graduate and undergraduate admissions, 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, the Office of Admissions, and the Registrar’s Office, and with external agencies including the Iowa Department of Education, out-of-state teacher licensure/certification, and school district personnel both in- and outside of Iowa. A variety of application and informational materials are available at the office.

Computer Resources Laboratory
The College of Education Computer Resources Laboratory provides computer services to College of Education students. Students may use its facilities to work on assignments or do research. The laboratory also assists students enrolled in development courses involved with computer-aided instruction, interactive videodisc instruction, and computer-managed instruction. The Computer Resources Laboratory supports a variety of microcomputers and terminals on-line with University of Iowa mainframe and super-minicomputers. More than 500 pieces of software are available for checkout by registered students. Multiple copies of word processors, spreadsheets, databases, programming languages, utilities, and instructional courseware can be checked out to be used in the lab area.

Curriculum Resources Laboratory
The Curriculum Resources Laboratory provides classroom materials for students and faculty members interested in early childhood, elementary, secondary, and special education. It brings into a convenient central location a large collection of books for children and young adults, K-12 textbooks, curriculum guides and activity books, and non-print materials, such as videocassettes, audiocassettes, games, pictures, kits, and manipulative. All of these instructional materials can be checked out for class assignments, personal examination, and student teaching.

Instructional Media Production Laboratory
The Instructional Media Production Laboratory provides in-house video and audio production, still photography, graphics, and instructional equipment services to College of Education faculty and staff. The laboratory supports a video production facility with both studio and location capabilities, videotape editing suites, audio production studios, darkrooms, and a graphics workroom. It also coordinates a variety of media production courses for graduate students in the instructional design and technology program and undergraduates in the teacher education program.

Libraries
The Main Library and the Psychology Library provide books, periodicals, reference books, films, ERIC microfiche, tests, and a reserved book room for students and faculty.

Placement
The Educational Placement Office assists students and alumni seeking teaching, administrative, and related positions at all levels and in all fields. Services include individual consultation and group assistance with job-search skills and employment tactics, information about job vacancies, establishment of a placement file, and the opportunity to interview with school recruiters on campus. An information center with resources covering career information; directories of schools, colleges, and agencies; and community and state data is available for students planning careers in education and related areas.

Iowa Testing Programs
The Iowa Testing Programs staff develops 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. This department also conducts research studies in educational measurement and evaluation, publishes the results of these studies, sponsors lectures and symposia, provides consulting services to school systems, and provides training experience for graduate students in measurement and statistics.

Connie Belin National Center for Gifted Education
The Iowa State Board of Regents established the Connie Belin National Center for Gifted Education in 1988. Based in the College of Education, the center conducts research and service in gifted education. As a national resource, it also gathers and disseminates information on the education of gifted students. The center’s programs and services include the Connie Belin Fellowship Program in Gifted Education; the Honors Opportunities Program; Invent, Iowa the Counseling Laboratory for Talent Development; the Henry B. and Jocelyn Wallace National Research Symposium on Talent Development; family counseling; consultation; educational assessment; practicum and internship experiences; course work in gifted education; talent searches; and a number of precocile programs for gifted students in grades 3-12. The center also provides practicum and internship experiences for undergraduate and graduate students and coordinates course work for the Iowa Endorsement in teaching gifted and talented students. For more information, contact the Belin center director.

North Central Association
The North Central Association (NCA) of Colleges and Schools is the largest and most active of six regional accrediting associations in the United States; Iowa is one of 19 member states. The NCA’S primary purpose is to foster improvement in education at the elementary, secondary, and collegiate levels by self-examination of educational programs, visits by evaluation teams, and adherence to policies and standards for continued membership. The University of Iowa houses and supports the office of state director of the Iowa NCA State Committee.

Institute for School Executives
The Institute for School Executives is a membership organization for school districts and other educational agencies established and operated by the College of Education. Begun more than a decade ago, it provides continuing education and staff development opportunities for school administrators across the state.
An executive planning board of practicing school administrators provides direction and guidance for programming activities. Management and oversight are coordinated by faculty members of the Division of Planning, Policy, and Leadership Studies. Institute activities provide an excellent opportunity for school administrators and College of Education faculty and students to interact and exchange ideas, experience, and research information on a variety of topics.

**Research Support**

The dean’s office provides support services for faculty research and development, helps faculty with preparation and acquisition of grants, and coordinates such efforts with the University’s Division of Sponsored Programs.

The Cooperating Schools Program, a service of the College of Education since 1972, serves as a liaison for University faculty and students by placing and coordinating research projects with school districts willing to participate in the studies.

**Special Resources**

The School Program for Emotionally Disturbed Children is located in the child psychiatry unit of the University’s Psychiatric Hospital. Children attending this school are residential patients in the unit. The program is supported by the Psychiatric Hospital. Opportunities are available for student teaching and practicum experience in school psychological services.

The University Counseling Service provides research and practicum opportunities for students in counseling psychology and other college programs.

University Hospital School is a University-affiliated facility and, as such, it strives to provide a viable balance of direct services to developmentally disabled youngsters, interdisciplinary training activities for personnel, and research projects in program development and effectiveness.

**Financial Aid**

Students interested in employment opportunities in any of the support units and special resources listed above 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.

**Graduate Assistantships**

Individual academic programs provide opportunities for teaching, research, or service assistantships, as well as for fellowship and related employment opportunities. Inquiries should be addressed to the chair of the division or to the director of the program in which the student believes he or she can provide service or achieve an outstanding academic record. If the student has applied for admission, his or her student file is available for review by those responsible for selecting the assistantship(s) for the student’s program. Assistantship appointments are usually, but not always, made by the program area.

**Special Graduate Assistantships in Education**

The Iowa Testing Programs and the Iowa Measurement Research Foundation provide sufficient funds to support a limited number of special graduate assistantships in education. Students admitted to or pursuing any of the advanced degree programs offered by the College of Education are eligible to apply, provided they are committed to a professional career in the United States. The assistantships are for the academic year only and are renewable for a limited number of years. Holders are assigned to work under the direction of a faculty member in a research capacity and must be enrolled for not fewer than 6 nor more than 12 semester hours per semester.

All candidates must submit transcripts of all college work completed (undergraduate as well as graduate), recommendation forms specific to these assistantships, and scores on the Graduate Record Examination (GRE) General Test. The application form for this assistantship program is available from the director of the Iowa Testing Programs. Application deadline is March 1.

**College of Education Student Loan and Scholarship Fund**

The college’s student loan fund was established to assist College of Education students who are faced with extraordinary or unforeseen expenses while pursuing degree or licensure programs. The borrower must be a senior or postbaccalaureate student seeking teacher licensure, or a graduate student seeking an advanced degree or licensure in the College of Education. He or she must have completed the equivalent of two semesters of full-time course work at The University of Iowa have a strong academic record, and demonstrate potential for success in the field of education.

Three scholarships are available to students for the semester in which they student teach. The scholarships are based on need, grade-point average, and future plans for teaching. One is designated for a postbaccalaureate student; the others can be awarded to either graduates or undergraduates. Applications are accepted each spring for students who will student teach either semester of the following year.

Information and application forms for loans or scholarships are available from the director of -college development in the Educational Placement Office.

**College of Education Awards**

Awards are presented to outstanding students in the College of Education at the spring semester meeting of the college faculty.

- The Duane D. Anderson Scholarship, awarded to a student transferring from an Iowa community college who is enrolled in a College of Education program. The award is based on promise and need.
- The Jack Bagford Elementary Education award, presented annually 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 John Elderkin Bell Marriage and Family Therapy Award, presented annually to an outstanding graduate student in marriage and family therapy entering the dissertation phase of the doctoral program.
- The Blommem-Hieronymus Fellowship, awarded annually 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. The award is based on academic performance in graduate course work and professional promise in the field of measurement and statistics. The fellowship stipend supplements the recipient’s teaching or research assistantship each year until graduation, to a maximum of three years.
- The T. Anne Cleary Psychological Research Scholarship, awarded to an outstanding doctoral student engaged in research on the psychological or quantitative foundations of education. It may be presented to one international student and one permanent resident of the United States each year.
- The John Leonard Davies Memorial Award, presented to an outstanding graduate student majoring in education whose specialization is adult and continuing education.
- The Harvey H. Davis Award, presented to an outstanding candidate for an advanced degree in higher education or educational administration, particularly a student interested in the financing of education.
- The Howard R. Jones Achievement Award, presented to an outstanding graduate student who has made a noteworthy scholarly presentation at a national professional conference or published a significant scholarly article in a reputable professional journal or other substantial printed work.
- The Perry Eugene McLennahan Award, presented to the outstanding candidate for an advanced degree in educational administration.
- The Leonard A. Miller Memorial Award, presented to an outstanding first-year M.A. student majoring in rehabilitation counseling.
- The Melvin R. Novick Award, presented annually to a third- or fourth-year student enrolled in the doctoral program in educational measurement and statistics who has shown the most outstanding academic performance and promise of the highest level of achievement in research in this field.
- The Pi Lambda Theta Award-Senior, M.A., and Ph.D., levels, presented to outstanding students of high scholarship who show promise in the professional areas of research, teaching, or writing and exhibit striking personal qualities.
- The Betty Piercy Scholarship Award, presented to an outstanding student in reading...
who is expected to benefit the field in some direct way.

- The Senior Honors Project Award, presented to a graduating senior in the College of Education who has completed the honors seminar and submitted an outstanding paper as part of the seniors honors project.
- The Franklin Stone International Student Award, presented to an outstanding international student pursing a Ph.D.
- The James and Coretta Stroud Fellowship for Doctoral Study in Educational Psychology, Measurement, or Statistics, awarded to an outstanding graduate student in the Division of Psychological and Quantitative Foundations who is entering the dissertation phase of study.
- The Erwin and Louis Wasta International Scholarship, awarded to an international student enrolled in a College of Education program. The award is based on promise and need.
- The Janet R. Zober Memorial, awarded to an outstanding student preparing to teach the physically handicapped, including the hearing impaired.

Faculty

All tenure-track faculty members with professional rank hold earned doctorates in their teaching fields, and the majority have had teaching or administrative experience in the public schools. Several hold joint appointments in the College of Liberal Arts.

Interdivisional Courses

7X:001 Cooperative Education Internship 0 s.h.
Students participating in cooperative education internships register during work assignment periods; registration protects full time student status and provides a permanent transcript record of participation. Consent of faculty required. Prerequisite: satisfactory completion of cooperative education requirements.

7X:100 Honors Seminar in Education 1 s.h.
Research and education and related professions with presentations by College of Education faculty; students select a faculty member with whom to collaborate on research and complete a senior honors paper.

7X:101 Senior Honors Project 1-2 s.h.
Graduate with a faculty member on research project; written report. Prerequisite: 7X: 100.

Counselor Education

Chair: Richard Dustin
Professors: Nicholas Colangelo, Richard Dustin, Albert B. Hood, David A. Jepson
Professors emeriti: Harold B. Engen, C. Esco Obermann

Associate professors: Demis R. Maki, Leslie Margolin, William A. Matthes, David M. Rosenhall
Associate professors emeriti: Ralph R. Roberts, Jr., Lauralee Rockwell

Assistant professors: Marjane Fall, Debora Liddell, Cynthia Scott, Vilia Tartvydas, Paul Toth
Adjunct assistant professors: Nancy Barceló, John Bayless, David Grady, Maureen Lienau, Philip Jones, Pat Wynn
Adjunct instructors: Arthur Schut, Orville Townsend

Lecturer: Anne Helene Skinstad

Graduate degrees: M.A., Ed. S., Ph.D.

The Division of Counselor Education prepares practitioners and scholars primarily at the graduate level, through degree programs in student development in postsecondary education, rehabilitation counseling, rehabilitation psychology, counseling and human development, and substance abuse counseling. It also offers basic courses in interviewing and interpersonal skills for students in other professional and graduate programs, as well as for undergraduates.

The division’s programs have a strong foundation in psychology.

Admission

Detailed information on admission and program requirements is presented in the brochure “Programs for Advanced Degrees,” available from the Division of Counselor Education.

All applicants for the Master of Arts, Education Specialist, and Doctor of Philosophy are typically expected to meet the following admission requirements:

- completed graduate application form;
- copies of official transcripts of all previous college work–undergraduate and graduate;
- official report of Graduate Record Examination (GRE) General Test scores—verbal and quantitative;
- a statement of the candidate’s reasons for seeking an advanced degree in counselor education, including a statement of personal career objectives;
- a personal or telephone interview, if requested;
- three current letters of recommendation from persons in a position to assess both the applicant’s prospects for completing either the M.A., Ed. S., or Ph. D., and his or her serious commitment to the profession.

In addition to the above, the following requirements must be met for the individual programs.

Master of Arts: A 2.75 minimum undergraduate grade-point average and a composite (verbal and quantitative) GRE General Test score of 1000 or higher.

Specialist in Education: A 3.00 minimum graduate grade-point average and a composite (verbal and quantitative) GRE General Test score of 1100 or higher.

Doctor of Philosophy: A 3.00 minimum undergraduate grade-point average or a 3.30 minimum graduate grade-point average if a graduate degree has been completed; composite (verbal and quantitative) GRE General Test score of 1100 or higher.

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 master’s degree (including a master’s unrelated to counselor education) must complete core master’s-level coursework before taking doctoral-level advanced courses. Master’s-level courses and experiences to be completed are determined in consultation with the adviser and are included in a student’s curriculum plan.

Foreign Students

Foreign students also must provide a Test of English as a Foreign Language (TOEFL) score with their applications. Typically, a score of 580 is required. Depending on the TOEFL score, the division may require students to take and pass University of Iowa course work in English usage that is designed especially for them.

Final Decision, Special Requirements

All the criteria listed above are considered minimum standards for consideration for admission. Final decisions on admissions are made by faculty committees. Also, some programs may have specific admission requirements due to licensure/certification standards. For example, a teaching license/certificate is required for students pursuing certification in school counseling. Any special admission requirements are listed with individual programs.

Conditional Admissions

Applicants who do not meet all the minimum requirements for regular admission consideration may still be admitted on a conditional basis if the faculty determines that there are strengths and promises warranting conditional status. The following are divisional conditions.

M.A. Level–Students must complete 12 semester hours of core courses (approved by an adviser) over two consecutive sessions and earn a 3.00 minimum cumulative grade-point average.

Ph.D. Level–Students must complete 12 semester hours of core courses (approved by an adviser) over two consecutive sessions and earn a 3.30 minimum cumulative grade-point average.

Maintaining Candidacy

All graduate students must meet the following standards in order to maintain their candidacy for degree:

- maintain necessary grade-point average in their curriculum plan: M.A.–3.00; Ed. S.–3.25; Ph. D.–3.50;
- successfully complete practicum, internship, or equivalent professional experience;
- maintain professional behavior consistent with the American Association for Counseling and Development code of ethics, and any additional code of professional ethics adhered to in any agency in which the student completes a practicum or internship; and demonstrate progress toward the degree through successful completion of hours specified in the curriculum plan; progress toward the degree requires active registration each session; exceptions may be approved by the adviser.

The academic and professional progress of division students is reviewed annually.

Probational status

M.A. students who earn an overall grade-point average lower than 3.00 and Ph.D. students who earn a grade-point average lower than 3.30
Doctor of Philosophy

The Ph.D. program, accredited by CACREP, provides preparation for positions such as counselor educator, researcher, associate dean or dean of students; or as directors of admissions, student activities, financial aid, a student union, career planning and placement, residence halls, foreign student services, a community college counseling service, adult continuing education, or external degree programs.

The M.A. thesis or its equivalent is not necessary for admission to the Ph.D. program. But, in order to take the Ph.D. comprehensive examination, students must offer an M.A. thesis or equivalent as evidence of ability to do research.

Rehabilitation Counseling

Master of Arts

The M.A. program in rehabilitation counseling prepares professionals to provide direct services and coordinate resources for persons with disabilities. Counselors work in many settings to assist persons with physical, mental, and social disabilities become more productive, satisfied members of society. Graduates of the program are eligible to take the Certified Rehabilitation Counselor Examination.

The program is accredited by the Council on Rehabilitation Education (CORE).

Doctor of Philosophy

The Ph.D. program in rehabilitation counselor education prepares professionals for leadership roles in rehabilitation education, research, administration, and service delivery systems. Students in this program focus on three areas of advanced study: counselor education, research, and professional practice. The program is flexible, permitting students to pursue interests in specific populations or settings or to concentrate on one of the basic areas of preparation.

Applications who have recently graduated from an M.A. program in rehabilitation counseling and who have not had at least one year of full-time work experience in rehabilitation counseling are not considered. Work experience is highly desirable and enhances the application.

Ph.D. in Rehabilitation Psychology

The Ph.D. program in rehabilitation psychology prepares professionals for work in institutional and clinical settings as well as for teaching, research, and service in academic, agency, and other institutional settings, both public and private. It also is appropriate for students who may be interested in becoming licensed psychologists.

The program is a designated psychology program of the National Register of Health Service Providers in Psychology.

As with the Ph.D. program in rehabilitation counseling, applicants for rehabilitation psychology are not considered unless they have at least one year of full-time, paid work experience in the field of rehabilitation following completion of their M.A. programs.

Counseling and Human Development

Licensure/Certification

Applicants with master’s degrees in counseling or a related field, elementary or secondary school teaching licenses, and at least one year of successful teaching experience may apply for licensure in school counseling. The counseling and human development program provides preparation for licensure as elementary school counselor (K-6) and secondary school counselor (7-12).

Master of Arts

The M.A. program, accredited by the Council of Accreditation of Counseling and Related Professions (CACREP), provides preparation for counseling in a school setting.

Doctor of Philosophy

The Ph.D. program, accredited by CACREP, provides preparation for teaching, leadership, and research positions in counseling and related fields.

Substance Abuse Counseling

Master of Arts

The M.A. program in substance abuse counseling prepares individuals to function in a wide variety of community counseling settings, with special expertise in prevention, intervention, treatment strategies for substance-related dysfunction. The emphasis is on individual, group, and family counseling.

Financial Aid

Depending on federal funding, graduate training fellowships may be available for students entering rehabilitation counseling. Many other graduate students in the Division of Counselor Education hold a wide variety of graduate assistantships. For example, many of the University’s student service units award part-time assistantships to graduate students in the division. Applicants for assistantships should contact the coordinator of the particular counselor education graduate program they plan to enter.

Facilities

A wide variety of counselor education practicum experiences is available in neighboring community agencies, schools, and colleges, as well as throughout the University.
Courses

7C:81 Melting a Vocational-Educational Choice 2 s.h.
Vocational decision making process, self-evaluation, exploration of the world of work; for students who are uncertain about their vocational and educational directions.

7C:112 Human Sexuality 3 s.h.
Physiological and psychological aspects of human sexuality. Same as 42:1 12, 96:1 12.

7C:15 Gifted Young Children 1 s.h.
Identification and conceptualization of intellectual giftedness, educational programming for this age group; for educators, counselors, and psychologists who work with children ages 0-6 years or their parents. Same as 7E: 1 s., TP: 115.

7C:119 Family Issues in Giftedness 1 s.h.
Family dynamics and issues that present themselves when one or more children are identified as gifted; parent/child, sibling, school/family relationships.

7C:120 Psychology of Giftedness 3 s.h.
Theories of learning, child development, motivation; issues unique to gifted education. Same as TP: 120.

7C:121 Assessment of Giftedness and Academic Talent 3 s.h.
Interpretation of standardized tests and other measurement instruments used to identify academic talent and program effectively for gifted students; ability, aptitude, achievement tests; current issues in the uses of various instruments. Same as TP: 121.

7C:123 Gender Issues and Giftedness 1 s.h.
Family dynamics and issues that present themselves when one or more children are identified as gifted; parent/child relations, sibling relations, school/family relationships.

7C:124 Dance and Cultural Issues and Giftedness 1 s.h.
The effect of ethnicity and culture on the development of giftedness; special needs of Black, Hispanic, Native American, and Asian gifted students; strategies for identification and programming.

7C:125 Counseling and Psychological Needs of Gifted Students 1 s.h.
Psychological aspects of giftedness; counseling techniques for gifted children and adolescents; socio-emotional concerns, career development underachievement, special needs of girls and minorities; counseling strategies for academic guidance, career counseling, family counseling. Same as 7P: 125.

7C: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 7P: 126.

7C:127 Research and Theory in Talent/Giftedness 1 s.h.
Symposium same as TP: 127.

7C:128 Advanced Leadership Seminar in Gifted Education 1 s.h.
Developing administrative curriculum and programming based on empirical research; for experienced leaders in gifted education.

7C:133 Culturally Different in Diverse Settings 3 s.h.
Problems in serving culturally different students in schools and social service settings; relevant research on the influence of a disadvantaged background on students learning potential. Same as 7U: 133.

7C:137 Introduction to Educating Gifted Students 3 s.h.
Fundamental issues such as curriculum, counseling, family issues, gender and minority issues. Same as 7U: 137.

7C:142 Adolescence and the Family 3 s.h.
Adolescent development, family relationships, intergenerational influences.

7C:144 Conflict and Violence in Families 3 s.h.
Disfunction, conflict, violence within families; causes, effects, intervention techniques.

7C:145 Marriage and Family Interaction 3 s.h.
Consortial American marriage, family relationships; mate selection.

7C:150 Psychological Aspects of Women’s and Men’s Roles 1-3 s.h.
Psychological aspects of women’s and men’s roles; sex role development and socialization in a variety of settings; strategies for change.

7C:162 Introduction to Marriage and Family Counseling and Psychotherapy 3 s.h.
Initial sessions focus on evolution of the family therapy movement and issues related to functional and dysfunctional family systems; latter sessions examine significant models of family therapy and specific techniques.

7C:178 Microcounseling 1-3 s.h.
Foundation skills of listening, responding, empathy, focus; advanced skills of managing confrontation, reframing, directives, action skills; large-group video instruction with closed-circuit video feedback for small-group practice sessions.

7C:180 Workshop in Counselor Education 1-3 s.h.
Topics for the continuing education of counselors and related professionals.

7C:182 Workshop for Helping Professionals 1-2 s.h.
One-week workshop; students choose one of 18 topics for community practitioners working with or interested in individuals, groups, families, organizations.

7C:185 Introduction to Substance Abuse 2-3 s.h.
Attitudes, values, language, artifacts, myths; specific information on psychoactive drugs; current substance abuse issues including family, intervention, prevention, treatment; historical perspectives in substance abuse.

7C:188 Practicum in Teaching and Curriculum Development in Gifted Education 1-6 s.h.
Includes experience in developing course materials for classes offered through the Belin Center. Same as 7E: 188, 7U: 188.

7C:190 Group Processes for Related Professions 3 s.h.
Small-group procedures for personal and organizational development in educational settings; demonstrations supplement discussions of theoretical issues and research findings; participation in a personal growth group. Consent of instructor required.

7C:193 Individual instruction in Counselor Education Undergraduate 3 s.h.
Consent of instructor required.

7C:199 Counseling for Related Professions 3 s.h.
Cultural underpinnings of counseling theories and techniques. Open only to nonmajors.

7C:202 Introduction to Group Counseling 3 s.h.
Research, theory, practice in group counseling; participation in groups and examination of various leadership styles. Counselor education major or consent of instructor required.

7C:203 Career Guidance and Job Placement 3 s.h.
Prepares counselors to help people learn about, decide upon, and enter work roles; topics include career development concepts and theories, work environments, career guidance goals and objectives, primary methods and materials, evaluation procedures.

7C:210 Rehabilitation Client Assessment 3 s.h.
Orientation to the process and practice of assessing adults with disabling conditions for rehabilitation plan development and decision making.

7C:216 Group Leadership in Human Sexuality 0-3 s.h.
Same as 42:216, 96:216. Consent of instructor required.

7C:221 Foundations of Counseling 3 s.h.
Philosophical bases, processes, issues surrounding predominant counseling theories and techniques; master’s level course for majors in counselor education. Counselor education major or consent of instructor required.

7C:222 Interventions for Primary Prevention in Schools 3 s.h.
Students plan and carry out programs of primary prevention in the schools, grades K-12; conflicts inherent in normal personality development; current societal conditions that commonly lead to individual distress.

7C:232 Therapy with Couples 2 s.h.
Mental and other couples as social systems; theories of functional and dysfunctional systems; techniques of intervention. Same as 42:232.

7C:230 Therapy and Research in Family Studies 3 s.h.
Family development, interaction.

7C:27 Seminar in Gifted Education 2-3 s.h.
Teaching and counseling needs of gifted students K-12; intensive three-week residential program. Open only to teachers with a Belin Fellowship. Consent of instructor required.

7C:238 Advanced Seminar in Gifted Education 1 s.h.
Supervision, administrative, research; issues; educators selected for the seminar will receive fellowships to pay part of the expense of the course. Consent of instructor required. Prerequisite: TP: 237.

7C:241 Introduction to Rehabilitation Counseling 3 s.h.
Historical, philosophical, legislative, societal overview of rehabilitation process and practice; roles of rehabilitation professionals, nature of rehabilitation agencies, resources, issues.

7C:247 Medical Aspects of Disability 3 s.h.
Medical evaluation as part of the rehabilitation process; body systems, medical terminology, medical description of disabilities; functional limitations; projection of potential for rehabilitation applied to planning and placement.

7C:251 Family Therapy 3 s.h.
Same as 42:251.

7C:254 Appraisal in Counseling 3 s.h.
Apitudes, interests, personality tests used for assessment in counseling and personnel selection; laboratory practice in test administration, scoring, interpretation, reporting. Prerequisite: TP: 143 or equivalent or concurrent registration.

7C:255 Vocational psychology 3 s.h.
Major concepts and research evidence in vocational behavior; theories of vocational choice, adjustment, development.

7C:262 Marriage and Family Counseling and Psychotherapy 3 s.h.
Counseling theory and techniques as applied to problems of marriage and the family; advanced topics. Consent of instructor required. Prerequisite: 7C: 162 or equivalent.

7C:263 Consultation Theory and Practice 2-3 s.h.
Analysis of various models of consultation, such as behavioral and mental health. Same as TP:263, 7W:263.

7C:270 Issues and Ethics in Counseling 2-3 s.h.
Ethical standards and current issues concerning counseling in schools and agencies; emphasis on the professional's role in the process. Consent of instructor required.

7C:298 Topical Seminar in Counselor Education 1 s.h.
Topics dealing with current problems of concern to counselors in specific settings. May be repeated.

7C:281 Introduction to Computer Technology in Counselor Education 1 s.h.
Master of Arts candidate in counselor education or consent of instructor required.

7C:285 Treatment Approaches to Substance Abuse and Dependency 3 s.h.
Developmental and historical perspectives; psychological issues related to substance abuse/dependency, assessment, evaluation, diagnostic systems and diagnosis for groups with differential concerns (e.g., adolescents, women, minorities, elderly); differential treatment modalities and major methods of intervention in treatment planning. Same as 42:284.

7C:286 Issues in Substance Abuse Treatment and Clinical Management 3 s.h.
Issues in substance abuse treatment; emphasis on aspects of clinical management in different substance abuse treatment settings.

7C:288 Practicum in Substance Abuse Counseling 3 s.h.
Supervised practice in counseling clients with substance abuse problems; for students in the substance abuse counseling program. Consent of instructor required.

7C:290 Practicum in Group Facilitation 3 s.h.
Supervised practice in working as facilitator and/or counselor in counseling groups and other types of growth groups. Consent of instructor required. Prerequisite: 7C:202 or equivalent.

7C:293 Individual Instruction in Counselor Education 1 s.h.
Consent of instructor required.

7C:300 Practicum in School Counseling 3 s.h.
Supervised experience in counseling with emphasis on counseling in elementary, secondary school settings. Prerequisite: completion of counseling and human development core courses.

7C:301 Practicum in Elementary School Counseling 3 s.h.
Supervised experience in an elementary school setting (K-8), emphasis on roles and expectations of a counselor. Consent of instructor required.

7C:302 Practicum in Secondary School Counseling 3 s.h.
Supervised experience in a secondary school setting (9-12), emphasis on roles and expectations of a counselor. Consent of instructor required.

7C:305 Practicum in Mental Health Counseling 3 s.h.
Supervised experience in various settings; emphasis on roles of a counselor in an agency, community mental health center, and similar settings. Consent of instructor required.
7C:304 Practicum in Postsecondary Counseling arr. Supervised experience in postsecondary school settings such as community colleges, colleges, and related settings; emphasis on role of the counselor in postsecondary school setting. Consent of instructor required.

7C:311 Practicum in Counseling and Psychological Services for Gifted Students 1-6 s.h.

Educational, personal, family issues for graduate students who have completed earlier in counseling education, counseling psychology, school psychology, educational psychology, or related fields. Consent of instructor required. Prerequisite: 7C:304 or equivalent. Same as 7P:311.

7C:330 Internship in School Counseling 5 s.h.

Full-time supervised placement in elementary and secondary school settings; performance of tasks, responsibilities of a school counselor. Prerequisite: 7C:300.

7C:336 Introduction to Student Services 3 s.h.

History, philosophy, status of student personnel service emphasis on student development theory, institutional cultures, student trends.

7C:337 The College Student 2-3 s.h.

Psychological and sociological characteristics of college students; student development theories and implications for higher education.

7C:339 Seminar: Student Services 2-3 s.h.

Intensive study and seminar presentation of current issues, problems, and conflicts related to certain areas of student personnel administration in higher education. May be repeated. Ph.D. candidacy or consent of instructor required.

7C:339 Practicum in Student Services 3-6 s.h.

Supervised practice in college student personnel agencies. May be repeated. Consent of instructor required.

7C:335 Administration of Student Services 3 s.h.

Organizational theory and structures; leadership styles; budgeting, legal issues, case studies of administration.

7C:341 Job Development Placement and Follow-up 3 s.h.

Obtaining appropriate jobs for handicapped individuals who have received rehabilitation services; client, counselor, employer, job specifications. Consent of instructor required.

7C:342 Psychological and Social Aspects of Disability 3 s.h.

Dynamics of adjustment, coping for chronically ill persons with disabilities, psychosocial perspectives on disability.

7C:350 Practicum I in Rehabilitation Counseling arr. Development of knowledge, skills for counseling persons with disabilities in an agency setting; theory, philosophy, ethics, and structure of counseling and case management within framework of a developmental model. Prereq. or corequisites: 7C:178 and 7C:221.

7C:351 Practicum II in Rehabilitation Counseling arr. Supervised experience with clients in a rehabilitation agency. May be repeated. Consent of instructor required.

7C:353 Internship in Rehabilitation Counseling 3 s.h.

Full-time experience in rehabilitation settings; training in wide range of rehabilitation activities, under supervision of certified rehabilitation counselor (CRC). Consent of instructor required.

7C:353 Advanced Counseling and Psychotherapy 3 s.h.

Theories and techniques of counseling clients with personal and interpersonal problems. Consent of instructor required.

7C:359 Student Services Program Development 3 s.h.

Techniques of assessment implementation, evaluation of programs for college student personnel, practical course.

7C:357 A - Group Counseling

And Psychotherapy 3 s.h.

Theories and techniques of group counseling and psychotherapy; integration of theory into supervised experience and research on group counseling. Consent of instructor required.

7C:360 Advanced Practicum in Counseling 3 s.h.

Supervised, intensive, applied experience in counseling. Prerequisites: practice in counseling and approved by instructor and approved by program. Consent of instructor required. Prerequisite: 7C:300 or equivalent.

7C:360 Advanced Practicum for School Counselors 1-3 s.h.

Advanced supervised practicum for school counselors. Admission to School Counseling Institute or consent of instructor required.

7C:362 Family Therapy Techniques 3 s.h.

Marriage and family therapy techniques; family systems, presentations, analysis, session planning; application of family assessment techniques. Consent of instructor required. Prerequisites: 7C:100 and 7C:370.

7C:363 Internship in Student Services 3-5 s.h.

May be repeated.

7C:364 Organization and Development and Change 3 s.h.

Same as 7P:364, TH:365.

7C:366 Advanced Seminar in Rehabilitation Counseling and psychotherapy 3 s.h.

Principles, research, base, practice of rehabilitation counseling; psychological aspects of disability, client assessment, history, systems, contemporary issues.

7C:370 Marriage and Family Practicum 3 s.h.

Students work with couples, families (four to six families during a semester) in Marriage and Family Therapy Clinic. Consent of instructor required. Prereq or corequisite: 7C:202.

7C:371 Advanced Practicum in Individual, Marital, and Family Therapy 3 s.h.

Supervised practice in individual, family, marriage therapy, in an agency; supervise on campus as well as at the participating agency. Consent of instructor required. Prerequisites: 7C:370 and experience in individual, marital, and family therapy.

7C:380 Practicum in College Teaching 3 s.h.

Supervised college teaching experience in counselor education courses; teaching in collaboration with faculty, observation and critiques of staff, participation in course planning and evaluation procedures; for qualified graduate students. Consent of instructor required.

7C:391 M.A. Thesis in Counseling Education Consent of instructor required.

7C:394 M.A. Equivalency Research in Counseling Education 1-3 s.h.

Consent of instructor required.

7C:395 Educational Specialist Research in Counseling Education Consent of instructor required.

7C:400 Professional Seminar and Ethics in Counseling Education 3 s.h.

Advanced seminar, focus on professional and ethical issues. Ph.D. candidacy in counselor education or consent of instructor required.

7C:424 Seminar on Counselor Supervision 3 s.h.

Conceptual models, research, and program design for counselor supervision. Prerequisite: advanced practicum or equivalent.

7C:451 Supervising the Counseling Practicum 3 s.h.

Supervision of students enrolled in counseling practicum. Consent of instructor required. Prerequisite: 7C:360 or equivalent. Prereq or coreq: 7C:454.

7C:466 Seminar: Research in Counseling 3 s.h.

Methods, examples, problems of counseling research. Ph.D. candidacy or consent of instructor required.

7C:493 Ph.D. Thesis in Counseling Education Consent of instructor required.

CURRICULUM AND INSTRUCTION

Chair: William H. Nobles


Adjunct associate Professor: John Nietupski.


Assistant professors emeriti: Iva M. Bader, Murray Martin.

Adjunct assistant Professor: Theresa M. Oehrnke.

Instructor: Richard P. Johns.

Licensure / Teacher Education, 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 Student Services. Deadline for application is June 15. Applications also may be submitted by October 15 or March 15. Qualified applicants who apply on these dates will be admitted if there are openings in classes.

In order to consider for admission, students must have completed a minimum of 30 semester hours of course work with a minimum 2.50 cumulative grade-point average. For some subject areas, additional criteria must be met. A limited number of applicants are accepted into each subject area TEP, so a 2.50 grade-point average does not ensure admission. Admission decisions are based on grade-point average in the major and other criteria relevant to teaching success.

If at any time after admission the grade-point average falls below 2.50, the student is placed on probation for one semester. If a 2.50 is not attained during the probationary semester, the student is dropped from the TEP. Students should consult a College of Education adviser in their program area, or the Division of Curriculum and Instruction office for more information on admission criteria.

Graduate students who apply to the College for "certification only" or to the M.A.T. program must apply separately for admission to the teacher education program. Deadline for application to either program is May 15. Applications submitted by either September 5 or February 15 also are considered.

A limited number of applicants are accepted into each program area TEP, 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 adviser.

Admission to Student Teaching

Admission to the TEP permits students to take certain College of Education courses and requires a 2.50 cumulative grade-point average. Admission to the student teaching semester, however, requires a separate application and review of each student’s credentials and progress to ensure that the student is qualified for placement in the profession. Verification that the student meets the grade-point standards established by their program area at the time of admission to the TEP occurs at the time of application for student teaching.

Students should consult their education adviser or the Division of Curriculum and Instruction office for more information about the admission process and requirements for student teaching in their licensure program.

Elementary Education

FOUNDATION COURSES

These five courses must be completed before methods courses ("Block A"/"B," below) are begun.

7E: 9 Pre-Education Practicum, Elementary Education 1 s.h.
7E: 100 Foundations of Education 3 s.h.
7P: 75 Educational Psychology and Measurement 3 s.h.
7W: 91 Audiovisual Equipment for Instruction 1 s.h.
7W: 92 Introduction to Microcomputing for Teachers 1 s.h.

METHODS COURSES

Block A

Four courses taken concurrently

7E: 123 Literature for Children 2 2 s.h.
7E: 156 Methods A Practicum 1 s.h.
7E: 160 Methods: Elementary School Language Arts 3 s.h.
7E: 164 Methods: Elementary School Reading 3 s.h.

Block B

Four courses taken concurrently

7E: 160 Methods: Elementary School Social Studies 2 s.h.
7E: 162 Methods: Elementary School Science 2 s.h.
7E: 163 Methods: Elementary School Mathematics 2 s.h.
7E: 166 Methods B Practicum 1 s.h.
7E: 120 Methods and Materials: Music for the Classroom Teacher 2 s.h.
7E: 122 Methods and Materials: Art for the Classroom Teacher 2 s.h.
7E: 127 Methods and Materials: Physical Education and Health for Elementary Teachers 2 s.h.

OTHER REQUIREMENTS

7U: 100 Mainstreaming the Exceptional Learner 3 s.h.
7F: 180 Human Relations for the Classroom Teacher 3 s.h.
One college-level mathematics course (22M 1.2, and 3 do not apply)

AREA OF SPECIALIZATION

A minimum of 12 semester hours must be completed in one of the following areas of specialization: art, early childhood, English language arts, history, mathematics, music, reading, science, social science, special education, speech communication/theater. Copies of the requirements for each area of specialization are available in the Division of Curriculum and Instruction office. Courses in the area of specialization may be taken pass/nonpass if they are offered with the pass/nonpass option. Courses in some areas of specialization are sequenced in a definite pattern leading up to student teaching; others have no required sequence and maybe completed before or after student teaching.

STUDENT TEACHING

7E: 170 Classroom Management 2 s.h.
7E: 190 Supervised Teaching in the Elementary School: Interactive Phase 6-7 s.h.
7E: 191 Supervised Teaching in the Elementary School: Pre and Post-Active Phase 5, 7 s.h.
7E: 192 Special Area Student Teaching O, 3 s.h.
Transfer students must complete at least eight semester hours of course work, including two courses numbered 7E: 160 7E: 164 or 7E: 123 at The University of Iowa prior to student teaching. A minimum of 14 semester hours of student teaching is required.

The liberal arts and elementary requirements total approximately 113-139 semester hours. Students who meet or test out of the rhetoric, foreign language, mathematics, and other liberal arts General Education Requirements may be able to satisfy their program requirements in as few as 113 semester hours.

ADDITIONAL ENDORSEMENTS TO LICENSES

The undergraduate elementary education program is designed specifically to prepare students to teach kindergarten through sixth grade. As an addition to the K-6 Iowa endorsement, students may complete requirements for an Iowa subject area endorsement (see “Area of Specialization,” above).

Students seeking teacher education or endorsements in other states must assume the responsibility of determining what extra requirements must be met. For example, Illinois requires an 18-hour specialization which is satisfied by some, but not all, of Iowa’s areas of specialization. Students should consult an elementary education adviser for information.

Addresses for other states require endorsement offices are available in the College of Education’s Office of Student Services.

Secondary Education

Undergraduate students seeking secondary school licensure/certification are degree candidates in the College of Liberal Arts and must complete the requirements for the Bachelor of Arts, Bachelor of Science, Bachelor of Music, or Bachelor of General Studies degrees described in the College of Liberal Arts section of the Catalog.

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 policies, rules, and regulations of that college. Eligible graduate students also may complete teacher licensure/certification by pursuing an M.A.T. in English education, foreign language education, or science education.

Licensure/certification requires a major of at least 30 semester hours of course work in a subject area taught in the secondary school. Course requirements for each major are available in the Division of Curriculum and Instruction office. Candidates for secondary school teaching licensure/certification also may receive approval to teach in additional subject areas by completing an approved program of 24 or more semester hours of course work in those areas.

Secondary school teacher preparation programs are provided in the following areas.

Art
*Coaching
Communication studies (speech communication/theater arts)
English
Foreign languages-Chinese, French, German, Italian, Japanese, Latin, Russian, Spanish
*Health education
Journalism
Mathematics
Music
*Physical education
*Reading
Science, including general science, physical science, biological sciences, chemistry, physics, and earth science
Social science, including anthropology, economics, geography, history, political science, psychology, and sociology
*Available as an additional approval area only.
A major in another subject matter area is required for licensure.

An Iowa secondary teaching license qualifies holders to teach in grades 7-12. 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 several other subject areas 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. Mathematics and science education require completion of the elementary specialist licensure/certification. Completion of the elementary specialist licensure/certification is highly recommended for foreign language education.
Candidates are encouraged to obtain more information and the name of an adviser from the Division of Curriculum and Instruction office.

**Requirements**

Undergraduate candidates for license/certification to teach in secondary schools must complete the following requirements, in addition to the requirements in their major.

One course from **7S:90-7S:95**
- Introduction to Teaching (a specific subject area, except science education) 2-3 s.h.
- 7F: 180 Human Relations for the Classroom Teacher 3 s.h.
- **7P:75** Educational Psychology and Measurement 3 s.h.
- **7S: 100 Foundations of Education** 3 s.h.
- **7U: 100 Mainstreaming the Exceptional Learner** 3 s.h.
- One or more methods of teaching courses in the major field 3-9 s.h.
- One college-level mathematics course (22M: 1,2, and 3 do not apply)
- Competency in computer-based education (CBE) (may be satisfied by taking 7W:92 Introduction to Microcomputing for Teachers, by examination, or by completing a CBE course or module in the subject area) 0-1 s.h.
- Student teaching 12 s.h.

With an adviser's approval, a graduate student may elect equivalent graduate courses in lieu of 7S:90-7S:95, 7S:100, 7P:75, and 7W:92. Students must complete the methods courses in their major teaching fields before student teaching.

For all subject areas, student teaching must be done all day for a full semester. Students in secondary education may do their student teaching at the Center for Urban Teacher Education (CUTE) through the Regents' Exchange Program, or in the customary contractual area established by the College of Education. An exception to student teaching in the customary contractual area will be considered only if the proposed student teaching site provides the student with a specific program opportunity not available in the contractual area or utilizes special cooperating teacher expertise.

Students also may do student teaching in Europe via the Consortium for Overseas Student Teaching; however, overseas student teaching is in addition to and not a substitute for one of the student teaching options described above.

Additional information about alternatives for student teaching and application procedures is available from the Office of Student Services. Applications for student teaching must be filed in the Office of Student Services by February 15 prior to the academic year during which the student teaching will be done.

**Special Education**

Students may be admitted to the Graduate College for the purpose of obtaining one or more teaching licenses/certificates in special education. For course requirements, see specific programs listed for the Master of Arts under "Special Education" in this section of the Catalog. Also see admission requirements under "Special Education."

**Graduate Programs**

**Early Childhood Education**

**Master of Arts**

The Master of Arts program in early childhood education is designed to prepare persons to administer programs and/or deliver education and care to children from infancy through the early primary grades in private or public settings, or to serve as early childhood consultants or community college instructors. It is offered in thesis and nonthesis options.

**ADMISSION**

Students must meet the general admission requirements of the Graduate College and have a 2.50 undergraduate grade-point average. Students must hold a valid prekindergarten/ kindergarten or elementary endorsement or equivalent.

Non-native students must have a TOEFL score of at least 550 or be eligible for admission; those with scores of 550 to 600 are admitted conditionally and must complete an English evaluation before registering for courses. Course work recommended by English proficiency evaluators must be completed before conditional status can be changed. English proficiency course credit may not be applied toward the master's degree.

**REQUIREMENTS**

The thesis option requires a minimum of 30 semester hours of credit; the nonthesis option requires 32.

**FOUNDATION COURSES**

**7E: 160 History and Philosophy of Early Childhood Education** 3 s.h.
- **7E 189 Development and Administration of Child Care Centers** 3 s.h.
- **7E:264 Building Foundations for Reading: Preliminary and Primary** 3 s.h.
- **7E:261 Curriculum Development in Early Childhood (5-8 Years)** 3 s.h.
- **7E:265 Curriculum Development in Early Childhood (0-5 Years)** 3 s.h.

**RELATED COURSES**

One of these (or an approved substitute):

**7P:206 Advanced Child Development** 3 s.h.
- One of these:
  - **7E:114 Parent-Child Relationships** 3 s.h.
  - **7E:134 Parent-Teacher Communication** 3 s.h.
- **7P:263 Consultation Theory and Practice** 2-3 s.h.

**AREAS OF SPECIALIZATION**

**Curriculum**

Students must complete at least 11 semester hours of credit in courses chosen from one or two content areas such as reading and/or language arts, mathematics, science, social studies, music, art, children's literature.

**Human Relationships**

Four of these:

**7E: 114 Parent-Child Relationships** 3 s.h.
- **7E: 134 Parent-Teacher Communication** 3 s.h.
- **7E:280 Supervision of Instruction and Staff Development** 2-3 s.h.
- **7P:263 Consultation Theory and Practice** 2-3 s.h.

**7U:130 Exceptional Persons** 3 s.h.

**Community College Teaching**

All of the following must be completed for the endorsement Post-Secondary Certification for Arts and Sciences.

**7H: 112 Teaching of Adults** 3 s.h.
- **7H:171 The Community College** 2-3 s.h.
- **7H:175 Post-High School Staff Development Workshop** 0-2 s.h.
- **7H:192 Curriculum Development:**
  - Application to Community Colleges 3 s.h.
  - **7H:250 Intern Seminar** 1-3 s.h.
- **7H:370 College Teaching Internship**
- **7P: 150 Introduction to Educational Measurement** 3-4 s.h.

**Counseling**

**7C:162 Introduction to Marriage and Family Counseling and Psychotherapy** 3 s.h.
- **7C:176 Microcounseling** 1.5 s.h.
- **7C: 190 Group Processes for Related Professions** 3 s.h.
- **7C:222 Interventions for Primary Prevention in the Schools** 3 s.h.
- **7P:263 Consultation Theory and Practice** 2-3 s.h.

**Social Work**

**42: 145 Organization and Community Practice** 3 s.h.
- **42:196 Family Violence** 3 s.h.
- **42:226 Social Policy and Interdisciplinary Systems, Domestic and International** 3 s.h.

**Thesis/Research**

**7P:143 Introduction to Statistical Methods** 3 s.h.
- **7P:150 Introduction to Educational Measurement** 4 s.h.
- **7E:392 Field Service Project** 3 s.h.
- **7E:393 M.A. Thesis in Early Childhood and Elementary Education** 2 s.h.

**Comprehensive Examinations**

All students take one written examination in general early childhood education. Nonthesis students take a second written examination in their elected area of specialization. Thesis
students take a second, oral examination related to their thesis or field-service project.

Note: This program does not lead to the Iowa endorsement for teaching prekindergarten kindergarten or to any other teaching endorsement, with the exception of postsecondary licensure/certification when all the required courses in that area of specialization have been successfully completed.

Elementary Education

Master of Arts

This program is designed to prepare master’s degree candidates in elementary education to serve as team leaders, grade level or subject area supervisors, curriculum consultants, or master teachers.

ADMISSION

Admission requirements are the same as those established by the Graduate College. In addition, applicants must have completed an undergraduate program of teacher preparation in either early childhood or elementary education. Graduate students who have not completed an undergraduate program in elementary education must be admitted initially as “certification only” students.

REQUIREMENTS

The thesis option requires 30 semester hours of credit, the nonthesis option 36; 24 semester hours must be taken in University of Iowa courses, with 8 semester hours completed on campus. Course work completed ten or more years before admission does not count toward the M.A. requirements.

Mathematical Sciences

Two of these (4-7 s.h.):

7E:160 Calculus
7E:165 Introduction to the Psychology of Learning
7E:170 Introduction to the Psychology of Reading
7E:245 Supervision and Staff Development
7E:250 Advanced Reading Clinic
7E:255 Science Education: Issues, Approaches to Reading Instruction, and Remedial Teaching
7E:260 Supervision of Elementary School Language Arts
7E:261 Supervision of Elementary School Social Studies
7E:262 Advanced Techniques of Teaching Science in the Elementary School
7E:264 Building Foundations for Reading: Preprimary and Primary 2-3 s.h.
7E:265 Supervision of Intermediate Grade Reading 3 s.h.
7E:267 Curriculum Development in Early Childhood (5-8 Years) 3 s.h.
7E:268 Curriculum Development in Early Childhood (O-5 Years) 3 s.h.
7E:280 Supervision of Instruction and Staff Development 2-3 s.h.

Area of Specialization

A minimum of 10 semester hours of credit in courses chosen with consent of the adviser; may include appropriate courses listed above.

Electives

From O to 5 semester hours of credit in courses chosen with consent of the adviser

Thesis

7E:393 M.A. Thesis in Early Childhood and Elementary Education 2-3 s.h.

COMPREHENSIVE EXAMINATIONS

The comprehensive examination consists of two 3-hour examinations. One 3-hour section is based on the general field of elementary education; the second centers on the candidate’s area of specialization.

MA in Developmental Reading

This degree program prepares graduate students for positions as reading specialists in kindergarten and grades 1-12. The course work required develops the skills, knowledge, and competencies 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 in a college or university.

Successful completion of this program, combined with one year of successful teaching experience that includes the teaching of reading as a significant part of the responsibility, qualifies the student for certification as a reading specialist.

ADMISSION

Students must meet the general requirements of the Graduate College, have a 3.00 undergraduate grade-point average, hold an early childhood, elementary, or secondary school teaching certificate, and show evidence of completing two years of a successful teaching experience.

REQUIREMENTS

A minimum of 33 semester hours with thesis, 24 without. The following courses are required of all candidates.

7E:264 Building Foundations for Reading: Preprimary and Primary 2-3 s.h.
7E:265 Supervision of Intermediate Grade Reading 3 s.h.
7E:267 Curriculum Development in Early Childhood (5-8 Years) 3 s.h.
7E:268 Curriculum Development in Early Childhood (O-5 Years) 3 s.h.
7E:280 Supervision of Instruction and Staff Development 2-3 s.h.
7E:272 Advanced Reading Clinic Practicum 2-3 s.h.
7E:170 Introduction to the Psychology of Reading 3 s.h.
7E:194 Methods: High School Reading 2-3 s.h.

One of these:

7E: 174 Diagnostic and Prescriptive Approaches to Reading Instruction K-12 1-4 s.h.
7P:150 Introduction to Educational Measurement 3 s.h.

One of these:

7E:308 Seminar: Research and Current Issues (Reading) 3 s.h.
7S:294 Seminar: Secondary Reading 3 s.h.

One of these:

7P:106 Child Development 3 s.h.
7P:131 Educational Psychology 3 s.h.
7P:133 The Adolescent and Young Adult 3 s.h.

One of these:

7E:300 Design and Organization of Curriculum 3 s.h.
7S:186 Curriculum Foundations 2-3 s.h.
7S:291 Secondary School Curriculum 2-3 s.h.

One of these:

7D:383 Supervision and Evaluation 3 s.h.
7E:280 Supervision of Instruction and Staff Development 2-3 s.h.
7E:365 Reading Clinic: Supervision arr.

Thesis (if relevant) – one of these:

7E:393 M.A. Thesis in Early Childhood and Elementary Education arr.
7S:393 Master’s Degree Thesis arr.

Students, in consultation with their adviser, may select the remaining hours as electives from areas such as curriculum, supervision, language arts, testing and evaluation, linguistics, or speech pathology.

Students take six hours of comprehensive examinations. One examination is based on reading courses. The other is based on course work in supporting areas. With the agreement of the adviser and the student’s committee, a comprehensive project may be substituted for the written examination in the supporting areas.

M.S. in Elementary Science Education

The Master of Science program in elementary science prepares master’s degree candidates to serve as team or departmental science specialists. The program (38 semester hours) may be taken with or without thesis.

ADMISSION

Admission requirements are the same as those established by the Graduate College. In addition, applicants must have completed an undergraduate program of teacher preparation in elementary education.

REQUIREMENTS

The following courses in science education are required of all candidates.

7E:255 Science Education: Issues, History, and Rationale 3 s.h.
The science specialization (19 semester hours) requirements for a basic science endorsement asizar. The program prepares college teachers and researchers in art education and supervisors of art 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.

MA in Art Education
The Master of Arts program is administered by the School of Art and Art History in cooperation with the College of Education. Students make application for admission to the School of Art and Art History.

Requirments
The program requires a minimum of 90 semester hours of credit, including credit earned for the dissertation. Each student prepares an individual plan of study in consultation with an adviser. The final plan must be approved by the adviser and the division chair.

The doctoral program should include a strong background of elementary education course work. Each program also must include two areas of concentration. One area must be in elementary education (e.g., children’s literature, curriculum, language arts, early childhood, mathematics, reading, or social studies). The second must broaden, deepen, or heighten the student’s programmatic focus or must be in an area outside of elementary education (e.g., English, library science, elementary administration, or child development).

All doctoral candidates must complete three courses in research methodology, one in quantitative research methodology, one in qualitative research methodology, and a third course chosen in consultation with the adviser. The comprehensive examination consists of three 3-hour exams: elementary education and one in each of the areas of concentration.

Secondary Education
The Division of Curriculum and Instruction offers, or jointly administers with departments in the College of Liberal Arts, advanced degree programs in the following fields of professional interest: art education, communication studies education, curriculum and supervision, developmental reading, English education, foreign language education, mathematics education, music education, physical education, science education, and social studies education.

In some fields, only master’s-level programs are offered, whereas in other fields, educational specialist and Ph.D. degree programs also are offered. All degrees offered are listed below, grouped by program area.

MA in Art Education
The Master of Arts program is administered by the School of Art and Art History in cooperation with the College of Education. Students make application for admission 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 strong academic emphasis of this program assists teachers who are themselves creative artists to become highly literate in the history and language of art.

Admission
Applicants must have completed the equivalent of the minimum course work in art required for the B.A. or B.F.A. degree in art from The University of Iowa, and a license/certificate to teach art. Applications must be accompanied by a representative portfolio of the candidate’s work, consisting of 12 slide reproductions of artwork and two examples of written work. The written work may consist of papers previously written for a course or original papers. These should be submitted to the Art Education office.

In the case of course work deficiencies, students must register for pertinent courses. One year of successful teaching experience in an elementary or secondary school is required prior to admission or completion of the doctoral program.

Requirements
Students must complete at least 60 semester hours of graduate work beyond the M.A. planned with the adviser, including at least 15 semester hours in the School of Art and Art History, 15 semester hours in art education seminars, 15 semester hours in a related area (e.g., aesthetics, anthropology, higher education, early childhood education, psychology, sociology), and 15 semester hours in thesis and tool courses. 7E:306 Introduction to Research in Art Education is also required.

Students take both oral and written comprehensive examinations. The written examination consists of an in-depth research problem assigned by the examining committee, to be completed within 14 days. An oral examination on the project is then held (the written portion of the examination is not intended to relate directly to the dissertation proposal).

Students must satisfactorily complete a written dissertation that constitutes a contribution to scholarship, for at least 12 semester hours of credit. 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.

Doctor of Philosophy
The doctoral program 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 educational agencies.

Admission
Candidates for admission to the program should have a combined score of at least 1000 on the verbal and quantitative sections of the Graduate Record Examination (GRE) General Test. The required grade-point average for continuation in the program is that prescribed by the Graduate College.

Requirements
The program requires a minimum of 90 semester hours of credit, including credit earned for the dissertation. Each student prepares an individual plan of study in consultation with an adviser. The final plan must be approved by the adviser and the division chair.

The doctoral program should include a strong background of elementary education course work. Each program also must include two areas of concentration. One area must be in elementary education (e.g., children’s literature, curriculum, language arts, early childhood, mathematics, reading, or social studies). The second must broaden, deepen, or heighten the student’s programmatic focus or must be in an area outside of elementary education (e.g., English, library science, elementary administration, or child development).

All doctoral candidates must complete three courses in research methodology, one in quantitative research methodology, and a third course chosen in consultation with the adviser. The comprehensive examination consists of three 3-hour exams: elementary education and one in each of the areas of concentration.
M.A. in Communication Studies

The program prepares teachers and supervisors of speech communication for secondary and postsecondary positions.

ADMISSION

Candidates must have a 2.75 grade-point average. Candidates without prior academic background in speech communication may need to take additional courses beyond the minimum requirement. Application should be made to the Department of Communication Studies.

REQUIREMENTS

A minimum of 30 semester hours of approved graduate courses, at least 24 of them at The University of Iowa, as follows.

Two communication studies graduate courses in communication education

Two graduate courses in a second division of communication studies

36:300 Introduction to Research

Three 200- or 300-level courses in communication studies

Other courses recommended by the adviser and/or committee

Successful completion of a paper or project involving substantial scholarly investigation and writing, usually done in a seminar or independently under the direction of an adviser. The project or paper must be circulated to the committee with the comprehensive examination.

A comprehensive examination consisting of three 2-hour segments to be defined and limited by the student and an adviser when the plan of study is prepared.

MA in Curriculum and supervision

The program prepares teachers and administrators for positions as consultants, directors, and coordinators in secondary school curriculum development.

ADMISSION

Students must meet the general requirements of the Graduate College. Teaching experience is desirable.

REQUIREMENTS

Common Core (19-20 s.h.): 7F: 117 Philosophies of Education (or equivalent) 2 s.h. 7S: 186 Curriculum Foundations 2-3 s.h. 7P: 150 Introduction to Educational Measurement or 7P: 255 Construction and Use of Evaluation Instruments or 7P: 257 Educational Measurement and Evaluation 3 s.h. 7E: 300 Design and Organization of Curriculum 3 s.h. 7S: 281 Junior High School and Middle School Curriculum 3 s.h. 7S: 291 Secondary School Curriculum 3 s.h.

Research tool, selected in consultation with the adviser, typically 7P: 143 Introduction to Statistical Methods 3 s.h.

Cognates, in a subject field such as English 4-6 s.h.

Electives—selected in consultation with adviser 4-6 s.h.

Thesis, for students electing a thesis program: 7S: 393 Master’s Degree Thesis 2-4 s.h.

Two 3-hour comprehensive examinations, one in curriculum and one in a related field in education or in a cognate field; or three 2-hour examinations.

Ed.S. in Curriculum and supervision

The Ed.S. program provides advanced graduate work in curriculum theory, design, research, supervision, and evaluation. It includes a methodological area and a supporting cognate area planned with the adviser to fit the student’s interests and needs. The program’s primary objective is to prepare educators to serve in positions as curriculum directors, curriculum consultants, or as master or mentor teachers.

ADMISSION

Applicants must satisfy the general requirements for admission to the Graduate College. They also must have prior teaching experience, an M.A. degree, and a grade-point average of 3.25 on all previous graduate work. Students must complete the Graduate Record Examination prior to admission, preferably with a composite score (verbal and quantitative) of 1000 or higher.

Applicants are encouraged to discuss the program with an adviser in their preferred methodological area prior to application. A letter of intent, official transcripts, and three letters of recommendation should accompany the application for admission.

REQUIREMENTS

The degree requires a minimum of 60 semester hours. Students must complete a 28-semester-hour core in curriculum theory, design, research, supervision, and evaluation, including the required research project, which must culminate in a written report. Students who do not have experience as a curriculum specialist must complete a practicum arranged with the adviser.

Course work also includes 18 semester hours in a methodological area (e.g., language arts, mathematics, social studies, reading, early childhood, elementary education) and 14 semester hours in a supporting cognate to broaden, deepen, or heighten the methodological area (e.g., early childhood, elementary education, reading, writing, gifted education, administration, learning theory, instructional design). Students must complete at least 24 of the 60 semester hours required for the degree in residence at The University of Iowa. Fifteen of the 28 semester hours must be earned while the student is on campus within one 12-month period or during two summer sessions. Previous graduate work may be applied in each area with the approval of the adviser. Courses successfully completed ten or more years prior to the final examination are evaluated by the major department to determine how much credit may be allowed. Evaluation of old course work is reported to the Graduate College by the departmental executive when the student submits his or her plan of study.

The program culminates with successful completion of the research project and written report and two 3-hour written examinations, one in the curriculum core and one in the methodological area.

Course listings for program components are as follows.

Curriculum Theory, Design, Research, Supervision, and Evaluation

Students must earn at least 28 semester hours.

Required:

7E/7S/7U: 392 Field Service Project in Secondary Education (practicum; can be waived based on prior experience) arr.

Additional hours (chosen from the following courses or from others approved by the adviser):

7S: 281 Junior High School and Middle School Curriculum 2-3 s.h.

7S: 291 Secondary School Curriculum 2-3 s.h.

7S: 391 Problems of Curriculum Planning 2-3 s.h.

7D: 383 Supervision and Evaluation 3 s.h.

7E: 280/7S: 285 Supervision of Instruction and Staff Development 2-3 s.h.

Sample Methodological Areas

Students must earn a total of 18 semester hours.

Elementary education: In consultation with an adviser, students select graduate level courses in at least five different areas of the elementary curriculum (children’s literature, language arts, reading, social studies, science, mathematics, bilingual/multicultural, early childhood, special education).

Language arts: In consultation with an adviser, students select appropriate hours in a broad area, such as English language arts with a Pre-K-6, 7-12 or Pre-K-12 emphasis, or in a...
specific area, such as communication, developmental reading, literature, or writing with a Pre-K-6, 7-12 or Pre-K-12 emphasis.

Mathematics: In consultation with an adviser, students select appropriate hours in K-12 graduate level mathematics education; selection must include 7E/7S:235 Current Issues in Mathematics Education.

Social studies: In consultation with an adviser, students select courses in K-12 Social Studies and Instructional Design or Educational Measurement.

Special education: In consultation with an adviser, students select appropriate hours in special education. Courses are chosen to match the particular special education areas to the student’s goals.

Sample Supporting Cognate Areas
Broaden, deepen, or extend methodological area: In consultation with an adviser, students select 14 semester hours in a second methodological area.

Second methodological area: In consultation with an adviser, students select 14 semester hours in a second methodological area.

Administration: In consultation with an adviser, students select courses in personnel, financing of public education, leadership theory, and legal aspects of school administration.

Instructional design: In consultation with an adviser, students select courses in the psychological bases of instructional design, instructional technology, designing instructional materials, and computer applications to instruction.

Gifted education: In consultation with an adviser, students select courses in the education of gifted students. Courses are chosen to match the student’s goals.

Course work in a related field outside the College of Education: In consultation with the adviser, students select related course work from a department outside the College of Education.

Ph.D. in Curriculum and Supervision
This program, administered by the College of Education, prepares students for leadership positions in the field of curriculum for secondary schools, state departments, intermediate systems, and college teaching.

ADMISSION
Students must meet the general requirements of the Graduate College, hold a valid teaching license/certificate, and have at least two years of teaching experience. Applicants must be approved for admission by a faculty review committee.

REQUIREMENTS
A minimum total of 90 semester hours, including other approved graduate course work, is required.

Common Core (36-42 s.h.):
- 7S:186 Curriculum Foundations 2-3 s.h.
- 7S:201 Junior High School and Middle School Curriculum 3 s.h.
- 7S:291 Secondary School Curriculum 3 s.h.
- 7E:300 Design and Organization of Curriculum 3 s.h.
- 7E:304 Seminar: Current Issues and Research in Elementary Education 4 s.h.
- 7S:391 Problems of Curriculum Planning 3 s.h.

At least two advanced supervision courses in secondary or elementary school subject fields 6 s.h.

7P: 150 Introduction to Educational Measurement 3-4 s.h.
7P:255 Construction and Use of Evaluation Instruments 3 s.h.
7P:257 Educational Measurement and Evaluation 3 s.h.

7S:293 Individual Instruction in Secondary Education (Practicum) 2-3 s.h.

A minimum of two research tools, typically statistics, research design, or foreign language 9-12 s.h.

Electives, to be chosen in consultation with adviser 6-8 s.h.

Recommended electives include:
- 7D:297 Administrative Leadership Theory 4 s.h.
- 7F: 117 Philosophies of Education 2 s.h.
- 7F:130 Educational Sociology 2 s.h.
- 7P:131 Educational Psychology 3 s.h.
- 7P:170 Introduction to Psychology of Reading 3 s.h.
- 7U:130 Exceptional Persons 3 s.h.
- 7W: 120 Introduction to Instructional Design and Technology 3 s.h.

All doctoral candidates are required to complete at least 8 semester hours of cognate work in areas such as sociology, psychology, or political science.

7S:493 Ph.D. Thesis 10-18 s.h.

Candidates take three 3-hour comprehensive examinations in secondary school curriculum and two related fields in education or in a cognate field.

M.A. in English Education
This program, intended for experienced teachers of English, 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 should have taken extensive course work in English and have taught English for at least two years, and must meet the general requirements of the Graduate college. Students must maintain a 3.00 grade-point average while enrolled in the program.

REQUIREMENTS
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 advisers plan the program of study together.

Students must earn 9 semester hours in courses numbered 200 or above. The only required course is 7S: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).

M.A.T. in English Education
The M.A.T. program is designed for students who have an undergraduate degree in English and few or no professional education comes. Successful completion of the program enables students to receive a credential to teach English in secondary schools.

ADMISSION
Applicants must have a B.A. in English with an undergraduate grade-point average of at least 3.00. They also must take the Graduate Record Exam. Since this is a credentialing program, candidates must not have qualified for credential previously. Applicants are expected to have no more than 6 semester hours of course work in professional education courses prior to admission.

REQUIREMENTS
By the end of the program, students must have taken the following courses:

English
- 7S:315/8P:405 M.A. seminar: English Education 2 s.h.
- 8P:182 Language and Learning 2-3 s.h.
- 8P:198 Teaching Literature to Adolescents 3 s.h.
- 8W: 141 Approaches to Teaching Writing 3 s.h.

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, one of which focuses on cultural studies
A course in nineteenth- or twentieth-century British literature
A course in writing (in addition to 8W:141)
A course in oral communication

Education
- 7F: 180 Human Relations for the Classroom Teacher 3 s.h.
- 7P:131 Educational Psychology 3 s.h.
- 7S: 100 Foundations of Education 3 s.h.
- 7S:115 Methods: English 3 s.h.
- 7S: 187 Seminar: Curriculum and Student Teaching 1.3 s.h.
- 7S: 190 Individual Projects in Laboratory Practice 1-3 s.h.
- 7S: 191 Observation and Laboratory Practice in the Secondary School arr.
- 7S: 192 Observation and Laboratory Practice in the Secondary School arr.
- 7S:194 Methods: High School Reading 2-3 s.h.
- 7U: 100 Mainstreaming the Exceptional Learner 3 s.h.
- 7W:105 Design and Production of Media for Instruction arr.

A two-part comprehensive examination is required. One part is on issues in English education, the other on a student-selected issue in the study of English.
Ph.D. in English Education

This program is designed to prepare students for careers as educational researchers and teacher educators. Course work provides broad background in relevant theoretic and research literature, grounding in qualitative research methodology, and opportunities to conduct original studies that explore the nature of literate practices both in and out of school.

ADMISSION

Applications are reviewed twice each year, in mid-October and mid-April. Application materials should include the following: evidence of at least two years' teaching experience in English or a related field; transcripts of undergraduate and graduate work; three letters of recommendation; a statement of purpose explaining the applicant's educational philosophy, reasons for pursuing graduate study, and future goals; Graduate Record Examination scores; and a minimum 3.00 grade-point average in upper division and graduate course work.

REQUIREMENTS

Students must complete a minimum of 72 hours of course work in areas such as theoretic perspectives on literacy, emergent literacy and developmental relationships between language and literacy, the nature of literacy understanding, issues in teaching and learning writing, preparation and professional development for literacy educators, and research methods. As students near completion of their course work, they are asked to identify several key strands for review and synthesis. With guidance from their advisers, students prepare for written and oral exams in two areas. In a third area, 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.

Following successful completion of the comprehensive exam and approval of the issues paper, 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.

M.A.T. in Foreign and Second Languages Education

The M.A.T. program in foreign and second languages education is designed for superior liberal arts 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

A bachelor's degree with a major or a strong concentration in a second language and a 3.00 undergraduate grade-point average are required.

REQUIREMENTS

Students must complete at least 18 semester hours of graduate courses in a foreign language department and the following professional education courses:

7P:131 Educational Psychology 3 s.h.
7F:107 History of Western Education 2-3 s.h. or
7F:117 Philosophies of Education 2,3,5 s.h.
7F: 180 Human Relations for the Classroom Teacher 3 s.h.
7S:100 Foundations of Education 3 s.h.
7S:116 Methods: Foreign Language and/or
7S:117 Methods: Elementary School Foreign Language 3 s.h.
7E/7S: 183 Second Language Classroom Learning 3 s.h.
7S:187 Seminar: Curriculum and Student Teaching 1 s.h.
7S:189 Elementary School Special Subject Area Student Teaching (for K-6 licensure only) 1-4 s.h.
7S:190 Individual Projects in Laboratory Practice 3 s.h.
7S:191 Observation and Laboratory Practice in the Secondary School 6 s.h.
7S: 192 Observation and Laboratory Practice in the Secondary School 6 s.h.
7S: 197 Principles of Course Design for Second Language Instruction 3 s.h.
7U: 100 Mainstreaming the Exceptional Learner 3 s.h.

At least two of these:

9:152 Issues and Materials in Foreign Language Education 3 s.h.
13: 123 Topics in Foreign Language Instructional Technology 2 s.h.
7S:200 Fundamentals of Second Language Assessment 3 s.h.
7S:202 Second Language Program Management 3 s.h.
7W:120 Introduction to Instructional Design and Technology 3 s.h.

A two-part comprehensive examination is required. One part covers issues in foreign language education related to theory and practice; the second part covers knowledge of and proficiency in the language and/or literature of the candidates’ choice.

M.A. in Foreign and Second Languages Education

This degree is appropriate for persons 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 the practicing teacher. The degree gives the candidate the opportunity to design a program with a special focus.

ADMISSION

Students must meet the general requirements of the Graduate College, have prior teaching experience, be proficient in English and in another language, have acquired at least 20 semester hours in undergraduate, upper division foreign language course work. Applicants should submit a statement of purpose explaining their graduate study goals. A grade-point average 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. Foreign applicants must score at least 530 on the TOEFL and their English must be evaluated by faculty in the second languages education program. Students must maintain a 3.00 grade-point average while enrolled in the program. Candidacy for the master’s degree is reevaluated annually.

REQUIREMENTS

The M.A. requires 33-36 semester hours. It affords students 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, instructional design, measurement and statistics, or another area selected in consultation with the adviser.

Students take at least 9 semester hours in each area of study and must earn 9 semester hours in courses numbered 200 or above. Students plan the program of study with their advisers. Successful candidates complete a research project and/or thesis; they also must pass a written examination developed by the graduate committee. The student’s graduate committee consists of at least three faculty members, one of whom must be in the second languages education program.

Suggested courses are as follows.

Second Languages Education

At least 9 semester hours

7E/7S: 183 Second Language Classroom Learning 3 s.h.
7S:197 Principles of Course Design for Second Language Instruction 3 s.h.
7S:200 Fundamentals of Second Language Assessment 3 s.h.
7S:202 Second Language Program Management 3 s.h.

Target Language

At least 9 semester hours of graduate language courses in the student’s area of interest, selected in consultation with the adviser

Cognate Area

At least 9 semester hours selected in consultation with the adviser

MASTER’S EXAMINATION

A written examination in the two areas of study selected by the candidate and in second language education should be taken during the semester that the student intends to graduate.

Ph.D. in Foreign and Second Languages Education

Students interested in doctoral work in second languages education should apply to the supervision and curriculum program.
M.A. in Mathematics Education

The program provides students with advanced specialization in mathematics and education as a better foundation for K-12 teaching.

ADMISSION

Candidates must meet the admission requirements of the Graduate College and, except in unusual cases, 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

A minimum of 10 semester hours of course work in mathematics approved by the student’s adviser.

A minimum of four courses in mathematics education, which must include 7E/7S:235 Mathematics Education, 7E/7S:234 Foundations of Mathematics Education, 7E/7S:236 The Teaching of Geometry, and 7E/7S:238 The Exceptional Learner in Mathematics. The second in mathematics education selected with the approval of the adviser.

A minimum of two courses selected from a specialization in mathematics and education as a better foundation for K-12 teaching.

A minimum of two courses in data analysis and measurement, history or philosophy of mathematics. It is administered by the College of Education.

The Ph.D. in Mathematics Education

The program for a Ph.D. in mathematics education prepares supervisors, teacher education personnel, community college personnel, and researchers in mathematics education. It is administered by the College of Education.

The 72 semester hours include work taken toward the master’s degree. Credit earned more than ten years previously must be updated. Minimum course requirements are for exceptional students. Typically, the program consists of 80-90 semester hours.

ADMISSION

Applicants must have an undergraduate major in mathematics or the equivalent; a master’s degree in mathematics, mathematics education, or education; a 3.00 grade-point average or above; and, except in unusual circumstance, a current teaching license/certificate and a minimum of two years of teaching experience.

REQUIREMENTS

Students must complete a minimum of 36 semester hours of graduate work in the Division of Mathematical Sciences (mathematics, statistics, and computer science), including the master’s-level core requirements for pure or applied mathematics described under “Master of Science in Mathematics with Education Option” in this section of the Catalog. Courses jointly listed in education do not fulfill this requirement. Students who have completed their mathematics requirement at another institution must complete a minimum of 6 additional semester hours of course work in mathematics at The University of Iowa, chosen with the approval of the adviser.

Also required are at least five courses in mathematics education, which must include 7S:235 Current Issues in Mathematics Education and a minimum of two registrations in 7S:335 Seminar: Mathematics Education. 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 appropriate faculty members in the areas selected to determine which courses they should take in order to adequately prepare for the examinations.

A minimum of two courses in data analysis and research design are required including both quantitative and qualitative methods.

Students must demonstrate competency in a computer language.

Students must complete a total of at least 24 semester hours in College of Education courses; this includes the course work listed above, but does not include dissertation credit.

An additional 10 semester hours of dissertation credit (7S:493) is required.

At the completion of the program, the student must have a 3.00 cumulative grade-point average or above on all graduate work in mathematics, all University of Iowa graduate work in mathematics, all graduate work, and all University of Iowa graduate work.

Students take three written comprehensive examinations, one in mathematics education and two selected from 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.

They also complete a dissertation on a research problem in mathematics education. A prospectus of the proposed research must be presented to the dissertation committee prior to undertaking the study. Upon completion of the dissertation, an oral examination is conducted in defense of the dissertation.

M.A. in Music Education

The program 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 program may be taken with thesis (30-semester-hour minimum) or without (33-semester-hour minimum).

ADMISSION

The applicant must be a licensed/certified music teacher or in the process of completing licensure/certification requirements. A 2.50 undergraduate grade-point average, excluding grades in ensembles, is required for admission to regular status.

The program is administered by the School of Music in cooperation with the College of Education. Application is made to the School of Music.

REQUIREMENTS

Entering graduate students must take the School of Music advisory examination in music theory and history/literature before registering. The advisory examination is given each session on the two days (excluding Sunday) before registration. Students with deficiencies in theory must register for 25:11 Review Theory. A leaflet describing the general content of these tests is available from the director’s office of the School of Music. General graduate admission, degree, and examination requirements are
stated in the Graduate College section of the Catalog.

General:

25:321 Introduction to Graduate Study in Music 2 s.h.

Theory:

25:240 Introduction to Contemporary Analysis and Theory 3 s.h.

25:145-152 Elective 3 s.h.

Specific hour and course requirements in the theory area are determined by scores on the advisory examinations.

History and literature:

25:301 Advanced History and Literature of Music I 3 s.h.

25:302 Advanced History and Literature of Music II 3 s.h.

Specific hour and course requirements in the history and literature area are determined by scores on the advisory examinations. Students excused from 25:301 and/or 25:302 select course(s) from music history electives. For specific courses, see “School of Music” in the College of Liberal Arts section of the Catalog.

Education (14-17 s.h.):

7S:144 Psychology of Music 2 s.h.

7S:149 Behavioral Research in Music 3 s.h.

7S:206 Curriculum Development in Music Education 2 s.h.

7S:240 Foundations of Music Education 2 s.h.

Electives to be selected in consultation with the adviser (may include thesis) 5-8 s.h.

Ensemble:

Students in residence are required to participate in a major ensemble for at least two semesters (total of 2 semester hours).

The amount of elective credit applicable toward the M.A. depends on scores earned on the music advisory examinations and the amount of credit earned in music education elective courses.

MASTER’S EXAMINATION

Candidates must take a final written master’s degree examination during the semester in which they expect to complete the degree. Areas of concentration covered in the examination include music education, music theory, and music history and literature.

Ph.D. in Music Education

The program prepares students for teaching, research, or administrative posts. Graduates accept positions at colleges, as 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, or directors of city or district school music programs.

ADMISSION

For admission to the Ph.D. program in music education, students must have a 3.25 grade-point average on graduate work (excluding grades in ensembles), have a score above the fiftieth percentile on the verbal ability section of the Graduate Record Examination (GRE) General Test, hold or be qualified for a valid teaching license/certificate, and have a minimum of two years of successful music teaching experience.

In addition, the music education faculty makes an appraisal of teaching success, academic potential, and writing ability before qualifications for admission are fully determined. The program is administered by the School of Music in cooperation with the College of Education. Application is made to the School of Music.

REQUIREMENTS

The Ph.D. is granted on the basis of achievement, as determined by course grades and evaluations on the comprehensive and final examinations, and not on the accumulation of semester hours of credit. The course requirements and semester hours listed below are minimum requirements for the typical student in preparation for the satisfactory performance on the comprehensive and final examinations.

General:

*25:321 Introduction to Graduate Study in Music 2 s.h.

Music theory:

25:11 Review Theory (based on advisory exam) 0 s.h.

25:240 Introduction to Contemporary Analysis and Theory 3 s.h.


Music history and literature:

‘25:301 Advanced History and Literature of Music I 3 s.h.

‘25:302 Advanced History and Literature of Music II 3 s.h.


Performance:

Ensemble (required each semester in residence) 2-4 s.h.

Applied instrument 0-4 s.h.

Music education:

7S:141 Measurement and Evaluation in Music Education 3 s.h.

*7S:144 Psychology of Music 2 s.h.

*7S:149 Behavioral Research in Music 3 s.h.

7S:201 Seminar: Current Topics in Music Education (required each semester in residence) 1-4 s.h.

*7S:206 Curriculum Development in Music Education 2 s.h.

*7S:240 Foundations of Music Education 2 s.h.

7S:244 Individual Projects in Music Education 1-2 s.h.

7S:279 Experimental Research in Music Education 3 s.h.

7S:342 Supervision and Administration in Music Education 2 s.h.

7S:445 Social and Psychological Factors in Music Education 3 s.h.

Elective (music education) 2-3 s.h.

*Electives (area of specialization) 6-9 s.h.

Education:

7P:143 Introduction to Statistical Methods 3 s.h.

7P:243 Intermediate Statistical Methods 3 s.h.

Research elective 3 s.h.

*M.A.-level requirements

Students select elective courses, in consultation with their adviser, based on advisory examination scores and professional needs and goals. Subject areas include applied music, conducting, ensemble, theory, history and literature, music education, education, statistics, and psychology.

DISSERTATION, COMPREHENSIVE EXAMINATION

Students earn a minimum of 12 semester hours for work on a dissertation.

The comprehensive examination is an inclusive evaluation of the student’s mastery of selected fields of study. Candidates must demonstrate maturity and scholarship in the areas of theory and practice of music education, research design and technique, specialized music performance, history and literature of music, and music theory and analysis.

The examination typically is divided as follows: music education theory and practice and research techniques, music theory and analysis, music history and literature, and a specialized related area.

M.A. Ph.D. in Physical Education

For information about the Master of Arts and Doctor of Philosophy programs in physical education, contact the Department of Sport, Health, Leisure, and Physical Studies, in the College of Liberal Arts, or the Graduate College.

M.A.T. in Science Education

The M.A.T. program is designed for students who have an undergraduate degree in one of the sciences and few or no professional education courses. Successful completion of the program and fulfillment of the course work in science required by an endorsement program qualifies the student for an Iowa secondary teaching license/certificate.

The program is administered by the College of Education.

ADMISSION

Applicants must have a bachelor’s degree with a major or its equivalent in one of the sciences and a 3.00 minimum undergraduate grade-point average.

REQUIREMENTS

Professional Education Sequence Foundation:

7F:180 Human Relations for the Classroom Teacher 3 s.h.

7P:75 Educational Psychology and Measurement 3 s.h.

7S:100 Foundations of Education 3 s.h.

7U:100 Mainstreaming the Exceptional Learner 3 s.h.
Science education—all of these, taken in the following sequence (7S:153 and 7S:189 are taken concurrently; 7S:187, 190, 191, and 192 are taken concurrently):

7S:151 Science Methods I: Elementary School Seminar and Practicum 2 s.h.
7S:152 Science Methods II: Resources, Research, Teaching Strategies, and Curriculum Development for K-12 Science 3 s.h.
7S:153 Science Methods 111: Middle/Junior High School 2 s.h.
7S:158 Seminar: Curriculum and Student Teaching 3 s.h.
7S:187 Elementary School Special Subject Area Student Teaching 3 s.h.
7S:190 Individual Projects in Laboratory Practice 3 s.h.
7S:191 Observation and Laboratory Practice in the Secondary School 3 s.h.
7S:192 Observation and Laboratory Practice in the Secondary School 6 s.h.

Science Core

97: 128 Meaning of Science 2 s.h.
97: 130 Science in Historical Perspective 2 s.h.
97: 140 Problems in Integrating the Teaching of Environmental Science 3 s.h.
97: 102 Societal and Educational Applications of Earth Sciences and Environmental Sciences 3 s.h.
97: 103 Societal and Educational Applications of Biological Sciences 3 s.h.
97: 105 Societal and Educational Applications of Physical Sciences 3 s.h.
97: 106 Societal and Educational Applications of Chemical Concepts 3 s.h.
97: 355 Science Education: Issues, History, and Rationale 3 s.h.
Science electives 11 s.h.

MS in Science Education

This degree is designed for students who want to pursue advanced science education specialization in teaching (kindergarten through college) or in related fields such as medical education, museum programs, and textbook editing. It is offered with or without thesis. The program is administered by the College of Education.

ADMISSION

Candidates must have a 2.50 undergraduate grade-point average and usually must have an undergraduate degree in one of the sciences or in science education. Applicants must have teaching licensure/certification unless they are preparing for careers in allied health, museums, or community colleges.

REQUIREMENTS

A total of 38 semester hours of course work with thesis or 34 semester hours without thesis, distributed as follows.

Science Education (13 s.h.):
7E/7S:255 Science Education: Issues, History, and Rationale 3 s.h.
7E/7S:256 Science Education and the Nature of Science 3 s.h.
7E/7S:257 Science Education: Teaching, Learning, and Curriculum Models 3 s.h.

Science electives 11 s.h.

7E/7S:258 Science Education Research Models and Conceptual Schemes 3 s.h.
7E/7S:350 Seminar: Science Education (registration required each semester in residence) 1 s.h.
Science specialization (19 s.h.):
Science and applied science courses (100-level or above) selected in consultation with the adviser

Corroboration studies—nonthesis only (6 s.h.):
Science and applied science courses selected from an area other than the specialization 6 s.h.
7S:393 Master’s Degree Thesis 6 s.h.

Students take a comprehensive examination that consists of two parts: one dealing with science specialization, the other with the science education specialization area.

Ed.S. in Science Education

The Ed.S. in science education is an intermediate degree between the master’s and the Ph.D. degree. It is recommended for state, regional, or local science supervisors as well as for instructors in community colleges and small four-year liberal arts colleges.

The program is administered by the College of Education.

ADMISSION

Candidates must have a 2.70 grade-point average on all undergraduate and graduate work undertaken prior to application for admission. Candidates usually are expected to have the equivalent of an undergraduate major in one of the sciences or science education.

REQUIREMENTS

A minimum of 60 semester hours of course work, which must include the courses listed below; courses taken toward the requirements for a master’s degree may be applied to this total.

Science education (28 s.h.):
7E/7S:255 Science Education: Issues, History, and Rationale 3 s.h.
7E/7S:256 Science Education and the Nature of Science 3 s.h.
7E/7S:257 Science Education: Teaching, Learning, and Curriculum Models 3 s.h.
7E/7S:258 Science Education Research Models and Conceptual Schemes 3 s.h.
7E/7S:350 Seminar: Science Education (registration required while in residence) 1 s.h.
7E/7S:355 Science Education: Ph.D. Internship (repeated registrations of 2-3 semester hours each) 9 s.h.
7E/7S:407 Research: Science Education (see research project below) 4 s.h.
Science Specialization (24 s.h.):
Courses that supplement undergraduate preparation, chosen from regular graduate offerings in biochemistry, biological sciences, chemistry, environmental studies, geology, microbiology, physics, and radiation research; should include a concentration of 15 semester hours in at least one field of science.

Corroboration Studies (8 s.h.):
An integrated group of supporting courses selected from a limited number of areas such as education, applied science, science, and history/philosophy of science, in consultation with the adviser.

SPECIAL PROJECT

A special research or curriculum development project is required, resulting in a written report suitable for publication. Four semester hours of credit are assigned for this research.

Students take a comprehensive examination that consists of three parts: one dealing with science education, another with an area of science, and a third with the corroboration studies area.

Ph.D. in Science Education

This degree is appropriate for qualified candidates who aspire to college and university positions as science educators; major supervisory posts in national, state, and local systems; teaching positions in the sciences at small liberal arts colleges; positions as instructors of general education science courses and areas at major colleges; positions as research directors in science education; and positions in medical education.

The program is administered by the College of Education.

ADMISSION

Candidates must meet the minimum admission standards of the Graduate College. Usually applicants must have completed a master’s degree in one of the sciences or science education and have earned a 3.00 grade-point average on all graduate work taken prior to making the application.

REQUIREMENTS

Students must complete at least 102 semester hours of course work, which must include the courses listed below (37 semester hours); courses taken toward a master’s degree count toward the 102-semester hour total:

7E/7S:255 Science Education: Issues, History, and Rationale 3 s.h.
7E/7S:256 Science Education and the Nature of Science 3 s.h.
7E/7S:257 Science Education: Teaching, Learning, and Curriculum Models 3 s.h.
7E/7S:258 Science Education Research Models and Conceptual Schemes 3 s.h.
7E/7S:350 Seminar: Science Education (registration required while in residence) 1 s.h.
7E/7S:355 Science Education: Ph.D. Internship (repeated registrations of 2-3 semester hours each) 9 s.h.
7E/7S:393 Master’s Degree Thesis 6 s.h.
7S:368 Ph.D. Seminar: Current Research in Science Education (two or more registrations required after completing 7E/7S:255, 256, 257, 258) 4 s.h.
7E/7S:493 Ph.D. Thesis 10 s.h.
Candidates must complete 27 semester hours of credit in one of the following as the major area of study: biological science, physical science, earth science, or environmental studies.

They also complete 8 semester hours in an integrated group of supporting courses selected from a limited number of areas such as education, applied science, science, and history/philosophy of science, in consultation with the adviser.

Candidates must demonstrate competency in two of the following research tool areas: statistics, computer programming and/or data processing, research design (completion of a pilot study). Competency is certified by the adviser.

Candidates for the degree usually are expected to participate in the teaching and research function of the science education program throughout their residence.

Candidates complete 10 semester hours of dissertation credit (7 E/7S:493).

The comprehensive examination consists of three parts: one dealing with science education, another with an area of science, and a third with the corroborative studies area.

M.A. in Social Studies Education

The program provides an opportunity for interdisciplinary work in history, social science, or related areas for classroom teachers, high school department chairs, and supervisors, as well as others interested in acquiring greater competence in history and the social sciences and greater proficiency in teaching and supervision.

Students may choose from two programs in social studies education. Program A provides an opportunity for interdisciplinary work in history, social science, or related areas for classroom teachers or others interested in acquiring greater competence in their subject matter area. Program B is for individuals who have their bachelor’s degree in history or social sciences and wish to obtain a teaching license/certificate in the process of completing the master’s degree.

ADMISSION

Applicants must have a bachelor’s degree in history or one of the other social sciences from an accredited institution; a 3.00 cumulative grade-point average; a 3.00 grade-point average in history and/or other social science courses; preferred composite Graduate Record Examination (GRE) General Test score of 1000 on the verbal and quantitative batteries; and two letters of recommendation. Evidence of writing ability in the form of 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, the M.A. candidate must maintain at least a 3.00 grade-point average.

PROGRAM A REQUIREMENTS

Program A students must complete a minimum of 38 semester hours distributed among history and social sciences, or related areas, and education, with a minimum of 10 semester hours in each of three fields.

Nine of the total 38 semester hours must consist of graduate courses numbered 200 or above distributed among the three fields selected for concentration.

If the thesis option is selected, the student completes a research or investigative problem in history or social sciences, or in related areas, in which case the thesis director is a member of the appropriate department; or an investigative problem in social studies education, in which case the thesis director is a faculty member in the College of Education.

A two-hour written examination is required in each of the three fields selected for concentration. An oral examination follows the written examination, conducted by the candidate’s committee as a whole.

PROGRAM B REQUIREMENTS

Program B students must complete a total of 38-48 semester hours, consisting of the courses listed below. All of the following courses must be completed, but students may elect to take some of the course work in the process of completing the bachelor’s degree. In such cases, the number of hours is reduced accordingly, but in no case is the number of hours in the master’s degree program to be less than 38. In all instances, the student must take appropriate work for meeting all Iowa Department of Education requirements for teacher licensure/certification.

Professional education courses:
- 7F:180 Human Relations for the Classroom Teacher 3 s.h.
- 7P:131 Educational Psychology 3 s.h.
- 7S:100 Foundations of Education 3 s.h.
- 7S:170 Methods: Social Studies 3 s.h.
- 7S:187 Seminar: Curriculum and Student Teaching 1-3 s.h.
- 7S:191 Observation and Laboratory Practice in the Secondary School 6 s.h.
- 7S:192 Observation and Laboratory Practice in the Secondary School 6 s.h.
- 7S:277 Seminar: Social Studies Education 3 s.h.
- 7U:100 Mainstreaming the Exceptional Learner 3 s.h.
- 7W:120 Introduction to Instructional Design and Technology 3 s.h.

Candidates also are required to register for a practicum in a public school with the course 7S:190 Individual Projects in Laboratory Practice (2-3 semester hours).

Subject area specialization courses: A minimum of 15 semester hours of course work in history or a social science is required, 10 of which must be taken in one area of history or in one of the social sciences. Two courses should be taken with the instructor who will serve on the examining committee.

Five semester hours of course work maybe taken in a second area of history or in another social science. The fields should be selected in consultation with the adviser.

COMPREHENSIVE EXAMINATION

The comprehensive examination consists of three parts: a two-hour examination in the subject area specialization, a two-hour examination in general professional education, and a two-hour examination in social studies education.

Ph.D. in Social Studios Education

This program is administered by the College of Education. It prepares secondary department chairs, supervisors, curriculum directors, teacher education personnel, and college instructors in the social sciences and pedagogy.

ADMISSION

Applicants must have a bachelor’s degree in history or the social sciences, and a master’s degree in history, the social sciences, or education. They must satisfy the requirements for admission to a doctoral program in the Graduate College and have a 3.00 minimum grade-point average. A minimum Graduate Record Examination (GRE) General Test score of 1200 (composite of verbal and quantitative) is preferred. Seminar papers or field research are required as equivalent if no thesis was written as part of the M.A. An interview is required prior to regular admission.

REQUIREMENTS

Students must complete a minimum of 90 semester hours of course work and dissertation credit beyond the bachelor’s degree, not including tool requirements. The 90 semester hours must be distributed among history, social sciences or related areas, and professional education, depending on the background and goals of the candidate. A minimum of 18 semester hours of course work must be completed in one area of history or one of the social sciences.

Seminars and courses numbered 200 or above are required in each of the areas of study constituting the major. A minimum of 2-3 semester hours of 7S:293 must be completed with one of the faculty members in social studies education, unless other course work with these faculty members has been completed.

Tool requirements are tailored to the individual’s program and may consist of foreign languages or other requirements. Usually, statistics plus research techniques in one or more of the chosen fields or in a language is required.

COMPREHENSIVE EXAMINATIONS

Students take three 3-hour examinations, one in each of the areas of study. Depending on the distribution of work taken, the nine hours of written examinations may be rearranged.

The Ph.D. examining committee consists of a minimum of one faculty member from the liberal arts disciplines and one from social studies education. The remaining members (to make the minimum of five as required by the Graduate College) are selected with regard to the nature of the student’s Ph.D. program and distribution of course work. An oral examination is conducted by the committee as a whole following the written examination.
DISSEminATION
A dissertation is required on a research problem in history or the social sciences, or in related areas, in which case the dissertation director will be a faculty member of the appropriate department, or on a research problem in social studies education, in which case the dissertation director will be a faculty member of the College of Education. The candidate must present a prospectus of the proposed research to the dissertation committee prior to undertaking the study. Upon completion, an oral examination is conducted in defense of the dissertation.

Continuing requirements for maintaining candidacy are a 3.00 grade-point average plus annual reevaluation.

Special Education
The division offers special education programs in these primary areas: mental retardation; learning disabilities; behavior disorders; early childhood special education; and moderate, severe, and profound mental disabilities. 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.

Programs leading to special education licensure/certification are not available to undergraduates. Undergraduates who wish to pursue a career in special education are encouraged to contact the Division of Curriculum and Instruction for advisement.

ADMISSION
Admission requirements include:
- completed graduate application form;
- copies of official transcripts for all previous college course work;
- official report of the Graduate Record Examination (GRE) General Test (verbal and quantitative);
- three current letters of recommendation;
- evidence of experience or teacher licensure/certification (varies depending on program).

An interview may be requested. In addition to the above, the following represent minimum requirements.

Master of Arts: A 2.75 undergraduate grade-point average (or 3.00 on at least 12 semester hours of graduate course work) and a combined verbal and quantitative GRE score of 1000 are preferred.

Specialist in Education: A 3.25 graduate grade-point average and a combined verbal and quantitative GRE score of 1000 are preferred.

Doctor of Philosophy: A 3.00 undergraduate grade-point average or a 3.50 graduate grade-point average if a graduate degree has been conferred, and a combined verbal and quantitative GRE score of 1000 are preferred. For students without an M.A. thesis, an equivalent project must be completed.

Final admission decisions are made by the special education graduate admissions committee and are based on a composite analysis of the candidate’s likelihood for success in the program. This analysis may include consideration of available resources, comparative standing, and specific program requirements (related primarily to licensure/certification standards).

Applications must be complete to be reviewed. It is the candidate’s responsibility to provide a completed admissions dossier. Students may be admitted for any session.

master of Arts or certification in Special Education
The primary purpose of the M.A. degree program in special education is to prepare persons to deliver appropriate levels of service to students with disabilities at the preschool, elementary, and secondary levels in either public or private settings. Applicants may request admission for the purpose of obtaining special education licensure/certification without also completing an M.A. degree. Students who do not seek licensure/certification may be admitted selectively to the M.A. program.

ADMISSION
Admission requirements are:
- a completed graduate application form;
- copies of official transcripts for all previous college course work;
- an official report of the Graduate Record Examination (GRE) General Test (verbal and quantitative), with a score of at least 1000;
- three current letters of recommendation;
- evidence of experience in regular or special education (see each program for specific requirements); and
- a 2.75 minimum undergraduate grade-point average (or 3.00 on at least 12 semester hours of graduate course work).

An interview may be requested.

SPECIAL LICENSURE REQUIREMENTS
All special education students must complete the following courses or their equivalents in order to be qualified for licensure to teach special education in Iowa. Students who feel they already have fulfilled any of these requirements should consult their advisers.

7E:7S: 100 Foundations of Education 3 s.h.
7P:75 Educational Psychology and Measurement 3 s.h.
or
7P:131 Educational Psychology 3 s.h.
7E: 180 Human Relations for the Classroom Teacher 3 s.h.
7W:91 Audiovisual Equipment for Instruction 1 s.h.
7W:92 Introduction to Microcomputing for Teachers 1 s.h.

PROGRAM CORE
All special education students must complete the following core requirements in addition to their specialization requirements.

7U:130 Exceptional Persons 3 s.h.
7U:134 Parent-Teacher Communication 3 s.h.
7U:206 Practicum with Exceptional Persons 3 s.h.
7U:238 Assessment of Learning Difficulties 1-3 s.h.

MA PROGRAM SPECIALIZATIONS
Learning Disabilities
The M.A. requires at least 38 semester hours. Students seeking only certification must complete at least 30 semester hours.

Learning disabilities (LD)-required of all students:
7E:173 Teaching Elementary School Mathematics 2 s.h.
7E:271 Advanced Reading Clinic Techniques 2 s.h.
7E:272 Advanced Reading Clinic Practicum 2 s.h.
(Students who are unable to complete 7E:271-272 may take 7E:172 Reading Instruction: Teaching Practicum and 7E:174 Diagnostic and Prescriptive Approaches to Reading Instruction K-12.)
7U:131 Introduction to Learning Disabilities 3 s.h.
7U:209 Seminar: Graduate Supervised Teaching 1 s.h.

Additional requirements for grades K-6:
7U:201 Methods: Children with Learning Disabilities 3 s.h.
7U:207 Supervised Teaching: Elementary Learning Disabled 5 s.h.

Additional requirements for grades 7-12:
7U:121 Career Education and Transition 3 s.h.
7U:203 Methods: Adolescents with Learning Disabilities 3 s.h.
7U:204 Methods: Adolescents with Behavioral Disorders 3 s.h.
7U:227 Supervised Teaching: Secondary Learning Disabled 5 s.h.

The remainder of the required 38 semester hours for the M.A. are electives chosen in consultation with the adviser.

Behavioral Disorders
The M.A. requires at least 38 semester hours. Students seeking only certification must complete at least 30 semester hours.

Behavioral disorders (BD) core-required of all students:
7U:132 Introduction to Behavioral Disorders 3 s.h.
7U:209 Seminar: Graduate Supervised Teaching 1 s.h.
7U:210 Characteristics and Programs: Persons with Severe Behavioral Disorders 2 s.h.
7U:211 Interventions: Persons with Severe Behavioral Disorders 2 s.h.
7U:212 Characteristics and Programs: Persons with Autism 2 s.h.
7U:213 Interventions: Persons with Autism 2 s.h.
or
7U:252 Seminar: Behavioral Assessment and Evaluation 3 s.h.
7E:173 Teaching Elementary School Mathematics 2 s.h.
7E:271 Advanced Reading Clinic Techniques 2 s.h.
7E:272 Advanced Reading Clinic Practicum 2 s.h.

(Students who are unable to complete 7E:271-272 may take 7E:172 Reading Instruction: Teaching Practicum and 7E:174 Diagnostic and Prescriptive Approaches to Reading Instruction K-12.)

7U:206 Practicum with Exceptional Persons (Section 2 with 7U:252, or Section 3 with 7U:213) 3 s.h.

Additional requirements for grades K-6:
7U:202 Methods: Children with Behavioral Disorders 3 s.h.
7U:208 Supervised Teaching: Elementary Behavior Disordered 5 s.h.

Additional requirements for grades 7-12:
7U: 121 Career Education and Transition 3 s.h.
7U:204 Methods: Adolescents with Behavioral Disorders 3 s.h.
7U:228 Supervised Teaching: Secondary Behavior Disorder 5 s.h.

The remainder of the required 38 semester hours for the M.A. are electives chosen in consultation with the adviser.

Mental Disabilities-Mild/Moderate
The M.A. requires at least 38 semester hours. Students seeking only certification must complete at least 33 semester hours.

Mental disabilities (MD) core—required of all students:
7E:173 Teaching Elementary School Mathematics 2 s.h.
7E:271 Advanced Reading Clinic Techniques 2 s.h.
7E:272 Advanced Reading Clinic Practicum 2 s.h.

(Students who are unable to complete 7E:271-272 may take 7E:172 Reading Instruction: Teaching Practicum and 7E:174 Diagnostic and Prescriptive Approaches to Reading Instruction K-12.)

7U:135 Mental Retardation 3 s.h.

Teaching Program 5 s.h.

K-6 Additional Requirements
7U:214 Methods: Children with Mild Mental Retardation 3 s.h.
7U:215 Methods: Adolescents with Mild Mental Retardation 3 s.h.
7U:221 Supervised Teaching: Secondary Mild Mental Disabilities 5 s.h.
7U:247 Supervised Teaching: Secondary Moderate Mental Disabilities 5 s.h.

The remainder of the required 38 semester hours for the M.A. are electives chosen in consultation with the adviser.

Physically Handicapped (K-6)
The M.A. requires at least 38 semester hours. Students seeking only certification must complete at least 33 semester hours.

Required:
7U:117 Interdisciplinary Programming for Persons with Disabilities 3 s.h.
7U:135 Mental Retardation 3 s.h.
7U:138 Methods: Children with Physical Disabilities 3 s.h.
7U:139 Assessment and Programming for Persons with Physical Disabilities 3 s.h.
7U:191 Supervised Teaching with Physically Handicapped 5 s.h.
7U:248 Adaptations for Students with Multiple Disabilities 3 s.h.
Cardiopulmonary resuscitation course (no credit)

The remainder of the required 38 semester hours for the M.A. are electives chosen in consultation with the adviser.

Early Childhood Special Education
The M.A. requires at least 38 semester hours. Students seeking only certification must complete at least 45 semester hours.

Required:
3:118 Language Development 3 s.h.
3:140 Manual Communication I 1 s.h.
7U:117 Interdisciplinary Programming for Persons with Disabilities 3 s.h.
7U:271 Assessment of Young Children with Disabilities 3 s.h.
7U:272 Development of Young Children with Disabilities 3 s.h.
7U:273 Methods: Early Childhood Special Education Ages 0-3 3 s.h.
7U:274 Methods: Early Childhood Special Education Ages 3-6 3 s.h.
7U:275 Families of Young Children with Disabilities 3 s.h.
7U:276 Supervised Teaching: Early Childhood Special Education I 5 s.h.
7U:277 Supervised Teaching: Early Childhood Special Education II 5 s.h.
7U:278 Seminar: Teaching Early Childhood Special Education 1 s.h.
Cardiopulmonary resuscitation course (no credit)

Mental Disabilities -Moderate/Severe/Profound, K-12
The M.A. requires at least 43 semester hours. Students seeking only certification must complete at least 43 semester hours.

Required:
7U:117 Interdisciplinary Programming for Persons with Disabilities 3 s.h.
7U:135 Mental Retardation 3 s.h.
7U:240 Behavioral Principles 2 s.h.
7U:241 Methods: Persons with Moderate/Severe/Profound Mental Disabilities I 3 s.h.
7U:242 Methods: Persons with Moderate/Severe/Profound Mental Disabilities II 3 s.h.
7U:243 Issues: Teaching Persons with Moderate/Severe/Profound Mental Disabilities 3 s.h.
7U:244 Supervised Teaching: Elementary Moderate Mental Disabilities 5 s.h.
7U:245 Supervised Teaching: Secondary Moderate Mental Disabilities 5 s.h.
7U:247 Supervised Teaching: Moderate/Severe/Profound Mental Disabilities 5 s.h.
7U:248 Adaptations for Students with Multiple Disabilities 3 s.h.
Cardiopulmonary resuscitation course (no credit)

Recommended:
7U:139 Assessment and Programming for Persons with Physical Disabilities 3 s.h.
Multicategorical Resource Teaching
The M.A. requires at least 38 semester hours. Students seeking only certification must complete at least 39 semester hours.

Required core:
7U:117 Interdisciplinary Programming for Persons with Disabilities 3 s.h.
7U:209 Seminar: Graduate Supervised Teaching 1 s.h.
7U:216 Methods: Resource Teaching 3 s.h.
7E:173 Teaching Elementary School Mathematics 2 s.h.
7E:271 Advanced Reading Clinic Techniques 2 s.h.
7E:272 Advanced Reading Clinic Practicum 2 s.h.

Two of the following, required for licensure:
7U:131 Introduction to Learning Disabilities 3 s.h.
7U:132 Introduction to Behavioral Disorders 3 s.h.
7U:135 Mental Retardation 3 s.h.

Additional requirements for grades K-6:
7U:202 Methods: Children with Behavioral Disorders 3 s.h.
7U:209 Seminar: Graduate Supervised Teaching 1 s.h.
7U:216 Methods: Resource Teaching 3 s.h.
7E:173 Teaching Elementary School Mathematics 2 s.h.
7E:271 Advanced Reading Clinic Techniques 2 s.h.
7E:272 Advanced Reading Clinic Practicum 2 s.h.

Additional requirements for grades 7-12:
7U:211 Career Education and Transition 3 s.h.
7U:204 Methods: Adolescents with Behavioral Disorders 3 s.h.
7U:232 Supervised Teaching: Elementary Multicategorical Resource Teaching Program 5 s.h.

Recommended for licensure, grades K-6:
7U:210 Methods: Children with Learning Disabilities 3 s.h.

Additional requirements for grades 7-12:
7U:121 Career Education and Transition 3 s.h.
7U:204 Methods: Adolescents with Behavioral Disorders 3 s.h.
7U:232 Supervised Teaching: Secondary Multicategorical Resource Teaching Program 5 s.h.

Recommended for licensure, grades 7-12:
7U:203 Methods: Adolescents with Learning Disabilities 3 s.h.
Multicategorical Special Class with Integration
Requirements include the core courses from two of the following programs: learning disabilities, behavior disorders, or mental retardation.

For students seeking elementary (K-6) approval, the courses required at the elementary level in the two programs chosen above also must be completed.

For students seeking secondary (7-12) approval, the courses required at the secondary level in the two programs chosen above also must be completed.

Specialist in Education
The program provides advanced graduate training for professionals in the field of special education, including individuals in consultation, supervisory work, and work-study coordination in special education.

In addition to the general graduate admission requirements listed below, requirements for admission to this program include a master’s degree in special education or equivalent; preparation and licensure/certification in special education; and a minimum of one year of full-time teaching experience prior to admission to the program.

The program requires a minimum of 60 semester hours. The flexible plan of study is developed by the student and adviser. Degree requirements include written comprehensive examinations and a research paper (7U:395 Educational Specialist Research, 4 semester hours).

Ed.S. in Special Education Administration
The Ed.S. in special education administration is offered jointly with the Division of Planning, Policy, and Leadership Studies.

Its primary objective is to provide sufficient training and experience to enable graduates to obtain entry-level positions in administration. The career focus of the program is on middle management positions such as supervisors and assistant directors. Successful completion of the program qualifies students for licensure/certification in Iowa to serve as directors of special education (State of Iowa Endorsement 239) and for licensure/certification in general school administration (State of Iowa Endorsement 171).

The program requires a minimum of 60 semester hours of credit.

Admission to the program is limited by available resources. Five to eight new students are admitted each year. Admission requirements include a master’s degree and licensure/certification in some area of teaching exceptional children, and classroom experience as a teacher or equivalent experience.

Special Education Consultant
The purpose of this program is to prepare consultants to serve in special education programs.

**ADMISSION**
Admission to a certification or M.A. degree program in special education is required. Applicants must hold or meet the requirements for the special education teaching endorsement congruent with the desired consultant authorization. For example, applicants must hold or meet the requirements for a mental disabilities endorsement in order to be recommended for the special education consultant endorsement with authorization in mental disabilities. 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 the desired consultant authorization. Applicants 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**
Option 1 -For Persons without an M.A. in Special Education
Completion of an M.A. degree and teaching endorsement program in special education congruent with the consultant desired authorization, plus the three courses listed under “Option 2” below for a total of at least 38 semester hours.

Option 2 - For Persons with an M.A. in Special Education and an Endorsement Congruent with Desired Authorization
Three courses:

- 7E:300 Design and Organization of Curriculum 3 s.h.
- 7P:263 Consultation Theory and Practice 3 s.h.
- 7U:260 Special Education Consultation (offered infrequently) 2 s.h.

**Doctor of Philosophy**
The Ph.D. program in special education prepares students for positions in higher education research and teaching, and for curriculum, supervisory, and research positions in state and local education agencies. The program permits students to study and practice extensively in their area of interest in special education.

Admission requirements for the Ph.D. program include a master’s degree or equivalent in special education and a minimum of one year of full-time teaching experience with exceptional children. The admissions committee gives preference to applicants who have had several years of experience.

The program requires a minimum of 90 semester hours beyond the bachelor’s degree. The plan of study is flexible and varies depending on the student’s background and educational goals. In general, students are expected to possess a general background in all facets of special education and one or two areas of specialization. The actual course of study is developed by the student and the academic adviser. Students are required to write comprehensive examinations and complete a doctoral dissertation (7U:493 Ph.D. Thesis in Special Education, 10 semester hours minimum).

**Facilities**
Special facilities available to students in special education include the University Hospital School, for mentally and physically disabled, and the University Psychiatric Hospital/Child Psychiatry Program, for children and youth with behavioral disorders.

**Financial Aid**

**Early Childhood, Elementary Education**
A number of teaching assistantships are available for graduate students pursuing advanced programs in early childhood and elementary education. Specific assignments vary. Some involve supervising undergraduate majors enrolled in practicums, and some involve teaching sections of undergraduate methods courses and supervising student teachers. Most assistantships are classified as one-half-time. This classification permits students to register for a maximum of 12 semester hours of credit per semester. Graduate students with assistantships must register for a minimum of 6 semester hours per semester.

All assistantships are awarded on a competitive basis. To be considered for an assistantship, applicants must have been admitted to regular status in the Graduate College and accepted in an advanced program by the College of Education. Inquiries concerning assistantships should be directed to the division chair.

**Secondary, Special Education**
A limited number of assistantships are available for graduate students pursuing advanced degrees. Holders of such assistantships may register for no more than 12 semester hours and, except with special permission, no less than 6 semester hours per semester.

Assignments vary. Some involve teaching undergraduate courses or supervising practicum experiences, and others are made up primarily of research activities.

Secondary education graduate students also may be eligible for assistantships in some College of Liberal Arts departments. A candidate with appropriate credentials should apply directly to the specific department or consult the College of Education adviser directing the program in the appropriate field.

Traineeships in selected licensure/certification and master’s degree programs are available to full-time special education students. The Janet
Zober Memorial Tuition Stipend is available each year to one student who is pursuing a special education teaching license. Preference is given to students working toward licensure in physical disabilities.

Courses

**Early Childhood and Elementary Education**

7E:23 Movement and Sport Skills 0.5-3 s.h.  
Same as 24-10, 78:23.

7E:70 Growth and Development of the Young Child 3 s.h.  
Physical, cognitive, emotional, social development; emphasis on relationships between children, families.

7E:117 Human Growth and Motor Development 2 s.h.  
Human growth, development of nervous system; focus on motor development from birth through puberty. Offered fall semesters. Same as 27:117.

7E:72 Methods and Practicum: Elementary Teachers Physical Education 3 s.h.  
Practical considerations and curriculum planning for prospective teachers of elementary school physical education. Open only to physical education TEP majors. Offered spring semesters. Prerequisites: 7E:171 and 78:97.

7E:78 Beginning Folk Guitar 2 s.h.  
Development of guitar and basic music skills. Consent of instructor required. Same as 25:78.

7E:91 Pre-Education Practicum, Elementary Education 1 s.h.  
Students spend six hours per week working with children and teachers in elementary schools; assignments to schools are made in 7E:100. Admission to elementary TEP required. Corequisite: 7E:100.

7E:92 Pre-Edward Practicum, Prekindergarten 1 s.h.  
Students spend onehalf day per week working with children and teachers in a prekindergarten setting. Admission to elementary TEP required.

7E:93 Pre-Education Practicum, Kindergarten and Early Elementary 1 s.h.  
Students spend two half days per week for eight weeks working with children and teachers in a kindergarten and elementary setting. Admissions to schools are made in 7E:167. Admission to elementary TEP required.

7E:100 Foundations of Education 3 s.h.  
Overview of American education, preschool through secondary; aims, historical philosophy of education; school curriculum, organization, finance, school law, political, and social issues. Admission to TEP required. Same as 7S:100.

7E:101 Introduction to Education 3 s.h.  
Basic orientation to the field of education; administrative organization, instructional procedures, contemporary problems at both elementary and secondary levels. Same as 7S:101.

7E:103 Administration of Physical Education and Athletics 2-3 s.h.  
Administrative issues in both physical education and athletics; topics include theory, budgeting practices, legal liability, public relations, evaluation of personnel. Same as 7S:103, 28:105.

7E:104 Remedial Methods in Speech and Hearing 2 s.h.  
Emphasis on elementary grades. Usually taken in conjunction with 7E:192, which provides approximately 70 hours of supervised clinical practice in elementary schools. Primarily for speech pathology and audiology majors. Consent of instructor required.

7E:114 Parent-child Relationships 3 s.h.  
Basic factors that influence parent-child interactions; raising children in different family settings.

7E:115 Gifted Young Children 1 s.h.  
Identification and conceptualization of intellectual giftedness, educational programming for this age group; for educators, counselors, and psychologists who work with children ages 0-6 years or their parents. Same as 7E:115, TP:115.

7E:120 Methods and Materials: Music for the Classroom Teacher 2-3 s.h.  
Development of music skills, techniques, knowledge of methods and materials for teaching music to young children; for elementary education majors. Admission to TEP required.

7E:122 Methods and Materials: Art for the Classroom Teacher 2 s.h.  
Projects, techniques, processes in art for elementary and early childhood education majors; combination lecture and studio painting, drawing, printmaking, sculpture, and crafts with materials and tools commonly available in the elementary schools. Same as 7E:195.

7E:123 Literature for Children 2-3 s.h.  
Literature intended for children; discussion of children's interests, capabilities, and reading programs; history and criticism of books for children; illustrations in books and recent trends and issues in literature. Admission to elementary TEP or consent of instructor required. Corequisites: 7E:156, 7E:160, and 7E:164.

7E:125 Methods and Materials: Teaching Children's Dance 2-3 s.h.  
Same as 7E:145.

7E:126 Literature and Storytelling for Children 3 s.h.  
Rationale, materials, techniques for sharing stories with young people; comparison and evaluation of variant texts in book and audiovisual versions; selecting stories for audiences of different ages; planning story programs; performance techniques. Same as 21:126.

7E:127 Methods and Materials: Physical Education and Health for Elementary Teachers 2 s.h.  
Methods, curriculum. Admission to TEP required.

7E:128 Methods and Materials: Physical and Social Education Health in Elementary School 4 s.h.  
Methods, materials, curriculum issues and trends.

7E:134 Parent-Teacher Communication 1-3 s.h.  
Realities of working with parents; interpersosional skills; options for parent support services. Same as 7P:134, 7U:134.

7E:136 Home/School/Community Partnerships 3 s.h.  
Issues related to collaboration among families, educators, community members in implementing school programs. Same as 7P:136, 7S:136.

7E:137 Physical Education Curriculum: Trends 3 s.h.  
Strategies for the K-12 setting. Same as 27:137, 7S:137.

7E:142 Language Assessment in ESL/Bilingual Education 3 s.h.  
Language and psycholinguistic development of the bilingual child, issues in assessment and evaluation, educational implications of bilingualism.

7E:143 Methods: Art 3 s.h.  
Application of studio methods to teaching children in Saturday Children's Art Class Program. Prerequisite: 7E:196.

7E:144 Methods and Materials: Elementary School Visual Art 2 s.h.  
Materials, techniques; methods for teaching band and orchestra instruments in the elementary school.

7E:145 Methods and Materials: Elementary School Music 3 s.h.  
Area of specialization in music for choral music education students and elementary education majors. Offered spring semesters.

7E:156 Methods A Practicum 1 s.h.  
Observation of, participation in, reflection about language and literacy instruction at K-6 level. Corequisites: 7E:123, 7E:160, and 7E:164.

7E:157 Methods: Early Childhood Education 3 s.h.  
Current educational literature emphasizing developmentally appropriate methodology across all curricular areas and including health, safety, nutritional needs.

7E:158 Guidance of Young Children 3 s.h.  
Techniques of preventing behavior problems in child care programs; behavior management; cognitive approaches to encouraging social and moral development of children; three hours of observation weekly of caregivers and children in local child care centers.

7E:159 Early Childhood Education Special Projects 1-3 s.h.  
Curriculum, methodology, materials; specific content varies with current issues, developments, needs of students; for prekindergarten, kindergartners, and primary teachers, supervisors, and consultants. May be repeated.

7E:160 Methods: Elementary School Language Arts 3 s.h.  
Planning processes and development of problem teaching units; approaches to personal self-expression through oral, written, visual modes (creative dramatics, writing, film, etc.), and to language development, concepts concerning language, and skills of oral and written communication. Admission to elementary TEP required. Corequisites: 7E:161, 7E:156, and 7E:164.

7E:161 Methods: Elementary School Social Studies 2 s.h.  
Objectives and content for grades K-6; development of work study skills and problem method. Admission to elementary TEP required. Corequisites: 7E:162, 7E:163, and 7E:166.

7E:162 Methods: Elementary School Science 2 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. Admission to elementary TEP required. Corequisites: 7E:161, 7E:163, and 7E:166.

7E:163 Methods: Elementary School Mathematics 2 s.h.  
Methods used in kindergarten and grades 1-6; teaching number system and arithmetic operations. Admission to TEP required. Corequisites: 7E:161, 7E:162, and 7E:166.

7E:164 Methods: Elementary School Reading 3 s.h.  
Basic methods, trends, recent materials, crucial issues in reading programs of kindergarten, primary, upper elementary grades. Admission to elementary TEP required. Corequisites: 7E:123, 7E:156, and 7E:160.

7E:165 Methods: Multicultural-Bilingual Education 3 s.h.  
Methods of instruction for multicultural and bilingual settings in grades K-6; emphasis on cognitive and affective areas of the teaching process, including curriculum and resource development, teaching strategies.

7E:166 Methods B Practicum 1 s.h.  
Practicum at the K-6 level involving mathematics, science, social science content areas; scheduling done in related methods courses. Corequisites: 7E:160, 7E:162, and 7E:163.

7E:167 Observation and Assessment of Young Children 3 s.h.  
Observation and application of developmentally appropriate assessments for children to age eight, including special needs and at risk populations; practicum experience in diverse settings with varying age levels (infant/toddler, preprimary, primary).

7E:168 Math Clinic: Teaching Practicum 2-3 s.h.  
Work with elementary aged children in mathematics; focus on individual tutoring, peer tutoring, cooperative learning activities.

7E:169 History and Philosophy of Elementary Childhood Education 3 s.h.  
In-depth study of development, learning, education of young children, including past, present, future speculations; pioneers, including Plato, Comenius, Locke, Froebel, Rousseau, Pestalozzi, Montessori, Dewey.

7E:170 Classroom Management 3 s.h.  
Activities, techniques, strategies, theories related to effective classroom management. May be repeated.

7E:172 Reading Instruction: Teaching Practicum 3 s.h.  
Practice in application of diagnostic teaching techniques and reading curriculum development. Prerequisites: 7E:156 or 7P:170 or 7S:194. Corequisite: 7E:174.

7E:173 Teaching Elementary School Mathematics 2-3 s.h.  
Elementary school mathematics curriculum; emphasis on accommodating varied students’ abilities, diagnosing pupil errors, testing, developing instructional sequences, remediation and enrichment, selected research studies.

7E:174 Diagnostic and Prescriptive Approaches to Reading Instruction K-2 1-4 s.h.  
Changin purposes and techniques for assessing reading strengths and weaknesses; corresponding changes in instructional goals as children progress through the reading curriculum. May be repeated. Prerequisite: 7E:164 or 7P:70-71.

7E:175 Developing Communication processes and MS 3 s.h.  
Oral, written, visual/nonverbal modes that meet a range of purposes, situations, audiences, direct and incidental methods of instruction; ways to develop language across the curriculum; assessment of instructional materials and learning activities and evaluation instruments for communication.
7E:177 Workshop: Curriculum Evaluation and Selection
For a specific curricular area, choosing or developing criteria for evaluating, reviewing, selecting organizing materials and activities to suit specific curricular patterns. May be repeated for different areas (see current Schedule of Courses for specific areas offered). 1-3 s.h.

7E:178 Workshop: Curriculum Development and Implementation
For a specific curricular area; determining curricular needs and analyzing educational principles and research to develop materials and activities that suit specific curricular patterns. May be repeated for different areas (see current Schedule of Courses for specific areas offered). 1-4 s.h.

7E:179 Workshop: Teaching Methodology
For a specific curricular area: review of teaching methods, theory, related research; planning, developing lessons; demonstrations, observations, simulations of teaching. May be repeated for different areas (see current Schedule of Courses for specific areas offered). 1-3 s.h.

7E:180 Creative Drama in the classroom
3 s.h.
Values of creative drama, familiarizes student with creative dramatics activities, develops ability to plan drama experiences, and provides guided experiences in leader techniques; includes a seven-session classroom practicum; for students in education, community studies, theater arts, recreation, and so on. 185.

7E:181 Piaget in the Classroom
2-4 s.h.
Development of logical thought in the concrete and formal-operational stages; emphasis on learning numerous Piaget type tasks, presenting these tasks to children, deriving classroom implications from the data; primarily for experienced teachers.

7E:182 Language and Learning
2-3 s.h.
How language growth reflects and enables cognitive development; readings in psychology, anthropology, education; relationship of language theory to language instruction in schools. Same as 78:182, 80:182.

7E:183 Second Language Classroom Learning
3 s.h.
Synthesis of empirical findings on children’s and adult’s learning of a second or foreign language; emphasis on theoretical underpinnings of many approaches, methods, techniques in language teaching. Same as 78:183.

7E:184 Piaget for Teachers
3 s.h.
Specific classroom procedures and determination of appropriate content topics for various grade levels; for teachers interested in examining and implementing the work of Jean Piaget in their classrooms.

7E:185 Introduction to Consulting in Education 2-3 s.h.
Consultation research and practice applied to educational settings; of students in preschool through college; program offers consultation services. Same as 7P: 185, 7S:185, 7U:185.

7E: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; product oriented. Same as 7S:186.

7E:188 Practicum in Teaching and Curriculum Development in Gifted Education
1-6 s.h.
Includes experience in developing course materials for classes offered through the Belin Center. Same as 7C:188, 7S:188, 7U:188.

7E:189 Development and Administration of Child Care Centers
3 s.h.
Forces in starting and managing a child care center; licensing, budgeting, health and safety, food and nutrition, parent involvement, supervising staff, maintaining quality; students visit and evaluate a child care center.

7E:190 Supervised Teaching in the Elementary School: interactive Phase
art.
Student teaching at the elementary level (K-9). Application to the College of Education Office of Student Personnel required. Corequisite: 7E:191.

7E:191 Supervised Teaching in the Elementary School: Pre- and Post-Active Phase
Application to Use College of Education Office of Student Personnel required. Corequisite: 7E:190.

7E:192 Special Area Student Teaching
Supervised teaching and observation in specific areas of elementary curriculum (see current Schedule of Courses for specific areas offered). Consent of instructor required. 3 s.h.

7E:193 Independent Study
Senior standing and consent of instructor required. 1-9 s.h.

7E:194 ESL Bilingual Lab Practicum in Elementary Education
3 s.h.
Practical approach to dual language instruction with students in small classes where bilingual and English as a second language (ESL) methodology is employed.

7E:195 Multicultural/Bilingual Concepts and Educational Systems
3 s.h.
In-depth examination of educational practices within various communities; educational perceptions of these multicultural communities; perceptions of the educational institutions that serve these populations and linguistically diverse backgrounds. Same as 7P:196.

7E:196 Topics in Curriculum and Instruction
art.
May be repeated. Consent of instructor required. Same as 7S:196, 7U:196.

7E:197 Supervised Teaching Early Childhood Center: Interactive Phase
art.

7E:198 Supervised Teaching Pre- and Post-Active Phase
art.
Application to the College of Education Office of Student Personnel required. Corequisite: 7E:197.

7E:204 Literature for Children II
3 s.h.
Analytical and selective collection of literature for programs of various settings. Emphasis on research, methods, reading techniques, multimedia approaches to promote pleasure and insight through prose and poetry. Prerequisite: 7E:123 or consent of instructor.

7E:206 Curriculum Development in Music Education
2 s.h.
Curriculum development, instructional materials, analyses of current teaching methods and techniques in school music programs. Same as 7S:206.

7E:230 Workshop in School Mathematics
1-3 s.h.
One to three week examination of and experience with recent developments in school mathematics teaching methods, curriculum. Same as 7S:230.

7E:231 Technology in School Mathematics
2-3 s.h.
Methods, materials, issues, pedagogy, assessment; use and evaluation of mathematics software, other technology; implications for organization, development of course content. Same as 7S:231.

7E: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 and achievement patterns in different countries; sex differences in achievement; research literature. Same as 7S:234.

7E:235 Current Issues in Mathematics Education 2-3 s.h.
Recent curriculum developments, experimental programs, research relevant to classroom instruction; education trends that may have a significant impact on mathematics programs. Same as 7S:235, 7S:236.

7E:237 Physical Education: Curriculum Design 2-3 s.h.
Treatment of major social, psychological, biological factors that influence curriculum approaches to physical education; emphasis on current trends; investigative or creative project required for 3 semester hours. Same as 22M:196.

7E:238 The Exceptional Learner in Mathematics 2-3 s.h.
Characteristics of low- and high-achieving learners; curriculum organization to accommodate such learners; issues in tracking, mainstreaming; existing curriculum materials; curriculum design project. Same as 7S:238.

7E:249 Research-based Instruction in Science
2 s.h.
Students research student explanations related to topics common to science curricula, analyze the explanations in terms of accepted scientific models, design instructional materials and strategies for teaching them; designed for the National Science Foundation program, “Science Teacher As Action Researcher” (STAAAR). Same as 7S:249.

7E:250 Program and Research Problems in science Education
2 s.h.
Program and research problem identification; group involvement in preparing solutions; potential external funding sources. Same as 7S:250.

7E:255 Science Education: Issues, History, and Philosophy
2-3 s.h.
critical analysis of research reports, philosophical statements, synthesis studies, issue statements that characterize graduate study in science education. Offered fall semesters. Same as 7S:255.

7E:256 science Education: The Nature of Science
3 s.h.
Training in philosophy, psychology, history, sociology of science that are related to research, practice, current issues in science education. Offered spring semesters. Prerequisite: 97: 128. Same as 7S:256.

7E:257 Science Education: Teaching, Learning, and Curriculum Models
2-3 s.h.
Teaching strategies, instructional models, curriculum theory as they relate to science teaching in elementary, secondary, college settings. Offered fall semesters. Same as 7S:257.

7E:258 science Education: Research Models and Conceptual Sciences
3 s.h.
Models of research design and major research efforts in science education; emphasis on current reports and yearly reviews of science education research. Offered spring semesters. Same as 7S:258.

7E:260 Supervision of Elementary School
Language Arts
3 s.h.
Curricular models, curriculum development, methodology, materials for elementary language arts; focus on the interactive processes of composition and comprehension through oral, written, visual modes in personal exploitation, skill, concept development experiences.

7E:261 Supervision of Elementary School Social Studies
3 s.h.
Curriculum content used for consideration of modem classroom procedures, cooperative problem assignments; provision for individual differences and functional development of study skills.

7E:262 Advanced Techniques of Teaching
Science in the Elementary School
3 s.h.
Theories of teaching science at the elementary school level; emphasis on procedures that permit implementation of modern philosophies characterizing elementary school science education; primarily for experienced elementary teachers progressing toward graduate degrees.

7E:264 Building Foundations for Reading:
Preprimary and Primary
2-3 s.h.
Understanding of early reading experiences; relationship of reading to other communication areas; knowledge of instructional approaches, techniques, materials, assessment procedures; interrelationships of home and school experiences; identification of current and crucial issues and relevant research.

7E:265 Supervision of Intermediate Grade Reading
3 s.h.
Reading with comprehension, provision for individual differences, research in reading extension of skills taught in primary grades; for teachers, principals, supervisors.

7E:247 Curriculum Development in Early Childhood (5-8 Years)
3 s.h.
Curriculum and current issues in section and organization of curriculum and in methods of teaching to promote learning; theory and practice.

7E:248 Curriculum Development in Early Childhood (0-3 Years)
3 s.h.
Current and crucial issues in curriculum development, research, delivery of services to children in group child care settings. Prerequisite: 7E:157 or equivalent.

7E:271 Advanced Reading Clinic Techniques
2-3 s.h.
Special instructional procedures for children with severe learning problems in reading; causes of reading disorders; educational prognosis for severely disabled readers.

7E:272 Advanced Reading Clinic Practicum
2-3 s.h.
Practice in selecting and using special instructional procedures; fitting clinical teaching techniques into a balanced developmental reading framework.

7E:273 Reading Recovery
2-3 s.h.
Training for teachers; tutoring of first-grade children; effective moment-by-moment instructional decision making.

7E:286 Supervision of Instruction and Staff Development
2-3 s.h.
Teacher effectiveness research; formative and summative evaluation procedures, with emphasis on the supervision of student teachers; research on staff development and bringing about change in education. Same as 7S:285.

7E:293 Individual Instruction in Early Childhood and Elementary Education
art.
Consent of instructor required.

7E:297 Internship
art.
Practicum in teaching of a specific content area for credit. Prerequisite: 7E:191.
7E:301 Design and Organization of Curriculum 3 s.h.
7E:304 Seminar: Current Issues and Research in Elementary Education 4 s.h.
7E:306 Introduction to Research in Art Education 3 s.h.
7E:308 Seminar: Research and Current Issues arr.
7E:335 Seminar Mathematics Education 3 s.h.
7E:365 Reading Clinic: Supervision arr.
7E:381 Research Project arr.
7E:391 Research Project arr.
7E:393 M.A. Thesis in Early Childhood and Elementary Education Consent of instructor required.
7E:395 Education Special Research in Early Childhood and Elementary Education arr.
7E:405 Seminar: Child Art and Art Education 2-3 s.h.
7E:406 Research in Art Education arr.
7E:407 Research: Science Education arr.
7E:493 Ph.D. Thesis in Early Childhood and Elementary Education Consent of instructor required.

Secondary Education

7E:23 Movement and Sport Skills 3 s.h.
7S:90 Introduction and Practicum: Art 2 s.h.
7S:91 Introduction and Practicum: English and Speech 3 s.h.
7S:94 Introduction and Practicum: Physical Education 3 s.h.
7S:99 Introduction and Practicum: Journalism 3 s.h.
7S:100 Foundations of Education 3 s.h.
7S:101 Introduction to Education 3 s.h.
7S:102 Directing Forensic Activities 3 s.h.
7S:103 Administration of Physical Education and Athletics 2-3 s.h.
7S:110 Advanced Methods: Art 3 s.h.
7S:112 Introduction to Museology 3 s.h.
7S:113 Methods: Secondary School Journalism 3 s.h.
7S:115 Methods: English 3 s.h.
7S:116 Methods: Foreign Language 3 s.h.
7S:117 Methods: Elementary School Foreign Language 3 s.h.
7S:118 Precocious Literacy 1 s.h.
7S:122 Assessment and Programming for Mathematically Talented Young Scientists 1 s.h.
7S:126 Materials and Methods in Family Life Education 3 s.h.
7S:130 Workshops for Secondary School Teachers 1-2 s.h.
7S:134 Curriculum and Methods: Middle/Junior High Mathematics 3 s.h.
7S:135 Curriculum and Methods: High School Mathematics 3 s.h.
7S:136 Home/School/Community Partnerships 3 s.h.
7S:137 Physical Education Curriculum: Trends 3 s.h.
7S:138 Practicum: Band Instrument Care and Repair 1 s.h.
7S:139 Child and Adolescent Voice Production Principles, techniques of voice production and pedagogy 1 s.h.
7S:140 Band Methods and Materials 2 s.h.
7S:141 Measurement and Evaluation in Music Education 3 s.h.
7S:142 Methods and Materials: Secondary School General Music 3 s.h.
7S:143 Instrumental Techniques 1-3 s.h.
7S:144 Psychology of Music 2 s.h.
7S:145 Instrumental Conducting 2 s.h.
7S:146 Methods of Secondary Physical Education 3 s.h.
7S:147 Choral Methods 3 s.h.
7S:148 Choral Conducting and Literature, 3 s.h.
Advanced skills appropriate to choral conducting, analysis, literature, and teaching skills implemented to develop a secure approach to choral art; students preparing to teach in the elementary or secondary schools must register under 7S:148.
Prerequisite: 7S:147. Same as 25:110.

7S:149 Behavioral Research in Music, 2-3 s.h.
Prepares students to conduct research on music behavior.

7S:150 String Methods and Materials, 2-4 s.h.
Same as 25:112.

7S:151 Science Methods I: Elementary school seminar and practicum, 2 s.h.
Integration of instructional theory and science curriculum with classroom practice; students participate in a series of clinical opportunities for observation, demonstration, practice in teaching, and in individual speech and forensic settings. Same as 36:178.

7S:152 Science Methods II: Resources, Research, Teaching Strategies, and Curriculum Development for K-12 Science, 3 s.h.
Students develop a research based rationale for teaching science; teaching strategies, self evaluation, lesson design; students are videotaped teaching in a ninth grade class.

7S:153 science Methods III: Middle/ Junior/High school, 2 s.h.
Communication skills, self evaluation, cognitive development, individualized instruction; generally deals with middle and junior high school issues.

7S:158 Methods and Practicum in Science Health, 3 s.h.
Methods, materials, instructional planning, management, practicum in school health programs. Prerequisite: 28:140. Same as 28:126.

7S:160 Methods: Communication, 3 s.h.
Patterns in teaching, curricular programs, objectives, instructional methods and materials, effects of oral and written criticism and evaluation, testing and grading textbooks and relevance, periodic and sources of publications; contemporary communication education theory and practice. Same as 36:160.

7S:170 Methods: 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.

7S:171 Talents Unlimited, 1 s.h.
Structured, competency-based program chart the multiple talent theory approach to classroom situations; designed to help K-12 teachers and counselors recognize and nurture multiple talents in the areas of productive thinking, communication, forecasting, decision making, planning, and academic areas.

7S: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.

7S:178 Workshop in Teaching Communication and Forensics, 1-2 s.h.
Methods, materials, progression, evaluation in teaching; supervision of students in courses and class activities; opportunities for observation, demonstration, practice in teaching discussion and debate; and in individual speech and forensic settings. Same as 36:178.

7S:181 Approaches to Teaching Literature, 3 s.h.
Same as 36:178.

7S:182 Language and Learning, 2-3 s.h.
How language growth reflects and enables cognitive development; readings in psychology, anthropology, education; discussion of the relationship of language theory to school of language instruction. Same as 7E:182, 8P:182.

7S:183 Second Language Classroom, 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 7E:183.

7S:185 Introduction to Consulting in Education, 2-3 s.h.
Consultation research and practice applied to educational settings; of students enrolled in college programs offering consultation services. Same as 7E:185, 7P:185, 7U:185.

7S:186 Curriculum Foundations, 2-3 s.h.
Elementary and secondary background developments in curriculum; definitions, historical perspective, philosophy, theories of knowledge, models, learning theories, directions of development and shaping forces; product oriented. Same as 7E:186.

7S:187 Seminar: Curriculum and Student Teaching, 1-3 s.h.
Discussions, role-playing, group and individual reports, analysis of critical incidents, classroom management, videotapes of student classroom performance pertinent to participants’ student teaching experiences. May be repeated. Corequisite: student teaching.

7S:188 Practicum in Teaching and Curriculum Development in Gifted Education, 1-6 s.h.
Includes experience in developing course materials for classes offered through the Belin Center. Same as 7C.188, 7T:188, 7U:188.

7S:189 Elementary School Special Subject Area, 1-4 s.h.
Supervised teaching experience in a single subject in grades 1-6.

7S:190 Individual Projects in Laboratory Practice I-3 s.h.
Projects in curriculum and instruction related to student teaching experience supervised by the University; culminates in written report on projects.

7S:191 Observation and Laboratory Practice in the Secondary School, 1-4 s.h.
Student teachers acquire experience in performing the duties of regular classroom teachers under supervision of experienced personnel in secondary schools. Consent of instructor required.

7S:192 Observation and Laboratory Practice in the Secondary School, 1-4 s.h.
Consent of instructor required.

7S:193 Teaching Literature to Adolescents, 3 s.h.
Reading and evaluation of literature suitable for junior and senior high school students. Same as 2P:180.

7S:194 Methods: High School Reading, 2-3 s.h.
Methods and materials used in teaching development reading in all junior and senior high school content areas. Offered fall semesters and summer sessions.

7S:195 Developing Reading Skills in the Secondary School, 2-3 s.h.
Improving junior and senior high school students’ reading skills through remedial and developmental instruction; implementing continuous instruction in reading skills through junior and senior high school, fostering a love of reading. Offered spring semesters and summer sessions.

7S:196 Topics in Curriculum and Instruction, 1-3 s.h.
Consent of instructor required. Same as 7U:196.

7S:197 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 curriculums to be transposed into classroom ready forms; for individuals interested in foreign language developments. Same as 35:196.

7S:198 Coaching Practicum, 1-2 s.h.
Supervised experience in coaching intramural teams under the direction of certified secondary school coaches. Open only to students completing teaching and coaching certification programs. Admission to TEP and consent of instructor required.

7S:199 independent Study, 1-3 s.h.
Study of specialized topic in music education.

7S:200 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.

7S:201 Seminar: Current Topics in Music Education, 1-4 s.h.
Major areas of professional and research interest. May be repeated.

7S:202 Second Language Program Management, 3 s.h.
Preparation of precollege language teacher and graduate student for supervising, administering foreign language programs at all levels.

7S:210 Curriculum Development in Music Education, 2 s.h.
Curriculum development, instructional materials, analysis of current teaching methods and techniques in music education programs. Same as 7E:210.

7S:230 Workshop in School Mathematics, 1-3 s.h.
One to three weeks of intensive examination of and experience with recent developments in school mathematics teaching methods and curriculum relevant to a selected issue. Same as 7E:230.

7S:231 Technology in School Mathematics, 2-3 s.h.
Methods, materials, issues, pedagogy, assessment; use, evaluation of mathematics software, other technology; implications for organization, development of course content. Same as 7E:231.

7S:234 Foundations of Mathematics Education, 2-3 s.h.
History of United States mathematics education; learning theory applied to teaching, learning mathematics; curriculum design; curriculum and achievement patterns in different countries; sex differences in achievement, research Literature. Same as 7E:234.

7S:235 Current Issues in Mathematics Education 2-3 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 7E:235.

7S:236 The Teaching of Geometry, 2-3 s.h.
Current treatments in teaching middle school/junior high and high school geometry; selection, organization of content; research on teaching and learning.

7S:238 The Exceptional Learner in Mathematics 2-3 s.h.
Characteristics of low and high achieving learners; curriculum organization to accommodate such learners; issues in tracking, mainstreaming; existing curriculum materials; curriculum design project. Same as 7E:238.

7S: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 computer and calculators, implications of current research for the algebra classroom.

7S:240 Foundations of Music Education, 2 s.h.
Historical, philosophical, sociological, psychological foundations of music education as the bases for developing school music programs.

7S:241 Instrumental Music Workshop, 1 s.h.
Materials and innovative instructional procedures for teaching instrumental music in public schools and colleges. May be repeated. Same as 25:220.

7S:244 individual Projects in Music Education I-2 s.h.
Projects of special concern to individual music teachers in the public schools.

7S:246 Music Workshop: Individual Projects, 1 s.h.
Specific application of innovative practices to local school settings. May be repeated.

7S:249 Research-Based Instruction in Science, 2 s.h.
Same as 7E:249.

7S:250 Program and Research Problems in Science Education, 2 s.h.
Identification of program and research problems; group involvement in preparing solutions; potential external funding sources. Same as 7E:250.

7S:251 Preparation of Curriculum Materials for School Science, 1-3 s.h.
Preparation of instructional materials for science courses. May be repeated.

7S: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 semester and summer sessions.

7S:253 Recent Curriculum Developments in Science, 1-3 s.h.
Review of national curriculum efforts for school science, including materials, rationale, teaching strategies Offered spring semester and summer sessions.

7S:254 Administering and Supervising K-12 Science Programs, 1-3 s.h.
problems, practices, responsibilities, techniques characterizing the position of science supervisor; articulation of K-12 programs; principles for supervisor training of college students. May be repeated. Offered spring semester and summer sessions. Same as 7E:255.

7S:255 science Education: Issues, History, and Rationale, 2-3 s.h.
Intermediate topics in philosophy and psychology of science, implications for research and practice in science education. Offered fall semesters; prerequisite: previous work in philosophy or psychology of science. Same as 7E:255.
Science Education and the Nature of Science 3 s.h.
Historical and sociological understanding of the nature of science; applications of that understanding to problems and issues in science education. Offered spring semesters. Prerequisites: 97:128 and previous work in history or sociology of science. Same as 7E:256.

Science Education: Teaching, learning, and Curriculum Models 2-3 s.h.
Theories and techniques for designing printed and laboratory material for science programs. Offered fall semesters. Same as 7E:257.

Science Education Research Models and Conceptual Schemes 3 s.h.
Same as 7E:258.

Restructuring Science Courses 2-3 s.h.
Coaching learning model applied to existing science courses; emphasis on student centeredness. May be repeated.

Leadership and Change in School Science 2-3 s.h.
Developing leadership skills for science education reform. May be repeated.

Elements of Change in Science Education 2-3 s.h.
Current restructuring efforts, theoretical characteristics of restructuring; SS/KC, STS-constructivist paradigms used to explore strategies for diffusion.

Alternative Assessment in Science Education 2-3 s.h.
 Comprehensive exploration; theoretical basis, strategies for day-to-day use in secondary classroom.

New and Emerging Pedagogies in Science Education 2-3 s.h.
Constructivist learning model in science education; the theoretical model, its range of applications to everyday pedagogical practice.

Action Research in Science Education 2-3 s.h.
Research based strategies to document, improve teacher effectiveness; premise and background review, student research projects.

Mentoring of Science Educators 2-3 s.h.
Self-analysis, interpersonal communication, leadership, and mentoring versus evaluation. May be repeated.

ST5 as an Approach to Science 2-3 s.h.
Meaning, application of science/technology/society approach.

Science Concepts Applied to Local Issues 2-3 s.h.
Science concepts as product of instructional process.

Social Studies Education 3 s.h.
Periodical literature, trends, curricular developments, research in various aspects of social studies education; for master's and doctoral candidates in social studies education.

Experimental Research in Music Education 3 s.h.
Design, performance, reporting of experimental research studies chosen to illustrate methods of experimental control and statistical evaluation in music. Prerequisite: 7S:149.

Workshop: Teacher Training for Advanced Placement Courses 1 s.h.
Focus on a particular academic content area. Consent of instructor required.

Junior High School and Middle School Curriculum 2-3 s.h.
Comparison of practices in junior high school and middle school; objectives and content in various subject areas; current trends; curriculum planning.

Supervision of Instruction and Staff Development 2-3 s.h.
Teacher effectiveness research, formative and summative evaluation procedures, with emphasis on the supervision of student teachers; research on staff development and bringing about change in education. Same as 7E:280.

Secondary School Curriculum 2-3 s.h.
Theory and development of secondary school curriculum; analysis of components of curriculum; practices and issues in various subject areas.

Individual Instruction in Secondary Education arr.
Consent of instructor required.

Seminar secondary Reading arr.
Analysis and evaluation of pertinent research in secondary reading through historical and comparative procedures. Consent of instructor required. Prerequisite: 7S:194.

M.A. Seminar: English Education arr.
Significant developments in English education; primary and collaborative readings. Consent of instructor required. Same as 8P:405.

Seminar: Recent Developments in Literature for Adolescents arr.
Recent literature for teenagers; research on their choices. Same as 8P:316.

Mathematics Education arr.
Analysis of current research, research methodology, curriculum developments in mathematics education; topics vary. Primarily for Ph.D. candidates. May be repeated, same as 7E:335.

Physical Education Theory 3 s.h.
Same as 7E:337, 28:327.

Supervision and Administration in Music Education 2 s.h.
Problems and responsibilities of music supervisors, including curriculum, facilities, financing, supervision, in-service training and reporting study of factors influencing music curriculum decisions.

Choral Music Workshop 1 s.h.
Materials and innovative instructional procedures for teaching choral music in junior, preparatory, and colleges. May be repeated.

Special Workshops in Music 1 s.h.
Current topics in teaching and learning music in public schools and colleges. May be repeated.

Physical Education: Curriculum Design 2-3 s.h.
Treatment of major social, psychological, biological factors that influence curriculum approaches in physical education; on current trends; investigative or creative project required for 3 semester hours. Same as 7E:237, 28:227.

Seminar: Science Education 1-2 s.h.
Discussion of completed faculty and doctoral candidates' research, national issues, program features. Same as 7E:350.

Science Education: Internship 2-3 s.h.
Same as 7E:355.

Science Education Internship: Teacher Education Supervision and Administration arr.

Current Issues in Art Education 2-3 s.h.
Analysis of literature in art education and related disciplines. May be repeated.

Ph.D. Seminar: Current Research in Science Education 2-3 s.h.
Significant ongoing research programs in the field; emphasis on faculty research.

Problems of Curriculum Planning 2-3 s.h.
Organizing and selecting programs of curriculum improvement; techniques for developing curriculum materials; includes field experience.

Field Service Project in secondary Education arr.
Consent of instructor required.

Master's Degree Thesis arr.
Consent of instructor required.

Educational Specialist Research in secondary Education arr.
Consent of instructor required.

Seminar: Child Art and Art Education 2-3 s.h.
Analysis and evaluation of current concepts of child art and child development, history of development of theories of child art, child development, art education. Same as 7E:405.

Research in Art Education arr.
Individual research under supervision; applicable to thesis preparation and to doctoral-prospectus development. May be repeated. Same as 7E:406, 7E:406.

Research: Science Education arr.
Planning of individual research projects by M.S. and Ph.D. candidates.

Ph.D. Seminar: English Education arr.
Recent research and theory in education as it affects English in the secondary schools. May be repeated. Consent of instructor required. Same as 8P:425.

Social and Psychological Factors in Music Education 3 s.h.
Social and psychological factors that affect curriculum and instructional practices in music. Open to doctoral students in music education, and other graduate students with consent of instructor.

Ph.D. Thesis arr.
Consent of instructor required.

Special Education Courses at the 100 level are open to students in education and related disciplines.

Mainstreaming the Exceptional Learner 3 s.h.
Disabled and gifted: strategies for effective treatment, collaboration between regular and special education teachers; remediation of academic, behavioral, social problems. Admission to TEP required.

Interdisciplinary Programs for Disabled Students 3 s.h.
Theory and practice of interdisciplinary programming: roles and responsibilities of different disciplines serving persons with disabilities, cooperative service strategies, case management, individual program planning; includes case studies, role plays, simulations. Consent of instructor required. Same as 42:117.

Career Education and Transition 3 s.h.
Curriculum, programs, and delivery systems that help persons with disabilities become employable; techniques of job and task analysis; identifies agencies designated to assist persons with disabilities; fieldwork stations and job training sites are required.

Exceptional Persons 3 s.h.
Children at all levels of exceptionality, from talented and gifted through profoundly disabled; special needs populations.

Introduction to learning Disabilities 3 s.h.
The field's status, history, theory, definitions, teaching approaches, programs; unique topics of elementary and secondary school-age students; emphasis on cognitive processes.

Introduction to Behavioral Disorders 3 s.h.
Emotional and behavioral issues, definitions, history, and problems of classification, origins of disorders, basic program approaches, school placement, programming for elementary and secondary students.

The CBAurally Different in diverse Settings 3 s.h.
problems in teaching culturally different children of school age; relevant research on the influence of a disadvantaged background on students' learning potentials. Same as 7C:133.

Parent-Teacher communication 1-3 s.h.
Realities of working with parents; interpersonal skills; options for parent support services. Same as 7E:134, 7P:134.

Mental Retardation 3 s.h.
Causes and treatment of mental retardation; current issues in mental retardation; educational programming and the role of schools in teaching children with mental retardation.

Home/School/Community Partnerships 3 ah.
Issues related to collaboration among families, educators, community members in implementing school programs. Same as 7E:136, 7P:136, 7S:136.

Introduction to Educating Gifted Students 3 s.h.
History, identification, characteristics, programming, educational methods and materials for the gifted; discussion on readings, films, and guest speakers; practical project required. Same as 7C:137.

Methods: Children with Physical Disabilities 3 s.h.
Special techniques and adaptations for working with physical disabilities; skill development in classroom management, communicating with parents, counseling the physically disabled. Consent of instructor required.

Assessment and programming for Persons with physical Disabilities 3 s.h.
Medical, therapeutic, educational aspects; several professions involved in evaluation, treatment, general management of children with disabilities; nature of various handicapping conditions and causes, and special considerations of each.

Programming and Curriculum for the Gifted 3 s.h.
Fundamental issues; focus on curriculum approaches to working with the gifted.

Introduction to Consulting in Education 2-3 s.h.
Consultation research and practice applied to educational settings; of students in preschool through college; program areas offered consultation services. Same as 7E:185, 7P:185, 7S:185.

Practicum in Teaching and Curriculum Development in Gifted Education 1-6 s.h.
Includes experience in developing course materials for classes offered through the Belin Center. Same as 7C:188, 7E:188, 7S:188.
7U:190 Interdisciplinary leadership Curriculum 2 s.h.
Critical issues related to interdisciplinarity; delivery of services to persons with developmental disabilities; observation and participation in staffing and consultation; opportunities for related community experiences.

7U:191 Supervised Teaching with Physically Handicapped
Consent of instructor required.

7U:192 Supervised Teaching with Mild MR
Consent of instructor required.

7U:193 Supervised Teaching with Preschool Handicapped
Consent of instructor required.

7U:194 Supervised Teaching with Moderate MR
Consent of instructor required.

7U:196 Topics in Curriculum and Instruction
Consent of instructor required. Same as 7E:196, 7S:196.

7U:199 Individual Instruction in Special Education: Undergraduate
Specialized study of topics not included in other courses. Consent of instructor required.

7U:201 Methods: Children with Learning Disabilities
Methods and materials appropriate for working with children who have various process and academic types and degrees of learning disabilities. Prerequisites: 7U:131 and 7U:238.

7U:202 Methods: Children with Behavioral Disorders
Managing behavior for academic and affective learning; instructional resources; consultation with parents and peers. Prerequisites: 7U:132 and 7U:238.

7U:203 Methods: Adolescents with Learning Disabilities
Educational strategies and methods for teaching adolescents with learning disabilities; materials used; intervention approaches for different secondary settings. Prerequisites: 7U:131 and 7U:238.

7U:204 Methods: Adolescents with Behavioral Disorders
Practical skills for working with youth with behavioral disorders in school and community settings; affective and behavioral assessment, effective communication skills, structure and management strategies, adaptation of instructional content, design of innovative program models. Prerequisites: 7U:132 and 7U:238.

7U:206 Practicum with Exceptional Persons
Practicum experience with students with disabilities; experiences differ depending upon student’s program of study. Consent of instructor required.

7U:207 Supervised Teaching: Elementary Learning Disabled 5, 10 s.h.
Student teaching. Open only to special education majors. Consent of instructor required.

7U:208 Supervised Teaching: Elementary Behavior Disorder 5, 10 s.h.
Student teaching. Open only to special education majors. Consent of instructor required.

7U:209 Seminar: Graduate Supervised Teaching 1 s.h.
For students enrolled in graduate student teaching practicum. Special education major and consent of instructor required. Corequisites: 7U:207 or 7U:208 or 7U:220 or 7U:222.

7U:210 Characteristics and Programs: Persons with Severe Behavioral Disorders 2 s.h.
Characteristics of children and youth with severe behavioral disorders; emotional implications of these characteristics and the functional life needs; demonstration of programs for this severely disabled population. Prerequisite: 7U:132 or consent of instructor.

7U:211 Interventions: Persons with Severe Behavioral Disorders 2 s.h.
Intervention methods for children and youth with severe behavioral disorders; skills in communication, management, curriculum, program support, assessment. Prerequisite: 7U:132, and 7U:238 or 7U:240 or consent of instructor.

7U:212 Characteristics and Programs: Programs with Autism 1.5 s.h.
Introduction to autism; definition, assessment, research information, communication skills, speech, language development of persons with autism. Consent of instructor required.

7U:213 Interventions: Persons with Autism 1-2 s.h.
Methods and materials for teaching persons with autism; information for working with Parents; persistent problems and adult care. Prerequisite: 7U:212 or consent of instructor.

7U:214 Methods: Children with Mild Mental Retardation 3 s.h.
Methods of developing programs; teaching and assessing progress in math, language arts, reading, social learning; behavior and classroom management; home-school relationships. Prerequisites: 7U:130, 7U:135, and 7U:238.

7U:215 Methods: Adolescents with Mild Mental Retardation 3 s.h.
Methods of assessing and teaching skills in academic and vocational areas; classroom management; transition from secondary school to work. Prerequisites: 7U:130, 7U:135, and 7U:238.

7U:216 Methods: Resource Teaching 3 s.h.
Methods, materials for working with students with mild disabilities in elementary and secondary special programs. Prerequisites: 7U:130, 7U:238, and two of the following: 7U:132, 7U:135.

7U:220 Supervised Teaching: Elementary Mild Mental Disabilities 5, 10 s.h.
Student teaching. Open only to special education majors. Consent of instructor required.

7U:221 Supervised Teaching: Secondary Mild Mental Disabilities 5, 10 s.h.
Student teaching. Open only to special education majors. Consent of instructor required.

7U:222 Supervised Teaching: Elementary Resource Programs 5 s.h.
Student teaching. Open only to special education majors. Consent of instructor required.

7U:225 Supervised Teaching: Elementary Multicultural Special Class 5, 10 s.h.
Student teaching students with disabilities. Open only to special education majors. Consent of instructor required.

7U:226 Supervised Teaching: Secondary Multicultural Special Class 5 s.h.
Student teaching students with disabilities. Open only to special education majors. Consent of instructor required.

7U:227 Supervised Teaching: Secondary Learning Disabled 5, 10 s.h.
Student teaching. Open only to special education majors. Consent of instructor required.

7U:228 Supervised Teaching Secondary Behavior Disorder 5, 10 s.h.
Student teaching. Open only to special education majors. Consent of instructor required.

7U:232 Supervised Teaching: Secondary Resource Programs 5 s.h.
Student teaching. Open only to special education majors. Consent of instructor required.

7U:236 Administration of Students with Special Needs 3 s.h.
Provides a foundation for and skill practice in tasks performed by directors of special education: for prospective directors of special education and school administrative personnel. Same as 7P:236.

7U:238 Assessment of Learning Difficulties 1-3 s.h.
Administration of individual educational assessment instruments and interpretation of test results; supervised practice in assessment and planning. Consent of instructor required. Same as 7P:238.

7U:240 Behavioral Principles 2 s.h.
Principles of behavior modification; defining/measuring behaviors; functional behavior analysis; proactive/reactive treatment strategies; behavioral assessment/treatment of stereotypic/self-injurious behavior; behavioral assessment/treatment of aggressive/disruptive behaviors; use of single-case experimental designs.

7U:241 Methods: Persons with Moderate/Severe/Profound Mental Disabilities I 3 s.h.
Instructional domains, functional, age-appropriate, community curriculum development; meaningful assessment, integration with their schools and communities; domestic and community functioning, leisure/recreation, vocational skills, functional academics. Prerequisites: 7U:130, 7U:135, 7U:238, and 7U:240, or consent of instructor.

7U:242 Methods: Persons with Moderate/Severe/Profound Mental Disabilities II 3 s.h.
Systematic instruction and application to functional skills training; design of appropriate instructional programs; data collection systems. Prerequisite: 7U:241 or consent of instructor.

7U:243 Issues Teaching Persons with Moderate/Severe/Profound Disabilities 3 s.h.
Current issues that affect lives of disabled persons and those who work with them. Prerequisite: 7U:130 or consent of instructor.

7U:244 Supervised Teaching: Elementary Moderate Mental Disabilities 5, 10 s.h.
Student teaching in a special education classroom. Corequisite: 7U:246.

7U:245 Supervised Teaching Severe/Profound 3.5 s.h.
Student teaching in special education classroom sewing students who are severely/profoundly disabled. Corequisite: 7U:246.

7U:246 Seminar: Teaching Moderate/Severe/profound 1 s.h.
Corequisite: 7U:244 or 7U:245.

7U:247 Supervised Teaching Secondary Moderate Mental Disabilities 5, 10 s.h.
Student teaching in a special education classroom. Corequisite: 7U:246.

7U:248 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. Prerequisite: 7U:130 or consent of instructor.

7U: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 Division 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. Prerequisite: 7U:240, same as 7P:352.

7U:260 Special Education Consultation 2 s.h.
Skills for conducting in-service needs of special education teachers, delivering staff in-service programs, evaluating effectiveness of in-service programs.

7U:271 Assessment of Young Children with Disabilities 3 s.h.
Theory and practice for inter/transdisciplinary assessment of young children and family needs. Prerequisite: 7U:130 or consent of instructor.

7U:272 Development of Young Children with Disabilities 3 s.h.
Normal and atypical development of young children; emphasis on implications of specific disabilities. Prerequisite: 7U:130 or consent of instructor.

7U:273 Methods: Early Childhood Special Education Ages 0-3 3 s.h.
Methods and materials for working with special-needs infants and young children up to age 3, including medically fragile children. Pre- or corequisite: 7U:271.

7U:274 Methods: Early Childhood Special Education Ages 3-6 3 s.h.
Methods and materials for working with children ages 3-6, including alternative modes of communication. Pre-or corequisite: 7U:271.

7U:275 Families of Young Children with Disabilities 3 s.h.
Research and practice in early intervention; emphasis on impact of the special-needs child on family life, parent-child interaction patterns, facilitating psychosocial support, developing cooperative relationships with parents, family involvement in planning and implementation.

7U:276 Supervised Teaching Early Childhood Special Education I 3.5 s.h.
Student teaching in a home-based early intervention program. Prerequisite: 7U:273.

7U:277 Supervised Teaching Early Childhood Special Education II 3.5 s.h.
Student teaching in a center-based early intervention program. Prerequisite: 7U:274.
The Division of Planning, 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 division reflect the diversity of purpose.

Iowa Community college Licensure

Instructor

To qualify for a professional license with authorization to teach in an arts and sciences field of an area community college in Iowa, students must hold a master’s degree granted by an approved institution, with specialization in a field of instruction offered in the arts and sciences division of an area college.

All licenses require 3 semester hours of 7F:180 Human Relations for the Classroom Teacher. Also required is course work in areas of professional preparation appropriate to teaching in a community college, which may be satisfied in several ways. Students should consult with their adviser or the program chair.

Administrator

Administrators of units or departments are required to hold or complete a bachelor’s degree during the term for which the license is granted. Instructional administrators are required to hold a master’s degree with a specialization in administration, a subject field taught in the institution, vocational/technical education, adult education, or student services.

Both types of administrators must have four years of successful educational work experience, of which a minimum of two have been at the postsecondary level. Experience must include a minimum of two years of teaching or experience appropriate to the area of administration.

The program in higher education offers approved course work leading to administrator endorsements as well as a course in supervision and evaluation (7H: 172), which fulfills state evaluator training requirements. Applicants should consult an adviser to select course work that is appropriate to their area of administration and that meets the college’s approved program requirements.

Graduate Programs

Educational Administration

The program in educational administration prepares individuals for leadership positions. Its programs lead to the M.A., Ed. S., and Ph.D. degrees and to administrative licensure/certification. Educational administration offers programs jointly with other divisions in the College of Education and with other colleges in the University.

Licensure/Certification

To be eligible for recommendation by The University of Iowa for licensure/certification in Iowa as an elementary principal, secondary principal, or superintendent, students must complete the appropriate program. The specific requirements for each program are available through the division office and the College of Education Office of Student Services.

Students who hold an M.A. degree must satisfy all core requirements and must complete at The University of Iowa the minimum semester-hour
program for the licensure/certification level they seek. An administrative licensure/certification program at a level different from that characterizing the student’s prior preparation and experience must be planned with an adviser. Because of the specific requirements for each administrative licensure/certification, candidates are required to plan their program with their adviser’s approval.

Master of Arts
The M.A. program prepares individuals for appointments as elementary or secondary school principals and central staff, and for positions in area education agencies and state departments of education. It is a nonthesis program requiring a minimum of 32 semester hours.

ADMISSION
Applicants must satisfy Graduate College requirements and are selected 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
With the aid of an adviser, the student prepares a plan of study including the following core requirements.

**7D:201 Foundations of School Administration** 3 s.h.
**7D:236 Administration of Students with Special Needs** 3 s.h.
**7D:261 The Principalship** 3 s.h.
**7D:298 Legal Aspects of School Personnel** 3 s.h.
**7D:383 Supervision and Evaluation** 3 s.h.
**7E:300 Design and Organization of Curriculum** 3 s.h.

For Iowa principalship licensure/certification, students must meet the human relations requirement of the state of Iowa. Students specialize in elementary, secondary, or central staff administration by completing one of the programs outlined below. Candidates may choose electives approved by the adviser to satisfy the following degree requirements.

**Elementary Level**
**7D:258 Contemporary Management Strategies for the Elementary Principal** 3 s.h.
**7D:401 Field Service Project in Elementary Administration** arr.
Electives selected with approval of adviser

**Secondary Level**
**7D:260 Contemporary Management Strategies for Secondary Principal** 3 s.h.
**7D:402 Field Service Project in Secondary Administration** arr.
Electives selected with approval of adviser

**Central Staff Administration**
**7D:295 Financial Management of Local School Systems** 3 s.h.
**7D:404 Field Service Project in Central Administration** arr.

**Electives**
Students choose electives completing the 62-semester-hour requirement for the Ed.S. degree. They may choose electives for specialization in fields such as staff personnel, business affairs, instruction, theory, legal aspects, curriculum, and information systems.

**COMPREHENSIVE EXAMINATIONS**
The M.A. comprehensive examination consists of one 3-hour examination in educational administration and one 3-hour examination in a specialized area in either educational administration or a related field. Students must be registered in the Graduate College during the semester in which they take the comprehensive examination if they plan to graduate that semester.

Specialist in Education
The Ed.S. program prepares candidates for administrative appointments in area education agencies, state departments of education, and the U.S. Office of Education. It also assists school administrators in upgrading their administrative skills to the level of superintendent of schools. Students seeking licensure/certification plan a program approved by an adviser to meet state of Iowa licensure/certification requirements.

**ADMISSION**
Applicants must satisfy Graduate College requirements and are selected 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**

**7D:291 Administration of Educational Programs and Personnel** 4 s.h.
**7D:294 Politics and Economics of the Governance and Financing of Public Education** 4 s.h.
**7D:297 Administrative Leadership Theory** 4 s.h.
**7D:299 Legal Aspects of School Administration** 2-3 s.h.
**7D:395 Educational Specialist Research in Educational Administration** arr.

**PROGRAM EMPHASIS**
Students must complete the balance of their minimum required semester hours (minus electives) in one of the following areas of emphasis. Courses specifically listed in each area of specialization are the required courses.

**Elementary School Administration**
**7C:222 Interventions for Primary Prevention in Schools** 3 s.h.
**7D:262 School Organization Patterns** 3 s.h.
**7D:304 Seminar: Supervision and Administration** 2-3 s.h.
**7F:150 Introduction to Educational Measurement** 3 s.h.

**Secondary School Administration**
**7C:222 Interventions for Primary Prevention in Schools** 3 s.h.
**7D:303 Seminar: Administration and Coordination of Curriculum** 2-3 s.h.
**7F:150 Introduction to Educational Measurement** 3 s.h.

**General School Administration**
**7D:205 Collective Bargaining in Education** 3 s.h.
**7D:295 Financial Management of Local School Systems** 3 s.h.
**7D:375 Educational Administration Practicum** arr.

**Electives**

The Education Specialist in special education administration program is offered jointly with the Division of Curriculum and Instruction. The program provides sufficient training and experience to enable graduates to obtain entry-level positions in administration. The career focus of the program is on middle management positions such as supervisor and assistant director. Successful completion of the program qualifies the student for licensure/certification in Iowa to serve as a supervisor of special education (State of Iowa Endorsement 233, 238) or director of special education (State of Iowa Endorsement 239). It also qualifies the student for licensure/certification in general administration (State of Iowa Endorsement 171). The program requires a minimum of 62 semester hours.

**Admission**
Admission to the program is limited by available resources. Five to eight new students are admitted each year. In addition to the general requirements, admission requirements include a master’s degree, licensure/certification in some area of teaching exceptional children, qualification for a consultant’s endorsement, and classroom experience as a teacher or equivalent experience.

**Doctor of Philosophy**
The Ph.D. program prepares students for leadership positions at all levels of education (School administration, research, teaching at the college or university level) through individually designed programs that include course work in related disciplines and research pursuits.
Emphasis is placed on the integration of theory and practice in the program.

The Ph.D. in educational administration is a flexible program that prepares professionals for leadership positions at all levels of administrative practice and for academic teaching and research positions. Sufficient course work and related experiences are planned individually. Students are expected to achieve competence in the areas of 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.

Course content in the Ph.D. program is divided into 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.

Commonly selected specialization areas are general administration, elementary school administration, secondary school administration, systems analysis, research, school finance, curriculum, legal aspects, theory, and school personnel. Students must demonstrate proficiency in two research tool areas.

ADMISSION
Applicants must satisfy Graduate College requirements and are selected through a faculty review process. The division admits a maximum of ten students in the fall semester or the preceding summer session. Factors considered include recommendations from college or university faculty that speak to the candidate’s scholarship and potential for academic success, grade-point average, and Graduate Record Examination (GRE) General Test scores. Also considered is a written statement addressing one of the following 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.

Complete application materials must be submitted by January 1 for summer session or fall semester admission. Admission decisions are made by the division faculty; applicants are notified by February 15.

CORE COURSES
Core courses are designed to provide the necessary background for further study, including research in specialized areas, and to 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 four semester hours 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. Scholarship is reflected in writing, reading, and research in all doctoral seminars.

COGNATES
Students specializing in administration must complete a 9-semester-hour cognate outside the College of Education with the adviser’s approval.

COMPREHENSIVE EXAMINATIONS
Doctoral students must satisfactorily complete an extensive six-hour comprehensive examination in the six common areas of educational administration and a three-hour examination based on the student’s areas of specialization and approved by the student’s adviser and the division 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 for the semester during which they take the exam, and they may not register for more than 3 semester hours of Ph.D. thesis credit during that semester. They also 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 an area of concentration for which they would request a comprehensive examination should consult with an adviser in the Division of Planning, Policy, and Leadership Studies early in their sequence of study.

Any of the areas of specialization open to doctoral students in educational administration are open to other doctoral students who meet the necessary registration prerequisites for specific courses. Students should complete approximately 12 semester hours in one area of specialization 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 semester hours 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 adviser and then by the members of their doctoral committee. Student and adviser determine when the prospectus is complete. A final evaluation of the prospectus and approval to proceed may or may not be granted at the end of the prospects committee meeting. Dissertation prospectus meetings are not held during summer sessions.

Students must accumulate 10 semester hours of dissertation research credit. The doctoral program culminates with final oral defense of the dissertation. Students usually take the examination within a month of their anticipated time of graduation. They must be registered at The University of Iowa during the session in which they graduate.

RESIDENCY
Each doctoral candidate must successfully complete two semesters (a minimum of 9 semester hours excluding thesis credit on campus) to fulfill the residency requirement.

The following sample Ph.D. program requires a minimum of 90 semester hours and assumes that students enter with an M.A. and 32 semester hours of graduate credit.

Core Requirements
7D:291 Administration of Educational Programs and Personnel 4 s.h.
7D:294 Politics and Economics of the Governance and Financing of Public Education 4 s.h.
7D:297 Administrative Leadership Theory 4 s.h.
7D:370 Research Methodology and Quantitative Analysis 4 s.h.

Other Required Courses
Cognate courses selected with approval of adviser 9 s.h.
Research design and/or statistics 6 s.h.
Thesis 10 s.h.

Electives selected to permit specialization; students typically include two or more doctoral seminars and accumulate 12 or more semester hours in a special area.

Total 90 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.

Each doctoral candidate must satisfactorily complete two semesters (a minimum of 9 semester hours excluding thesis credit on campus) to fulfill the residency requirement.

The following sample Ph.D. program requires a minimum of 90 semester hours and assumes that students enter with an M.A. and 32 semester hours of graduate credit.

Core Requirements
7D:291 Administration of Educational Programs and Personnel 4 s.h.
7D:294 Politics and Economics of the Governance and Financing of Public Education 4 s.h.
7D:297 Administrative Leadership Theory 4 s.h.
7D:370 Research Methodology and Quantitative Analysis 4 s.h.

Other Required Courses
Cognate courses selected with approval of adviser 9 s.h.
Research design and/or statistics 6 s.h.
Thesis 10 s.h.

Electives selected to permit specialization; students typically include two or more doctoral seminars and accumulate 12 or more semester hours in a special area.

Total 90 s.h.

Masters of Arts
Students in the M.A. program must take a minimum of 18 semester hours of work in social foundations, which should include at least two courses in each of three of the five areas of specialization. The remainder of the required 32 semester hours of course work must be in an area of concentration appropriate to students’ career and academic goals. For example, students interested in philosophy of education usually take these courses in the Department of Philosophy. Students are not required to write a thesis.

Masters 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
Higher Education

Postsecondary and continuing education in the United States represents an extensive and complex set of phenomena. The academic programs in higher education encompass that complexity. Degrees are offered at all levels, with emphasis on both research and practice. Preparation for either teaching or administration is available. The teaching, research, and service activities of the faculty and the work of the graduates of the several degree programs illustrate that education beyond the high school level continues in a variety of ways for all ages and in many different settings.

Master of Arts

The M.A. program in higher education prepares individuals for entry- and middle-level administrative, instructional management, continuing education, and policy positions in two- and four-year institutions. It is a proper preparation for positions such as assistant dean, assistant to the president, director, in-service director, and division or program chair in selected areas. It is a nonthesis program.

ADMISSION

Applicants for admission must satisfy the requirements of the Graduate College. Candidates are selected on the basis of 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 for regular admission.

Complete application materials must be submitted by November 1 for spring semester admission and April 1 for summer session and fall semester admission.

REQUIREMENTS

Requirements for the Ed.S. major in higher education are as follows.

- At least 18 semester hours in professional education and related fields, including a structured internship determined in consultation with the adviser to be appropriate for one of the following five areas: administration, academic planning and program development (including an emphasis on academic administration), community college administration, continuing education, and community college teaching (joint program only)
- At least 28 semester hours in the area of specialization, to be determined in consultation with the adviser
- Ten semester hours of electives, to be approved by the adviser

Research conducted under registration in 7H:395 Educational Specialist Research in Higher Education for 4 semester hours

Two 3-hour comprehensive examinations: one covering the field of higher education in general; and one covering one of the five concentrations in higher education, perhaps reflecting an area of specialization within the concentration, followed by an oral examination

RELATED FIELD

Students majoring in another field who want to complete a related field in higher education should consult with the higher education adviser early in their studies. Plans of study are developed individually.

TEACHING INTERNSHIP (ONLY PROGRAM ONLY)

Program participants teach half-time for a full semester at cooperating community colleges under the supervision of an experienced faculty member in that college and with field supervision from The University of Iowa. Interns participate as fully as possible in the academic life of the host community college, and they usually 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.

Doctor of Philosophy

The Ph.D. program is designed for persons who are likely to serve as administrators, specialists, researchers, and teachers in postsecondary education.
institutions or related public or private agencies. It requires a minimum of 90 semester hours beyond the baccalaureate degree.

The program in higher education offers five areas of concentration: general administration, academic planning and program development (including an emphasis on academic administration), community college administration, continuing education, and policy studies.

**ADMISSION**

Applicants for admission to the doctoral program must satisfy the requirements of the Graduate College. Candidates will be selected on the basis of grade-point average, GRE General Test scores, and promise for professional growth. Transcripts, GRE General Test scores, three strong letters of recommendation, and a statement of educational goals are required for regular admission.

Complete application materials must be submitted by November 1 for spring semester admission and April 1 for summer session and fall semester admission.

**REQUIREMENTS**

All higher education students are required to participate in the core experiences (16-19 semester hours). In addition, candidates choose one area of concentration and must earn 16-24 semester hours of credit in that area. Candidates choose a related field of at least 12 semester hours or a minor (up to 30 semester hours), which may be met by appropriate previous course work at the M.A. level that complements the area of concentration. The dissertation research (12-15 semester hours) must deal with a specific problem related to the area of concentration.

These three components—concentration, minor and/or related fields, and dissertation research—constitute a major part of the typical doctoral program and give students the opportunity to specialize in one or more areas of interest.

While the doctoral program places heavy emphasis on administration and policy studies at both the theoretical and applied levels, students are expected to take course work outside the division, using the flexibility of the program to develop expertise in areas such as organizational analysis and the design and evaluation of instruction.

Comprehensive examinations for the doctorate cover the general area of higher education, the candidate’s area of concentration, and the minor and/or related field.

Students must complete a scholarly paper before applying to take the comprehensive examination. The paper should demonstrate the student’s ability to identify a scholarly study topic; formulate a scholarly problem or conceptual framework for addressing the topic; show familiarity with and facility in using relevant scholarly literature; and reflect writing and organizational skills at a graduate professional level.

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**Courses**

**Educational Administration**

<table>
<thead>
<tr>
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<tbody>
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<td>1 s.h.</td>
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<td>Collective Bargaining in Education</td>
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<td>Individualized Instruction, Personnel</td>
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<td>Individualized Instruction, Finance</td>
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</tr>
<tr>
<td>7D:214</td>
<td>Individualized Instruction, Law</td>
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</tr>
<tr>
<td>7D:216</td>
<td>Individualized Instruction, Elementary Administration</td>
<td>arr.</td>
</tr>
<tr>
<td>7D:217</td>
<td>Individualized Instruction, Secondary Administration</td>
<td>arr.</td>
</tr>
<tr>
<td>7D:218</td>
<td>Individualized Instruction, Curriculum</td>
<td>arr.</td>
</tr>
<tr>
<td>7D:219</td>
<td>Individualized Instruction, Supervision</td>
<td>arr.</td>
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<td>Contemporary Management Strategies for the Elementary Principal</td>
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<td>The Principalship</td>
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**Planning, Policy, and Leadership Studies**

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<tbody>
<tr>
<td>7D:262</td>
<td>School Organization Patterns</td>
<td>3 s.h.</td>
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<tr>
<td>7D:285</td>
<td>School and Community Relationships</td>
<td>2-3 s.h.</td>
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<tr>
<td>7D:291</td>
<td>Administration of Educational Programs and Personnel</td>
<td>3-4 s.h.</td>
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<tr>
<td>7D:293</td>
<td>Individual Instruction in Educational Administration</td>
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<tr>
<td>7D:294</td>
<td>Politics and Economics of Financing Public Education</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>7D:295</td>
<td>Financial Management of Local School Systems</td>
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<td>Administrative Leadership Theory</td>
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<td>7D:298</td>
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<tr>
<td>7D:300</td>
<td>Seminar: Social Change</td>
<td>arr.</td>
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<tr>
<td>7D:301</td>
<td>Seminar: Urbanization</td>
<td>arr.</td>
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<td>7D:303</td>
<td>Seminar: Administration and Coordination of Curriculum</td>
<td>2-3 s.h.</td>
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<td>7D:304</td>
<td>Seminar: Supervision and Administration 2-3 s.h.</td>
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<tr>
<td>7D:305</td>
<td>Seminar: The Economics of Education</td>
<td>arr.</td>
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<tr>
<td>7D:360</td>
<td>Seminar: School Business Administration</td>
<td>1-3 s.h.</td>
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<tr>
<td>7D:361</td>
<td>Seminar: The Economics of Education</td>
<td>arr.</td>
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<tr>
<td>7D:376</td>
<td>Seminar: Current Issues in Special Education Administration</td>
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**School Business Administration**

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<tbody>
<tr>
<td>7D:236</td>
<td>The Business of School Administration</td>
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<tr>
<td>7D:237</td>
<td>The Law of School Administration</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7D:293.7D:261</td>
<td>The Principalship</td>
<td>1 s.h.</td>
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**Education**

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7D:270 Research Methodology and Quantitative Analysis 4 s.h.
Approaches to research and evaluation; design variety, report style, writing, literature review; role of cognitive and affective measures; questionnaires, interview schedules, observational data; research and evaluation as planning activities. Prerequisite: TP: 143 or equivalent.

7D:371 Research Practicum arr.
Small-scale research projects developed and assigned; supervised experience in planning, design, management, analysis, reporting of research activities; assignments to current and personal faculty research projects; student assumes major responsibility. Consent of instructor required.

7D:375 Educational Administration Practicum arr.
Supervised experience in working with educational administration problems including organization, planning, evaluation, decision making.

7D:380 Seminar: Value problems in the Administration of American Education 3 s.h.
Philosophical and sociological ideas underlying the American system for administration of public education; various ideas on place of both conformity and dissent in democratic society and democratic educational system; contemporary issues.

7D:381 Analysis and Appraisal of Curriculum 2-3 s.h.
Comprehensive investigative analysis of systematic procedures for identifying and evaluating the essential elements and constituent elements of a given school district’s curricular offering; for persons in administration, curriculum, and supervision programs or positions.

7D:383 Supervision and Evaluation 3 s.h.
Constructive leadership in educational organizations; analysis of research related to teacher and supervisor behaviors; evaluation procedures and behaviors that enhance leadership opportunities; positive aspects of due process and collective bargaining; for educators in administrative or supervisory roles.

7D:384 Seminar for Education Executives O-4 s.h.
Problem solving within an organization; specific problems determined by administrators attending; for practicing school administrators.

7D:390 Selected Topics in Educational Administration arr.
Individual and group investigation of contemporary problems and issues in educational administration. Consent of instructor required. Prerequisite: 7D:201.

7D:395 Educational Specialist Research in Educational Administration arr.
Supervision of the design, research, writing of a research project of significant quality for upper-level graduate work provided through individual instruction. Consent of adviser required.

7D:401 Field Service Project in Elementary Administration arr.
Individual project based in a school setting with emphasis on elementary administration; under instructor’s approval and supervision. Consent of instructor required.

7D:402 Field Service Project in Secondary Administration arr.
Individual project based in a school setting with emphasis on secondary administration; under instructor’s approval and supervision. Consent of instructor required.

7D:403 Field Service Project in Special Education Administration arr.
Individual project based in a school setting with emphasis on special education administration; under instructor’s approval and supervision. Consent of instructor required.

7D:404 Field Service Project in Central Administration arr.
Individual project in a school setting with emphasis on central administration; under instructor’s approval and supervision. Consent of instructor required.

Supervision of research, design, writing of thesis at Ph.D. level provided through individual instruction. Consent of adviser required.

Social Foundations of Education

7F:15 Introduction to Leadership 3 s.h.
Leadership and life skills for use in college and in developing academic and career goals; multiculturalism, communication, motivation, self-esteem, ethical decision making. Open only to freshmen, upon receipt of 7H:15.

7F:99 Politics of Education 2-3 s.h.
Political setting of education at several levels–federal, state, and local–and consideration of factors that condition internal school and district politics. GER: social sciences.

7F: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.

7F: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.

7F:107 History of Western Education 2-3 s.h.
Educational philosophies of significant individuals in history of education and relevance of their ideas in terms of contemporary educational practice in the United States.

7F:117 Philosophies of Education 2,3,5 s.h.
Principal educational philosophers and philosophies that have influenced Western education; emphasis on how philosophical ideas and conflicts have shaped the educational scene.

7F:130 Educational Sociology 2-3 s.h.
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.

7F:134 Education and the World of Work 2-3 s.h.
Relationship between education and work at the levels of individual and organizational behavior; relationship between educational and economic systems; sources include economics, psychology, sociology, education. Same as 7H:113.

7F:135 John Dewey and Education 2-3 s.h.
Dewey’s philosophy of “instrumentalist,” with emphasis on his theories of knowledge, valuation, aesthetics, especially as applied to educational theory and practice.

7F:154 Education, Race, and Ethnicity 2-3 s.h.
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.

7F:170 Survey Research and Design 3 s.h.
Types of survey instruments; ethical issues; sampling problems; logging, collecting, cleaning procedures; construction and administration of social surveys to a select population on topic of current interest; detailed examination of techniques of questionnaire construction. Same as TP: 155.

7F:180 Human Relations for the classroom Teacher 3 s.h.
Social factors such as discrimination, diversity, equity, racism, sexism, and ethnic and socioeconomic pluralism and their influence on American schools and classrooms; for teacher education candidates.

7F:205 Research Process and Design 3 s.h.
Research process, with emphasis on development of critical thinking and research skills; analysis of selected recent research in the field; students draft a research problem, same as 7H:205.

7F:210 Education and Social Change 2-3 s.h.
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.

7F:215 Seminar: Theory and Practice of Leadership 2-3 s.h.
Theory-based literature and critiques of leadership as presented in various literary genres, such as biography, novels, plays, poetry, philosophical treatises. Same as 7H:215.

7F:220 History and Philosophy of Postsecondary Education 3 s.h.
Major themes and developments in American higher education; ideologies, people, movements that have particularly influenced those developments. Same as 7H:220.

7F:225 Education and Public Policy 2-3 s.h.
Same as 7H:225.

Seminar for intensive study of one problem, issue, or work field. May be repeated.

7F:275 Development Policy and Planning in the Third World 3 s.h.
Cross cultural and interdisciplinary analysis of problems associated with urbanization and development in developing countries. Same as 14:275, 42:275, 44:275, 102:275, 113:275.

Consent of instructor required.

7F:304 American Contribution to Educational Philosophy 2 s.h.
American philosophy and its influence on American public education.

7F:306 Education in China 2-3 s.h.
Educational development in modern China from social, political, literary perspectives; analysis of post 1949 educational policy shifts.

7F:311 Seminar: Research Topic in Higher Education 2-3 s.h.
Topic submitted by students or faculty. May be repeated. Same as 7H:311.

7F:316 Policy, Planning and Implementation in Education 2-3 s.h.
Same as 7H:316.

7F:360 Seminar: History and Philosophy of American Higher Education 3 s.h.
Organizational culture related to development of social, intellectual, institutional life in the United States; effects on present and future of higher learning in the United States; comparative analysis. Prerequisite: 7F:220 or consent of instructor. Same as 7H:360.

Consent of instructor required.

Higher Education

7H:15 Introduction to Leadership 3 s.h.
Same as 7F:15.

7H:171 The Community College 2-3 s.h.
Character of community college as a postsecondary institution; functions, students, faculty, control, financing, administration, historical evolution.

7H:125 Introduction to Distance Education 3 s.h.
Instruction in which student and teacher are physically separated; print, audio, video, computer delivery systems; focus on applications, instructional designs, future developments. Same as 7W:125.

7H:134 Education and the World of Work 2-3 s.h.
Same as 7F:134.

7H:137 The Community College 2-3 s.h.
Character of community college as a postsecondary institution; functions, students, faculty, control, financing, administration, historical evolution.

7H:172 Supervision and Evaluation of Post-Secondary Employees 2 s.h.
Knowledge, skills, attitudes of evaluator in institutions of higher education; orientation, pre and post observation conferences, legal contexts, growth planning.

7H:175 Post-High School Staff Development Workshop 0-2 s.h.
Administrative Dimensions Workshop provides an environment where community college administrators can share knowledge and experiences.

7H:190 Introduction to Postsecondary Teaching 2 s.h.
Current trends, topics in postsecondary occupational education: instruction evaluation, legislation, licensure, curriculum development, professionalism.
7H:191 Community College Teaching Internship arr.
Full academic term of supervised one-half time teaching at a community college; concurrent assignment to gain knowledge of institution policies and procedures; role of professional associations.

7H:192 Curriculum Development: Application to Community Colleges 3 s.h.
Comprehension of a national curriculum process common to education in general, and its application to community college and health careers.

7H:193 Evaluation: Application to Community Colleges 2-3 s.h.
Methodology for evaluation in community college programs, including teaching and program evaluation; emphasis on achievement testing.

7H:199 Topics in Higher Education 2-3 s.h.
Students and faculty submit topics for consideration. May be repeated.

7H:200 Administration of Student Services 3 s.h.
Principles and practices of administration and leadership in the field. Recommended: 7H:100.

7H:205 Research Process and Design 3 s.h.
Research process, with emphasis on development of critical thinking and research skills; analysis of selected recent research in the field; students draft a research problem. Same as 7H:205.

7H:215 Seminar: Theory and Practice of Leadership 2-3 s.h.
Theory based literature and critiques of leadership as presented in various literary genres, such as biography, novels, plays, poetry, philosophical treatises. Same as 7H:215.

7H:216 Finance and Economics of Higher Education 2-3 s.h.
Analysis and appraisal of research and issues related to public and private funding of higher education; costs, benefits, outcomes, resource management.

7H:218 The Law and Higher Education 2-3 s.h.
The role of law as it affects postsecondary institutions; analysis of case law in specific areas of concern to administrators, faculty, staff, students.

7H:220 History and Philosophy of Postsecondary Education 3 s.h.
Major themes and developments in American higher education; ideologies, people, movements that have particularly influenced those developments. Same as 7F:220.

7H:222 Introduction to Planning, Policy Analysis, and Evaluation 3 s.h.
Basic theories and techniques; emphasis on academic and related educational policy issues.

7H:224 Organizational Theory and Administrative Behavior 3 s.h.
Theories and concepts of organizational behavior applied in situational, organizational, administrative contexts of American higher education.

7H:225 Education and Public Policy 2-3 s.h.
Policy process; emphasis on related literatures of organizational theory and policy analysis; critical analysis of problems and sources of variation in policy development and decision processes. Same as 7F:225.

7H:226 Higher Education Management 2-3 s.h.
Variables that influence decision making process in American higher education; emphasis on the written analysis of students’ own administrative skills. Prerequisite: 7H:224.

7H:250 Administration of Technical Educational Programs 2-3 s.h.
Administrator’s role in relating education to work; considerations of legal, financial, and staffing issues of vocational technical education; student and employer needs.

7H:251 Development of Continuing Education Programs 3 s.h.
Theory applied in developing and delivering continuing education programs; characteristics of populations to be served; marketing potential of a nationally planned continuing program; assessing educational needs, instructional resources and staffing, supporting services, budgeting, evaluation.

7H:261 Problems and Issues in Continuing Education 2 s.h.
Perspectives; institutional roles; interrelationships between youth and adult education; process, program, potential of field.

7H:270 Intern Seminar 2-3 s.h.
Prepares students to assume faculty roles in a community college setting; emphasis on methods of course planning, instruction, evaluation; current issues and legal aspects.

7H:295 Master’s Project 2-3 s.h.
Research for the nonthesis project; topic to be approved by advisor.

7H:310 Seminar: Education for the Professions 2-3 s.h.
Characteristics of the professions and their educational implications, the role of theory and practice, clinical experiences; students analyze education for selected profession.

7H:311 Seminar: Research Topic in Higher Education 2-3 s.h.
Topic submitted by students or faculty. May be repeated. Same as 7F:311.

7H:312 Seminar: Continuing Education 2 s.h.
Nature, scope, trends of research, as a dimension of continuing education. Consent of instructor required.

7H:315 Curriculum Development in Higher Education 2-3 s.h.
Basic educational models and techniques of design and implementation appropriate to development of educational programs.

7H:316 Policy, Planning and Implementation in Higher Education 2-3 s.h.
Review of research, applications. Same as 7F:316.

7H:317 Administrative Decision-Making in Higher Education 2-3 s.h.
Analysis of administrative problems and cases in higher education; emphasis on the culture of the organization. Prerequisite: 7H:224 or 7H:226 or consent of instructor.

7H:318 Legal Issues in Student Services 3 s.h.
Analysis of legal issues, their application to design of policies, procedures for student services in postsecondary institutions. Prerequisite: 7H:218.

7H:320 Seminar: Quality Management and Quality Improvement in Education 2-3 s.h.
Theories, processes, tools of quality management and improvement; case studies, related empirical studies on implementation of quality principles in education.

7H:330 Strategic Marketing and Institutional Development 3 s.h.
Marketing concepts in context of higher education organizations; use of these concepts and skills in college planning, decision making, broadened awareness of marketing concepts. Prerequisite: 7H:220 or consent of instructor.

7H:333 Practicum in Higher Education 2 s.h.
Consent of instructor required.

7H:360 Seminar: History and Philosophy of American Higher Education 3 s.h.
Organizational culture analyzed and related to development of social, intellectual, institutional life in the United States; emphasis on present and future of higher learning in the United States; comparative analysis. Prerequisite: 7H:220 or consent of instructor. Same as 7F:360.

7H:370 College Teaching Internship arr.
One semester of supervised one-half time teaching at a community college; concurrent assignments to gain knowledge of institution governance and procedures. May be repeated. Consent of adviser required.

7H:395 Educational Specialist Research in Higher Education 2-3 s.h.
Supervision of design, research, writing, a research project for Ed.S. candidates. Consent of instructor required.

7H:401 Proseminar in Higher Education I-2 s.h.
Current topics and major areas of professional and research interest. For Ph.D. majors in higher education. May be repeated. Consent of instructor required.

7H:493 Ph.D. Thesis in Higher Education 2-3 s.h.
Consent of instructor required.

Psychological and Quantitative Foundations . Education 325

POSSYLOGICAL AND QUANTITATIVE FOUNDATIONS

Chair: David F. Lehman

Instructors emeriti: Gordon N. Cantor, William E. Coffman, Albert N. Hieronymus, Siegmart Muehl, Bill Carl Snider, Lawrence M. Stolzrow


Instructors emeriti: Lida C. Cochran, Carl S. Davis

Adjunct associate professors: Mark A. Albanese, E. James Maxey

Assistant professors: Robert D. Ankenmann, Gregg M. MacMann, Joyce L. Moore, Audrey Quails, James Quinn, Sharon Sackett, Enelina G. Vazquez

Adjunct assistant professor: Susan A. Assouline, Martha Christiansen, Cynthia Druva-Rosie, Richard L. Ferguson, Jerry S. Gilmer, Deborah J. Harris, Michael J. Kolen, Philip R. Laughlin, Terry McNaib, Leonard Welsh

Instructors emeriti: Elizabeth J. Forell, Calvin E. Meher

Lecturers: G. John Achrazoglou, William E. Martin, Jr.

Degrees: M.A., Ed.S., Ph.D.

The division offers programs in five areas: educational measurement and statistics, counseling psychology, educational psychology, school psychology, and instructional design and technology. There are two general goals of these programs: 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 Course Work

The division offers an undergraduate minor in the combined areas of educational psychology, measurement, and statistical analysis.

The purpose of the minor is to provide an enriched background in educational psychology, educational testing, and research methods in education. A student selects a division adviser who helps the student choose 18 semester hours of course work, of which 12 semester hours must be in 100-level courses. This minor does not lead to certification as a public school teacher.

One of the General Education Requirements for graduation from the College of Liberal Arts is successful completion of a course designed to develop skills in quantitative or formal reasoning (see the College of Liberal Arts section of the catalog): 7P:25 Elementary Statistics and...
Inference may be used to satisfy this requirement.

Graduate Programs

Educational Measurement and Statistics

Master of Arts

The M.A. in this field prepares students for positions that require a basic knowledge of educational measurement, program evaluation, and data analysis. Such positions occur in research centers, testing organizations, large school systems, and state and federal education agencies. The program also is appropriate for students who seek to broaden their knowledge of measurement and research methodology for personal development.

ADMISSION

Grade-point average requirements for admission to the program are the same as those established by the Graduate College. Applicants who score lower than 500 on the quantitative, verbal, or analytical section of the Graduate Record Examination (GRE) General Test typically are not admitted. However, if the applicant’s native language is not English and there is offsetting evidence of superior ability, the faculty may adjust the GRE admissions requirement. Applicants should have at least one course in college mathematics. Some work experience as a teacher or researcher is highly desirable.

The faculty reviews applications as they are received. Complete applications must be received by July 1, December 1, or May 1, respectively, for consideration for fall, spring, or summer admission.

REQUIREMENTS

The degree may be taken without thesis (32-semester-hour minimum) or with thesis (minimum of 28 semester hours of course work plus 2-4 semester hours of thesis credit). All students must complete a core of courses totaling approximately 26 semester hours. Included in this core are 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. If a student already has completed equivalent courses at another institution, more advanced courses may be added to the core.

The six hours of final comprehensive examinations typically include three-hour examinations in educational measurement and in applied statistics. With the approval of the M.A. committee, the 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.

Doctor Of Philosophy

This doctoral program prepares students for senior professional positions in the fields of educational measurement, program evaluation, and statistical methods. Such positions generally are found in colleges and universities, state departments of education, large public and private school systems, testing agencies, and research centers.

The six hours of final comprehensive examinations typically include three-hour examinations in educational measurement and research methodology for personal development.

ADMISSION

Applicants for admission to the program must hold a B.S. from an accredited institution. The grade-point average requirement is the same as that for the Graduate College. If an applicant scores lower than 500 on the verbal, quantitative, or analytical sections of the Graduate Record Examination (GRE) General Test and there is no offsetting evidence of superior ability, admission will not be granted. However, the faculty may adjust the GRE standards for students whose native language is not English.

Applications are reviewed as received. Complete application materials must be received by July 1, December 1, or May 1, respectively, for consideration for fall, spring, or summer admission.

Students who expect to concentrate in the area of statistics should have training in college mathematics through differential and integral calculus. The absence of such training is a deficiency that must be made up during the first year of residence. At least one year of professional experience in teaching, research, or a related field is highly desirable.

Applicants are encouraged to include a personal statement about their vocational goals. The faculty reviews applications as they are received.

REQUIREMENTS

Applicants must complete the following related courses.

- 22C:100 Introduction to Computing with FORTRAN (or equivalent) 2 s.h.
- 7P:131 Educational Psychology 3 s.h.
- 7P:220 Educational Research Methodology 3 s.h.
- 7C:254 Appraisal in Counseling 3 s.h.

The student’s adviser specifies additional course work in areas appropriate to the student’s interests and vocational objectives. These courses typically include additional work in educational psychology and courses offered by other College of Education divisions and University departments.

Students who concentrate in the area of statistics, with the intention of teaching on the college level, are required to take courses in the mathematical theory of statistics. Those who concentrate in the area of educational measurement and evaluation are advised to take courses in curriculum, counseling, and higher education. All students must develop familiarity with computer programming techniques and computer software designed for statistical analysis.

Candidates who enter the program without completing an M.A. thesis must complete a substitute project approved by three members of the division faculty. The project must be completed before the Ph.D. comprehensive examinations may be written. A minimum of 90 semester hours is required for the degree, including 12 or more semester hours of thesis credit.

The record of every student admitted to the program is reviewed after completion of approximately 18 semester hours of course work. The division faculty considers course grades, evidence of critical and analytical skills, development since admission to the program, and promise for continued growth. Students who show insufficient potential or deficiencies that cannot be remedied are dropped from the program.

Following completion of the major portion of their course work, candidates must write comprehensive examinations. Typically, these consist of three 3-hour written examinations over the fields of applied statistics, educational measurement, and program evaluation, or approved substitute areas such as educational psychology or mathematical statistics. A substitute area generally is one in which the candidate has at least 9 semester hours of course work. In lieu 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 members may seek further evidence of the candidate’s command of the three fields. A single decision is rendered on all aspects of the comprehensive examinations.

Counseling Psychology

Doctor Of Philosophy

The doctoral program in counseling psychology was granted full accreditation by the American Psychological Association in 1983. Full accreditation was renewed in 1991.

The program’s goal is to prepare doctoral-level 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 higher education, counseling centers, clinics, private practice settings, and hospitals.

ADMISSION

Applications are complete when the following items have been received:

- Graduate College application form;
- official transcripts of all previous undergraduate and graduate work;
- official report of Graduate Record Examination (GRE) General Test scores; the GRE Advanced Test in Psychology is encouraged but not required;
- personal statement outlining career goals and reasons for seeking advanced training as a counseling psychologist; and
three letters of recommendation from persons in a position to assess the applicant’s potential for completing the doctoral program.

The faculty gives preference to applicants who meet the following criteria: undergraduate grade-point average above 3.00 (on a 4.00 scale); graduate grade-point average above 3.50; and GRE General Test score (verbal plus quantitative) above 1200; undergraduate major, minor, or substantial course work in psychology; previous research and counseling experience. The faculty encourages applications from minorities, women, and persons from a wide range of backgrounds and academic preparation. A maximum of eight students is accepted each year.

The deadline for completed applications is January 15. Admissions decisions are made by March 15. All students must begin the program in the fall semester after admission.

REQUIREMENTS

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 semester hours 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. Six semester hours also are required in the area of individual differences.

Statistics and Research Design

7P:243 Intermediate Statistical Methods
3 s.h.
7P:246 Design of Experiments
or
7P:244 Correlation and Regression
4 s.h.
7P:257 Educational Measurement and Evaluation
3 s.h.

Counseling Psychology Core

7C:255 Vocational Psychology
3 s.h.
7P:223 Introduction to Counseling Psychology Practice/Research I
3 s.h.
7P:225 Introduction to Counseling Psychology Practice/Research II
2 s.h.
7P:235 Multicultural Counseling
3 s.h.
7P:251 Individual Intelligence Testing
3 s.h.
7P:305 Psychotherapy I: Dynamic and Phenomenological Approaches
3 s.h.
7P:310 Psychodiagnoses
3 s.h.
7P:356 Processes and Outcomes in Counseling and Psychotherapy
3 s.h.
7P:365 Psychotherapy II: Cognitive and Behavioral Approaches
3 s.h.
7P:465 Issues and Ethics in Professional Psychology
3 s.h.
7P:434 Practicum in Counseling Psychology
3 s.h.
7P:453 Advanced Practicum in Counseling Psychology (may be repeated)
3-9 s.h.

Students must enroll in practica to reach a specified level of client contact, supervision, and additional experience hours. At least one practicum must be served at the University Counseling Service, unless the faculty approves a waiver. Placements other than the University Counseling Service must have prior approval of the counseling psychology faculty. Students must successfully complete at least one semester of 7P:434 Practicum in Counseling Psychology before enrolling in 7P:453 Advanced Practicum in Counseling Psychology. Waivers of practicum requirements may be granted under special circumstances by a majority vote of the counseling psychology faculty.

Other Requirements

Elective courses are determined in collaboration with the major adviser.

A research project equivalent to the master’s thesis must be completed prior to the comprehensive examinations. Up to 6 semester hours of credit may be applied to this project. The dissertation research study is planned in collaboration with the doctoral student’s major adviser. Dissertation credit can range from 12 to 15 semester hours.

Students spend a calendar year at 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, successful completion of the master’s equivalency research requirement, and successful completion of practicum requirements.

Comprehensive examinations are written in three areas: counseling psychology research/theory, counseling psychology methods/applications, counseling psychology ethics/issues. It is strongly recommended that students complete comprehensive examinations prior to the internship.

Students must show appropriate levels of emotional balance and interpersonal skills and act within the American Psychological Association’s Ethical Principles of Psychologists.

Educational Psychology

Master of Arts

This program provides an overview of educational psychology as an area of scholarly inquiry. It includes course work in human development, cognition/learning, motivation, socialization/personality, educational measurement, and research methods. The program does not prepare students for entry into a specific vocation. Rather, it contributes to a broad understanding of the psychological principles on which education builds.

ADMISSION

Admission requirements are the same as those established by the Graduate College. Teaching experience is desirable but not required. Applications for fall admission must be received by May 1 for fall semester, by October 1, for spring semester, and by March 1 for summer session. Admission decisions are announced approximately one month after the application deadline.

REQUIREMENTS

Students may earn the degree with or without thesis. The M.A. without thesis requires a minimum of 32 semester hours of course work; with thesis, it requires a minimum of 28 semester hours of course work plus 2-4 semester hours of thesis credit. Both programs require 7P:143 Introduction to Statistical Methods or the equivalent. Students who intend to apply for admission to the Ph.D. program should take the M.A. with thesis.

Students plan the remainder of the program in consultation with their advisers, choosing courses from the following four areas: human development, cognition/learning, motivation/personality, and individual differences. Students are encouraged to take at least one course in each of these areas. The faculty also encourages degree candidates to enroll in at least two courses outside the division.

The record of every student admitted to the program is reviewed near the end of the second semester in residence. The program faculty considers course grades, evidence of critical and analytical skills, development during the year, and promise for continued growth. Deficiencies identified in the review are discussed with the student. Students may be dropped from the program at the discretion of the faculty.

Students must complete six hours of comprehensive examinations consisting of a three-hour objective test and a three-hour essay examination or project. The objective test covers fundamental concepts in educational psychology. Several options are available for the essay examination or project, all of which focus on the student’s area of specialization. Students choose among these options in consultation with their advisers and with their M.A. committees.

Doctor of Philosophy

This doctoral program prepares graduates for a variety of careers that share a concern for the application of psychological principles to educational practices. Such careers include professorships at the university and college levels and research or administrative positions in educational agencies, clinics, hospitals, testing organizations, and public schools.

ADMISSION

An applicant seeking admission to the program must hold an M.A. from or be an M.A. candidate in good standing at an accredited institution. Applicants whose M.A. is not directly relevant to educational psychology may be admitted conditionally. The student must complete the M.A. program before taking the Ph.D. comprehensive examinations.

The graduate grade-point average and Graduate Record Examination (GRE) requirements for admission are the same as those established by the Graduate College. Candidates may be admitted conditionally on the basis of other evidence, such as high grade-point average, strong academic preparation, and highly supportive recommendations. Applications for fall semester admission must be received by February 1. Admission decisions are announced approximately one month after the application deadline. Students who need an earlier decision and those who cannot meet the February deadline may request an expedited application or a special review.
REQUIREMENTS
The program requires a minimum of 72 semester hours beyond the bachelor’s degree and encompasses four substantive areas-human development, cognition/learning, motivation/socialization/personality, and individual differences. Students must complete at least one course in each of the four areas, with three of these courses above the 100 level. In addition, students must demonstrate substantial competence in at least one of these areas.

Additional requirements include 7P:220 Educational Research Methodology; a minimum of 6 semester hours of 200-level course work in statistics and one graduate-level course in measurement; and 10 semester hours of Ph.D. thesis credit. Alterations in these requirements can be made for individual students with the approval of a committee composed of three members of the educational psychology faculty. Students are encouraged to take course work outside the College of Education in their area of interest. Candidates who earned an M.A. without thesis must undertake a project in lieu of the thesis. This project must be approved by three members of the educational psychology faculty. Candidates plan their programs jointly with their advisers.

The record of every student admitted to the program is reviewed near the end of the second semester of residence. The program faculty considers course grades, evidence of critical and analytical skills, development during the year, and promise for continued growth. Deficiencies identified in the review are discussed with the student. Students may be dropped from the program at the discretion of the faculty.

After candidates have completed the major portion of their course work, they must take a comprehensive examination. Three options are available: preparation of an integrative review article, completion of an extended research activity culminating in a written report, or completion of a nine-hour series of written examinations. Students choose among these options after consulting with their advisers and gaining the approval of their Ph.D. examining committee. For students who elect the last of these options, six of the nine hours of examinations must be based on course work in educational psychology offered by the division or on closely related course work offered by other University departments. A comprehensive examination taken outside the educational psychology program must be planned in consultation with the educational psychology faculty. The proposed examination schedule must be approved by the comprehensive examination committee.

School Psychology
Specialist in Education
The Ed.S. option provides course work and supervised field experience in the areas of education and psychology, enabling graduates to qualify for certification as school psychologists (State of Iowa Endorsement 40).

ADMISSION
The program is open only to Ph.D. students in the school psychology program.

The degree requires a minimum of 67 semester hours, including courses in psychological foundations, psychoeducational foundations, school psychology, and research methods. Degree requirements include a written comprehensive examination and a research paper prepared in conjunction with course 7P:342 Research project in School Psychology (3 semester hours).

Doctor Of Philosophy
The Ph.D. program in school psychology prepares students for positions in higher education and for consultative, supervisory, research, and administrative positions in public and private agencies.

ADMISSION
Preference is given to applicants with undergraduate majors in psychology or education, grade-point averages above 3.00, and verbal and quantitative scores above 500 on the Graduate Record Examination (GRE) General Test. The faculty also encourages applicants from school psychologists with an M.A. or Ed.S. Applications must include three letters of recommendation and a personal statement of interest and goals. Complete application materials, including transcripts and test scores, must be received by February 1 for consideration for fall semester admission. Decisions are made by March 15. A maximum of ten students are admitted to the program each year.

REQUIREMENTS
The program requires a minimum of 120 semester hours. Course work is chosen from four areas: psychological foundations, psychoeducational foundations, school psychology, and research methods. The course of study is developed by the student and the academic adviser. Students are required to write comprehensive examinations, carry out a research project equivalent in scope to an M.A. thesis, participate in an internship, and complete a doctoral dissertation through enrollment for a minimum of 10 semester hours in 7P:493 Ph.D. Thesis in Psychological and Quantitative Foundations.

Instructional Design and Technology
Master of Arts
The M.A. program in instructional design and technology provides students with the basic knowledge and skills to work in educational and training environments such as schools, business and industry, health care, government, and consulting agencies. The program requires 35 semester hours of course work and either a thesis or a project.

ADMISSION
Regular admission requires a minimum grade-point average of 2.80 on all previous course work and a score of 500 or higher on both the quantitative and verbal sections of the Graduate Record Examination (GRE) General Test. If these requirements are not met but there is compelling evidence of superior ability, a conditional admission may be granted. Regardless of the admission status, all students are expected to maintain a grade-point average of at least 3.00. Applicants are encouraged to include with the application a personal statement about their interest in the field.

Applications for admission must be received by May 1 for fall semester, October 1 for spring semester, and March 1 for summer session. Admissions decisions are announced approximately one month after the application deadlines.

REQUIREMENTS
The degree requires the following core courses (or approved equivalents).
7P:107 Psychological Bases of Instructional Design
7P:150 Introduction to Educational Measurement
7W:120 Introduction to Instructional Design and Technology
7W:135 Computer Applications for Instruction
7W:220 Advanced Instructional Design and Technology

Students plan the remainder of their programs in consultation with their advisers, choosing course work in one of the following specialization areas: classroom instruction, computer applications, instructional development, training and human resource development, and media production. Students who have not had previous experience in designing instruction or training must complete a practicum experience. A final project or thesis is required. If the degree is done with a thesis, 7P: 143 Introduction to Statistical Methods is required.

The program culminates with a six-hour set of comprehensive examinations based on core and specialization area courses. The examinations are divided into two-or three-hour parts as follows: general instructional design, 2-3 hours; area of specialization, 2-3 hours; other, O or 2 hours.

Specialist in Education
The educational specialist program in instructional design and technology consists of 60 semester hours of course work beyond the bachelors. The Ed.S. usually is considered a final degree.

ADMISSION
Regular admission requires a grade-point average of at least 3.00 on all previous course work and a score of 500 or higher on both the quantitative and verbal sections of the Graduate Record Examination (GRE) General Test. If these requirements are not met but there is compelling evidence of superior ability, a conditional admission may be granted. Regardless of the admission status, all students are expected to maintain a 3.20 grade-point average in at least 3.00. Applicants are encouraged to include with the application a personal statement about their interest in the field. Applications for admission must be received by May 1 for fall semester, October 1 for spring semester, and March 1 for summer session. Admissions decisions are announced approximately one month after the application deadlines.

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The program culminates with a six-hour set of comprehensive examinations based on core and specialization area courses. The examinations are divided into two-or three-hour parts as follows: general instructional design, 2-3 hours; area of specialization, 2-3 hours; other, O or 2 hours.
Applications for admission must be received by May 1 for fall semester, October 1 for spring semester, and March 1 for summer session. Admission decisions are announced approximately one month after the application deadlines.

**REQUIREMENTS**

Course work required for the degree includes the master’s-level core courses (or equivalent), three research-related courses (7P:143 Introduction to Statistical Methods, 7P:220 Educational Research Methodology, 7W:269 Survey of Research in Instructional Design and Technology, or equivalents), and 15 semester hours of study in one area: classroom instruction, computer applications, instructional development, training and human resource development, or media production. In addition, the student must complete 6 semester hours of course work in a cognate area outside the College of Education. Students who have not had previous experience in designing instruction or training are required to complete a practicum.

The program culminates with the completion of a final project and a six hour set of comprehensive examinations based on courses in the core, research, and specialization area. The examinations are divided into two or three parts: general instructional design, 2-3 hours; area of specialization, 2-3 hours; other, O or 2 hours.

**Doctor of Philosophy**

The Ph.D. program in instructional design and technology provides a broad background for persons interested in teaching, research, and leadership positions. The 90-semester-hour program emphasizes the acquisition of knowledge and skills needed to expand the understanding of instruction and training and their effects on learning and performance.

**ADMISSION**

Basic requirements are a grade-point average above 3.20 on previous course work and a score of 500 or higher on both the quantitative and the verbal sections of the Graduate Record Examination (GRE) General Test. Other factors considered are the nature of previous course work and experience, language proficiency, and letters of recommendation. Applicants must include a personal letter with the application, describing their interests in the instructional design field, the Iowa program, and any additional information that may be pertinent. Potential applicants are strongly encouraged to discuss their plans with a faculty member. Applications for admission must be received by May 1 for fall semester, October 1 for spring semester, and March 1 for summer session. Admission decisions are announced approximately one month after the application deadlines.

**REQUIREMENTS**

Course work required for the degree includes the core of the M.A. program or equivalents, five research-related courses, and 18 semester hours in one area of specialization: instructional development, computer applications, or training and human resource development. In addition, students must complete 9 semester hours of course work in a cognate area outside the College of Education.

Near the end of the course work requirements, students must submit a formal paper that reflects their ability to organize and present a topic at the conceptual level expected for the dissertation. The completed paper must be approved by a faculty committee before the comprehensive examination may be taken.

All students must successfully pass a nine-hour set of comprehensive examinations that cover the core, including the research-related courses, and the area of specialization. The examinations are divided as follows: general instructional design, 3-5 hours; area of specialization, 3-4 hours; other, O or 3 hours.

The program culminates with the successful preparation and defense of a dissertation.

**Financial Aid**

The division normally employs several advanced graduate students as teaching, research, and production assistants. The appointments are typically half-time for the academic year, and holders are permitted to carry a study and/or research load of up to 12 semester hours per semester. Candidates should address inquiries to the chair of the division.

Other types of graduate assistantships are supported by the Iowa Testing Programs. Duties are varied, including responsibilities such as test development and data analysis. There also are other assistantships supported by the Iowa Testing Programs that are not specific to the programs cited above. Inquiries should be directed to the program directors.

**Courses**

**Psychology, Measurement, Statistics**

7P:25 Elementary statistics and inference 3 s.h.

Graphical techniques for presenting data; descriptive statistics; sampling distribution models; logic of statistical inference; interval estimation; hypothesis tests of significance; correlation and prediction. GER: quantitative or formal reasoning. Prerequisite: 22M:1 or equivalent. Same as 22S:25.

7P:50 Cross cultural psychology 3 s.h.

Conceptual, theoretical, practical issues and problems in relationship between culture and behavior in American society; similarities, differences in social behavior across cultures.

7P:75 Educational Psychology and Measurement 3 s.h.

Principles of cognitive and social development, learning, memory, problem solving, individual differences, testing, classroom management; their relationship to education.

7P:80 Psychology of Academic Learning 3 s.h.

Psychological theory, research on overall academic teaming; reading, memory, student development, career choice, teaming strategies.

7P:101 Methods of Student Assessment 3 s.h.

Development, use, evaluation of student assessment methods: written tests, performance and product assessments, observation, oral questioning checklists; grading and reporting; administration and use of standardized tests of achievement and other cognitive abilities.

7P:102 Human Intelligence 3 s.h.

History of research; trait and process theories of academic, social, practical intelligence; special abilities; ability development and training.

7P:106 Child Development 3 s.h.

Theories, research findings about typical course of child development, differences in development.

7P:107 Psychological Bases of Instructional Design 3 s.h.

Same as 7W:107.

7P:109 Socialization of the School-Age Child 3 s.h.

Factors influencing children’s socialization; emphasis on those relevant to education.

7P:111 Introduction to Human Motivation 3 s.h.

Human motivation theories and issues; practical implications of research findings and relationships between motivation, learning, and performance.

7P:115 Gifted Young Children 1 s.h.

Identification and conceptualizations of intellectual giftedness, educational programming for this age group; for educators, counselors, psychologists who work with children ages 0-6 years or their parents. Same as TC:115, TE:115.

7P:119 Creativity and Inventiveness 1 s.h.

Models of creativity and inventiveness, methods of assessment, curriculum models; state and national opportunities for students talented in these areas.

7P:120 Psychology of Giftedness 3 s.h.

Theories of learning, child development, motivation; issues unique to gifted education. Same as 7C:120.

7P:121 Assessment of Giftedness and Academic Talent 3 s.h.

Interpretation of standardized tests and other measurement devices 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 7C:121.

7P:122 Assessment and Programming for Mathematically Talented Youth 1 s.h.

Diagnostic testing, prescriptive instruction approach to programming for students who are extremely talented in mathematics; topics include programming grades K-12, appropriate enrichment, pacing the accelerated mathematics curriculum throughout grades K-12. Same as 7B:122.

7P:125 Counseling and Psychological Needs of Gifted Students 1 s.h.

Psychological aspects of giftedness, counseling techniques for gifted children and adolescents; socio-emotional concerns, career development, underachievement, social needs of gifted and minorities; counseling strategies for academic guidance, career counseling, family counseling. Same as 7C:125.

7P:12d 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 7C:126.

7P:127 Research and Theory in Talent/ Giftedness Symposium. Same as 7C:127.

7P:131 Educational psychology 3 s.h.

Psychology of the teaching/learning process; developmental concepts, social processes, language and thought; individual differences in abilities and achievements; theory and research on reading, writing, mathematics, thinking, studying; other topics in instructional psychology.

7P:133 The Adolescent and Young Adult 3 s.h.

Psychological, social aspects of adolescence and young adulthood; emphasis on theory, research, practical applications.

7P:134 Parent-Teacher Communication 1-3 s.h.

Realities of working with parents; interpersonal skills; options for parent support services. Same as 7E:134, 7U:134.

7P:136 Home/School/Community Partnerships 3 s.h.

Issues related to collaboration among families, educators, community members in implementing school programs. Same as 7E:136, 7S:136, 7U:136.

7P: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.

7P:148 Bayesian statistics 1 3 s.h.

Theory, practice of Bayesian statistical analysis; comparison of Bayesian and classical paradigms; Bayesian versions of classical concepts such as confidence intervals, hypothesis tests, sufficiency, central limit theorem; emphasis on noninformative priors, computational approximations, hierarchical models, robustness. Prerequisite: 22S:120 or equivalent. Same as 22S:138.
7P:150 Introduction to Educational Measurement 3-4 s.h.
Test development procedures, reliability, validity, item writing, evaluation and use of standardized tests and inventories; no background in statistics assumed.

7P:155 Survey Research and Design 3 s.h.
Same as 7J:170.

7P:160 Standardized Testing and Public Policy 2 s.h.
Analysis of the history and current status of psychological metrics of test bias and fair selection; standards developed by professions for test use; court decisions, federal legislation, administrative guidelines and the selection and educational assignment. Prerequisite: 7P:257 or equivalent.

7P:165 Introduction to program Evaluation 3 s.h.
Models, designs, data collection techniques that guide program evaluation; current issues, controversies.

7P:169 Introduction to Personality 3 s.h.
Theories; history and current status of personality; attention to role of personality in learning and cognitive performance.

7P:170 Introduction to Psychology of Reading 3 s.h.
Psychological and linguistic analysis of the reading process; implications for teaching methods, materials; factors related to reading performance.

7P:176 Psychology of Writing 3 s.h.
The writing process compared and contrasted with speaking, listening, reading; research on theoretical models of the writing process, writing and thinking, impediments to writing, facilitating writing, writing instruction, computers in writing instruction, writing, evoking writing; emphasis on psycholinguistic and psychological fundamentals necessary for understanding current research and practice; introductory course for advanced undergraduate or graduate students.

7P:181 Introduction to Theories of Learning 3 s.h.
Foundation for more advanced applied courses; logic of scientific inference, chi-square, and other tests of statistical hypotheses, small sample error theory, interval estimates, introduction to analysis of variance, selected nonparametric methods. Prerequisite: 7P:143 or equivalent. Same as 22S:148.

7P:183 Introduction to Educational Psychology 3 s.h.
Historical, theoretical, professional, scientific traditions associated with counseling psychology; focus on developing a research orientation to the field.

7P:211 Adult Development and Learning: Research and theory on adult development and learning between ages 30 and 60+; emphasis on direct implications for and applications to education and training. Same as 7W:231.

7P:235 Multicultural Counseling 3 s.h.
Today's multicultural counseling issues; theoretical, practical aspects of the counseling process; implications for interventions in diverse populations. Prerequisite: 7P:235 or consent of instructor.

7P:236 Topics in Multicultural Counseling 3 s.h.
Cultural identity development and adaptation; acculturation and assimilation; selected experience of diverse groups in Western society; implications for counselors and psychologists. Prerequisite: 7P:235 or consent of instructor.

7P:243 Intermediate Statistical Methods 3 s.h.
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: 7P:143 or equivalent. Same as 22S:148.

7P:244 Correlation and Regression 4 s.h.
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: 7P:243 or equivalent. Same as 22S:157.

7P:245 Application of Multivariate Statistical Techniques 3 s.h.
Multivariate analyses of variance, discriminant analysis, factor analysis; use of multivariate statistical computer packages. Prerequisites: 7P:244 and 7P:246, or equivalents. Same as 22S:161.

7P:246 Design of Experiments 4 s.h.
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: 7P:243 or equivalent. Same as 22S:159.

7P:247 Nonparametric Statistical Methods 3 s.h.
Selected nonparametric methods; one- and two-sample location tests and estimation methods, measures of association, analyses of variance, emphasis on relationships; classical parametric procedures. Prerequisite: 7P:245 or 22S:120 or consent of instructor. Same as 22S:163.

7P:249 Factor Analysis and Structural Equation Models 3 s.h.
Foundations of exploratory and confirmatory factor analysis methods; least squares and maximum likelihood approaches; problems in factor extraction, rotation, interpretation; structural equation models; LISREL, assumptions and limitations of alternative approaches. Prerequisite: 7P:252 or equivalent or consent of instructor.

7P:250 Computer Packages for Statistical Analysis 2-3 s.h.
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: 7P:243 or equivalent, and elementary knowledge of computer programming.

7P:252 Introduction to Multivariate Statistical Methods 3 s.h.
Selected topics in multivariate analysis, including multivariate significance tests, principal components and factor analysis, discriminant analysis, canonical correlation, multivariate analysis of variance (MANOVA). Prerequisite: 7P:244 or consent of instructor.

7P:253 Construction and Use of Evaluation Instruments 3 s.h.
Design and construction of measures used in educational evaluation: achievement tests, attitude scales, performance measures, questionnaires; exploration of methods of instrument development and evaluation of instrument characteristics. Prerequisites: 7P:143 and 7P:150, or equivalent.

7P:257 Educational Measurement and Evaluation 3 s.h.
Using Standardized Instruments
Evaluation and use of standardized tests and inventories in individual and group assessment; analyzing reliability, validity, normative data, interpreting means of achievement, intelligence, aptitude, interests, attitudes, personality; current issues; for counselors, administrators, teachers, measurement specialists. Prerequisite: 7P:143 or equivalent.

7P:258 Theory and Technique in Educational Measurement 3 s.h.
Mathematical theories underlying educational and psychological measurement; nature and use of item data, estimation of test reliability and validity, derivation of norms, scaling, equating test batteries. Consent of instructor required. Prerequisites: 7P:243 and 7P:257, or equivalent.

7P:259 Scaling Methods 3 s.h.
Unidimensional and multidimensional scaling techniques; introduction to available computer programs for scaling; applications in educational and psychological research. Prerequisite: 7P:243 or equivalent. Recommended: 7P:249.

7P:262 Item Response Theory 3 s.h.
Theoretical foundations and practical applications; mathematical models and estimation techniques; emphasis on current applications and issues in testing; computer estimation programs. Prerequisites: 7P:243 and 7P:257.

7P:265 Program Evaluation 3 s.h.
Theoretical and practical considerations in evaluation of educational, social programs; evaluation design, methodology; metaevaluation; evaluation utilization. Prerequisites: 7P:150 and 7P:143, or equivalents.

7P:269 Advanced Personality 3 s.h.
Current research and research methods in the psychology of personality; emphasis on individual differences in personality that have implications for teaching and learning. Prerequisite: 7P:169 or equivalent.

7P:270 Cognitive Psychology of Reading 3-4 s.h.
Theories and models of the reading process, of its development, and of individual cross-language differences; review of selected research studies from recent, current literature. Consent of instructor required.

7P:282 Cognitive Processes in School Learning 3 s.h.
Theoretical and empirical research investigating the cognitive processing involved in school learning, including reading, writing, mathematics, specific subject matter. Prerequisites: introductory course in learning and 7P:131, or equivalent.

7P:283 Cognitive Development 3 s.h.
Information processing and neo-Volitional theories of cognitive development and their educational implications; individual differences in cognitive development.

7P:285 Advanced Theories of Motivation 3 s.h.
Characteristics and practical implications of current theories in human motivation; discussion of instrument development and assessment concerns, individual differences, intervention strategies, theory refinement and integration. Prerequisite: 7P:131 or consent of instructor.

7P:292 supervised Research in Educational Psychology 1-3 s.h.
Faculty-guided research activity or seminars on identification of research problems, development of research designs and materials, the conduct of research studies. Consent of instructor required.

7P:293 Individual Instruction in Psychological and Quantitative Foundations 1-3 s.h.
Consent of instructor required.

7P:305 Psychotherapy 1: Dynamic and Phenomenological Approaches 3 s.h.
Major psychodynamic and existential-phenomenological theories of personality; emphasis on implications for psychotherapy.

7P:310 Psychodiagnostics 3 s.h.
Major psychometric instruments in normal and abnormal personality measurement; emphasis on integrating demographic, interview, psychometric data into a coherent conceptualization of client dynamics and functioning; for Ph.D. students. Consent of instructor required.

7P:320 History and Systems of Psychology 3 s.h.
Philosophical underpinnings of psychology, early systems in psychology, and developments in the twentieth century.

7P:331 Seminar: Educational Psychology 1: Current Topics 1-3 s.h.
Intensive investigation of a specific research topic from the educational psychology field. Consent of instructor required.
TP:332 Seminar: Educational Psychology II: Psychology of f-earning 3 s.h. Topical issues in the psychology of learning and education that have implications for understanding teaching and learning. Consent of instructor required.

TP:334 Seminar: Educational Psychology IV: Motivation 3 s.h. In-depth examination of selected topics in motivation. Consent of instructor required.

TP:350 Seminar in Evaluation 2-3 s.h. In-depth examination of selected topics. Prerequisite: two courses in evaluation, including TP:265 or equivalent.

TP:354 Seminar: Experimental Approaches in Counseling Research 3 s.h. Application of experimental methodology to study of counseling and educational phenomena. May be repeated. Consent of instructor required.

TP:355 Seminar: Educational Measurement and Evaluation 3 s.h. Critical examination of current issues and problems of the professional worker in the field of educational measurement and evaluation as reflected in the research literature and other professional communication media.

TP:356 Processes and Outcomes in Counseling and Psychotherapy 3 s.h. Advanced knowledge of the state of process and outcome research on psychotherapeutic procedures. Ph.D. candidacy appropriate field required.

TP:365 Psychotherapy II: Cognitive and Behavioral Approaches 3 s.h. Major theoretical and behavioral models of personality and psychotherapy; emphasis on Implications for clinical practice.

TP:375 Topics in Educational Measurement and Statistics 1-3 s.h. May be repeated.

TP:380 Practicum in College Teaching 2-4 s.h. Supervised college teaching experience in courses related to major academic areas, in collaboration with faculty instructor teaching such courses.

TP:393 M.A. Thesis in Psychological and Quantitative Foundations 3 s.h. Consent of instructor required.

TP:394 Supervised Research in Counseling Psychology 1-3 s.h. Supervised practice in counseling services. May be repeated. Prerequisites: TP:223 and TP:225, or equivalent; and consent of instructor.

TP:434 Practicum in Counseling Psychology 3 s.h. Supervised practice in counseling services. May be repeated. Prerequisites: TP:223 and TP:225, or equivalent; and consent of instructor.

TP:450 Practicum in Program Evaluation 3 s.h. Supervised experience in designing and implementing components of program evaluations. Consent of instructor required. Prerequisites: two courses in program evaluation, including TP:265.

TP:453 Advanced Practicum in Counseling Psychology 3 s.h. Supervised work in counseling services. May be repeated. Prerequisites: TP:434 or equivalent, and consent of instructor.

TP:455 Generalizability Theory 2 s.h. Application of analysis of variance methods and general linear model to estimate components of measurement error variance, basic concepts, models, assumptions, interpretation of components. Prerequisite: TP:246 or 228:159 or equivalent.

TP:465 Issues and Ethics in Professional Psychology 3 s.h. Professional ethics; issues in professional practice of psychology.

TP:493 Ph.D. Thesis in Psychological and Quantitative Foundations 3 s.h. Consent of instructor required.

School Psychology

TP:205 Practicum in School Psychology 1-2 s.h.

TP:224 Practicum in School Psychology 3 s.h. Preparation for responsibilities in school and clinical practice.


TP:238 Assessment of Learning Difficulties 1-3 s.h. Same as UG:238.

TP:251 Individual Intelligence Testing 3 s.h. Administration of individual intelligence tests and interpretation of test results; factors that influence performance. Consent of instructor required. Prerequisite: TP:143 or TP:150.

TP:263 Consultation Theory and Practice 2-3 s.h. Same as TC:263, TW:263.

TP:311 Practicum in Counseling and Psychological Services for Gifted Students 1-6 s.h. Educational, personal, family issues for graduate students who have had course work in counseling education, counseling psychology, school psychology, educational psychology, or related fields. Consent of instructor required. Prerequisite: TP:251 or TP:258, or equivalent.

TP:315 Psychodiagnosics: Children and Adolescents 3 s.h. Link between personality theory, child and adolescent assessment; interpretation of assessment information; record reviews, interviews, objective tests, projective techniques. Prerequisites: TP:251 and TP:258, or equivalent.


TP:340 Professional Seminar - School Psychology 1-3 s.h. Historical look at school psychology; current influences on roles; brief overview of contemporary issues. Consent of instructor required.

TP:342 Research Project in School Psychology 3 s.h. Identifies and provides experience in research facilities on campus; assists students in writing research questions, planning a research study, writing a research article. Consent of instructor required.

TP:345 Seminar in Psychoeducational Interventions I 3 s.h. Interventions by school, support system personnel addressing the cognitive abilities of children, adolescents.

TP:346 Seminar in Psychoeducational Interventions II 3 s.h. Interventions by school and support system personnel addressing behavioral, social emotional status of children, adolescents.

TP:347 Seminar in Psychoeducational Interventions III 3 s.h. Interventions by school and support system personnel; focus on work with parents, siblings.

TP:348 Seminar in Psychoeducational Interventions IV 3 s.h. Interventions by school and support system personnel with children, adolescents who are linguistically or culturally diverse. Prerequisite: TP:142 or equivalent.

TP:349 Seminar in Psychoeducational Interventions V 3 s.h. Interventions by school and support system personnel with preschool aged children, their families.

TP:352 Seminar: Behavioral Assessment and Evaluation 3 s.h. Same as TC:252.

TP:366 Organization Development and Change 3 s.h. Same as TC:266, TW:266.

TP:390 Supervision of School Psychology Practicum/Internship 3 s.h. Doctoral students gain experience supervising school psychology practicum or internship students. Consent of instructor required.

TP:427 Supervised Professional Experience in School Psychology 1-3 s.h. Job site supervision of professional services. Consent of instructor required. Prerequisite: Ed.S. m school psychology.

TP:437 Internship in School Psychology 3 s.h. Supervised internship for doctoral candidates in school psychology. Consent of instructor required. Prerequisites: completion of degree course requirements.

Instructional Design Technology

TW:91 Audiovisual Equipment for Instruction 3 s.h. Operation of audiovisual equipment most frequently available to the classroom teacher; still and motion picture projector, audio cassette and video cassette recorder, duplicator, laminator, dry mount press.

TW:92 Introduction to Microcomputing for Teachers 1 s.h. Operation and applications of microcomputers in schools; evaluation and selection of applications programs; applications including CAI (tutorials, drills, simulations, games, tests) and tools (word processors, spreadsheets, database systems).

TW:105 Design and Production of Media for Instruction 3 s.h. Basic techniques in production of black and white photographs, traditional and computer graphics, audiotapes, videotapes, computer-assisted instruction, other media used in design of instructional materials.

TW:107 Psychological Bases of Instructional Design 3 s.h. Effects of adjunct materials, pacing and organizational structure, graphic materials, testing and grading, presentation mode, learning styles, group size and organization; physical factors such as light and temperature. Same as TP:107.

TW:120 Introduction to Instructional Design 3 s.h. Principles, techniques for designing instructional and training programs, instructional strategies, learner and course evaluation.

TW:121 Designing and Developing Instructional Materials 3 s.h. Basic skills; traditional and computer graphics techniques; selection and evaluation criteria. Same as 50:161.

TW:125 Introduction to Distance Education 3 s.h. Print, audio, video, computer delivery systems; focus on applications, instructional designs, future developments. Same as TH:125.

TW:130 Photography for Instruction 3 s.h. Planning, production of instructional materials using black and white photographic techniques and color slides; basic skills; selection and evaluation criteria.

TW:134 Instructional Videotape Production 3 s.h. Planning and production of videotaped units for instructional applications: operation of VTR equipment, lighting, sets, scripting editing, graphics for videotape production; selection and evaluation criteria and guidelines for diffusion; practical experience in working with professional clients.

TW:135 Computer Applications for Instruction 3 s.h. Use of tools, general application software for education; theory evaluation, development of basic instructional software (computer assisted instruction).

TW:139 Beginning Computer Graphics 3 s.h. Two and three-dimensional line graphics; first part of course is devoted to computer programming in BASC language; second part deals with simple two and three-dimensional graphic concepts including scaling, rotation, translation, perspective.

TW:151 CAI Authoring Tools 3 s.h. Programming and authoring tools for computer assisted instruction; may include Authorware Professional for Windows, Plus, Hypercard, Toolbook. Prerequisite: TP:135.

TW:180 Special Topics in Instructional Design and Technology 3 s.h. Areas of special interest for selected groups; content varies.

TW:193 Independent Study for Undergraduates and Non-Majors 1-12 s.h. Opportunity for students to investigate areas of their concern. Consent of Instructor required.

TW:200 Needs and Task Analysis 3 s.h. Principles, strategies for determining organizational needs related to human performance; analysis of jobs, tasks. Consent of instructor required. Prerequisite: TW:120.

TW:209 Development of CAI 3 s.h. Application of learning theory and authoring tools to the design, development, evaluation of computer assisted instruction. Consent of instructor required. Prerequisite: TP:135.

TW:220 Advanced Instructional Design 3 s.h. The instructional design process; focus on designing, developing, delivering, evaluating an instructional solution to a human performance problem. Consent of instructor required. Prerequisite: TW:120.

Psychological and Quantitative Foundations . Education 331
332 Education  Psychological and Quantitative Foundations

7W:222 Instructional Strategies 3 s.h.
Review of the literature on instructional strategies, including large and small-group activities; PSI and case studies with emphasis on issues related to design, selection, evaluation.
Prerequisite: 7W:120 or consent of instructor.

7W:225 Computer-Managed Instruction 3 s.h.
Design and development of microcomputer software for delivery of instruction, diagnostic testing, resource management. Topics include routing, selection, presentation of instruction, human factors, data collection and management, test construction, classroom logistics. Consent of instructor required. Prerequisites: 7W:135 and 7W:151.

7W:231 Adult Development and Learning 3 s.h.
Research theory on adult development, learning, ages 30-60+; emphasis on implications for applications to education, training. Same as 7P:231.

7W:234 Advanced CAI Development 3 s.h.
Theory and development of multimedia programs that use videotape, CD-ROM, computer animation, digital audio; emphasis on team development of software. Consent of instructor required. Prerequisite: 7W:209.

7W:235 Advanced Topics in CAI 3 s.h.
Analysis of current research and development activities in computer-based instruction. Prerequisites: 7P:220 and 7W:135.

7W:245 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. Consent of instructor required. Prerequisite: 7W:234.

7W:263 Consultation Theory and Practice 2-3 s.h.
Analysis of consultation theories and practices from the related fields of instructional design, counseling, school psychology. Prerequisite: 7W:120. Same as 7C:263, 7P:263.

7W:349 Survey of Research in Instructional Design arr.
Current research; emphasis on learning and cognition, training, organizational issues, human performance technology. Consent of instructor required. Prerequisites: 7W:120 and 7P:145.

7W:293 Independent Study: Instructional Design for Majors arr.
Students investigate areas of their concern. Consent of instructor required.

7W:366 Organizational Development and Change 3 s.h.
Program development and change or grant writing; includes theory, research, applications. May be repeated. Same as 7C:366, 7P:366.

7W:370 Practicum in Instructional Design and Technology arr.
Supervised experience in an applied setting.

7W:371 Internship in Instructional Design and Technology arr.
Supervised administrative and other non-teaching experience in public schools, social agencies, higher education, or industry. Consent of instructor required.

7W:387 Topical Seminar in Instructional Design and Technology arr.
May be repeated.

7W:391 M.A. Project in Instructional Design and Technology Project for the M.A. arr.

7W:393 M.A. Thesis in Instructional Design and Technology Consent of instructor required.

7W:395 Ed.S. Project in Instructional Design and Technology Consent of instructor required.

7W:493 Ph.D. Thesis in Instructional Design and Technology Consent of instructor required.
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 coupled with a full understanding of engineering fundamentals, good judgment, and a practical sense of economics.

The College of Engineering prepares young 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 has two major responsibilities. The first is to provide high-quality undergraduate engineering programs by maintaining contemporary engineering curricula and laboratories, as well as support services such as academic advising and engineering career counseling.

The second responsibility is to provide graduate programs in modern areas of engineering that lead to the Master of Science and Doctor of Philosophy degrees. Graduate education involves intensive research activities of a creative nature that are expected to result in original contributions to the literature at the Ph.D. level.

Programs

The College of Engineering offers programs leading to the Bachelor of Science in Engineering (B.S. E.) degree in the major fields of biomedical engineering, chemical engineering, civil engineering, electrical engineering, industrial engineering, and mechanical engineering. Programs leading to the Master of Science and Doctor of Philosophy degrees are offered in the fields of biomedical engineering, chemical and biochemical engineering, civil and environmental engineering, electrical and computer engineering, industrial engineering, and mechanical engineering.

Any of the undergraduate programs offered by the College of Engineering may be combined with a program leading to a bachelor’s degree in the College of Liberal Arts, an M.B.A. degree in the College of Business Administration, and a second bachelor’s degree in the College of Engineering. In addition, a combined bachelor’s-master’s degree program is available through each of the engineering majors and the Graduate Program in Urban and Regional Planning (see “Urban and Regional Planning” in the College of Liberal Arts section of the Catalog). These combined degree programs usually may be completed in about five years. In addition, a minor in the College of Business Administration or a minor or minors in any degree-granting discipline or approved program in the College of Liberal Arts may be combined with any of the undergraduate programs offered by the College of Engineering.

The undergraduate programs in biomedical, chemical, civil, electrical, industrial, and mechanical engineering are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET).

Undergraduate Programs

Academic Recognition

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. Honors students may participate in a collegewide honors seminar with faculty and other honors students. Junior and senior engineering students with cumulative grade-point averages of 3.20 and higher are eligible to apply to the program.

Successful completion of departmental requirements leads to a B.S.E. with honors, which is recorded on the student’s University academic record.

Freshman and sophomore students interested in honors are encouraged to participate in the University Honors Program, which provides access to all of the services offered by the Shambaugh House Honors Center. Students also are encouraged to join the Association of Iowa Honors Students, which sponsors a variety of social and educational activities each year. Engineering students are the second largest collegiate group in the University Honors Program.

For more information or to apply, contact the Office of the Dean, College of Engineering.

Graduation with Honors

High scholastic achievement is certified in two ways; graduation with distinction based on grades only, and graduation with honors 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.

Graduation with Distinction

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 averages for all college-level study undertaken up to their final registration.

To be eligible for this form of recognition, students must take their final 60 semester hours of study in residence at the college and must have completed all their final 45 semester hours of study in the college before their final registration. Students in the combined engineering/liberal arts program are eligible for this recognition regardless of the college in which they complete their residency requirements.

President’s List

Students who earn a 4.00 grade-point average for two consecutive semesters (excluding summer sessions) on at least 12 or more semester hours of graded work, with no 1 or O grades standing on the current or past semester’s record, are recognized by inclusion on the president’s list.

Dean’s List

Engineering students who achieve grade-point averages of 3.50 or above during a given semester on 12 or more semester hours of graded work, with no 1 or O grades standing on the current or past semester’s record, are recognized by inclusion on the dean’s list for that semester.

Degree Requirements

The Bachelor of Science in Engineering (B.S. E.) degree requires a minimum of 128 semester hours of credit, including satisfaction of the specific requirements of the engineering program as described in the following sections. Candidates for the B.S.E. degree must be enrolled in the College of Engineering for at least the last 30 semester hours, or 45 of the last 60 semester hours, or a total of 90 semester hours. They must have a 2.00 minimum grade-point average on all college work used to satisfy the degree requirement as well as on all work undertaken at The University of Iowa. In addition, candidates must have completed MATH 22M:35 Engineering Calculus I and MATH 22M:36 Engineering Calculus II, or their equivalents, with a grade of C- or better in each course.

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 must file another application for a degree for the next applicable session. Students do not need to be registered to apply for a degree.

Admission Requirements

To qualify for admission to the College of Engineering as a freshman, Iowa resident applicants 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, one-half year of trigonometry, and one-half year beyond trigonometry; 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;
completed the ACT standardized test with a composite standard score of 24 or above and a standard score of 24 or above in mathematics (or equivalent SAT scores); and ranked in the upper one-half of their high school graduating class.

One-half year of a high school computer programming course is highly recommended.
Nonresident freshman applicants must have completed the same high school requirements as required and recommended for resident applicants, and must have:
completed the ACT standardized test with a composite score of 25 or above and a mathematics score of 25 or above (or equivalent SAT scores); and ranked in the upper 30 percent of their graduating class.
Transfer applicants must complete the same high school course requirements as entering freshmen and must submit an official high school transcript as well as a transcript of college work undertaken at other institutions. Each transfer applicant must have:
completed at least one semester of calculus or its equivalent, and at least one semester of chemistry or physics for engineering and science majors; and maintained at least a 2.25 cumulative grade-point average.
Freshman and transfer applicants who do not meet the foreign language requirement may be admitted on a conditional basis for a maximum of four regular semesters in order to complete two semesters of an introductory, college-level foreign language.
Students who do not meet the other high school course requirements may be admitted upon special review by the College of Engineering, and 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 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:9 Elementary Functions before enrolling in the first engineering calculus course.

Courses taken at The University of Iowa to make up deficiencies do not count toward graduation. For more information about making up specific unit deficiencies, consult with the assistant to the dean.

Fulfillment of the minimum requirements for admission does not ensure admission to the College of Engineering. The college selects applicants who appear to be the best qualified for the study and practice of engineering.

Undergraduate Curriculum

The faculty of each engineering program has established a set of required and elective courses that must be satisfactorily completed as part of the requirements for a degree in that program. The established set of courses is known as the curriculum for that program. General guidelines for establishing the course requirements in each program are provided by the national accrediting body, the Accreditation Board for Engineering and Technology (ABET). The purpose of the curriculum in each program is to prepare students for the practice of engineering in that program.

Curriculum Stems

The curriculum for each program is divided into four major curriculum stems: mathematics and basic sciences; engineering sciences; engineering design; and humanities and social sciences. In addition to the four major stems, there are a few general background courses that fall outside of the stems. These courses are scheduled in the freshman year. They include Engineering I and II and Rhetoric, which is a freshman course in writing, speaking, and critical reading. The Engineering I and II courses cover a breadth of topics from engineering as a profession to computer-aided graphics.

All of the courses in the curriculum stems are sequenced in meaningful patterns so that students better 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 two each in chemistry and physics. The faculty of each engineering program has specified at least one additional mathematics or science course beyond these minimum requirements that provides a base appropriate for that major.

ENGINEERING SCIENCES

The second curriculum stem, engineering sciences, builds upon the math and science stem in order to 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 statics, thermodynamics, and electrical circuits, as well as other engineering courses relevant to each major.

ENGINEERING DESIGN

Engineering design, the third curriculum stem, 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 impact.
Because of the need to utilize a spectrum of basic and applied subject matter, which involves course work taken early in the curriculum, the design courses and activities usually begin in the junior year and end with a capstone course or activity in the senior year.

HUMANITIES AND SOCIAL SCIENCES

The fourth stem involves course work in the humanities and social sciences. This stem serves to engender an appreciation for and understanding of society and culture.

Freshman and Sophomore Years

Approximately one-half of the course requirements in each engineering program are common to all engineering majors. These common course requirements constitute a core program. Most of the courses in the core program are scheduled in the freshman and sophomore years, along with a few program-specific courses. Hence, students generally may postpone making a decision about which engineering major to pursue or may change their engineering major through the freshman year with minimal loss of time or credits.

Exceptions to the common freshman year are biomedical engineering and chemical engineering, both of which require a second chemistry lecture course during the second semester of the freshman year. By careful planning, undecided engineering majors may schedule the common courses and postpone the decision about a major until as late as the end of the third semester. However, because of prerequisite sequencing, such delays may result in an extra semester or a summer session. The curriculum for each engineering program is listed in the sections devoted to each major in this section of the Catalog.

The following are freshman-year courses that are common to all engineering curricula. (Not all students complete all of these courses in the freshman year.)

First Semester
4:13 Principles of Chemistry I 3 s.h.
10:3 Accelerated Rhetoric 4 s.h.
22M:35 Engineering Calculus I 4 s.h.
57:5 Engineering I 3 s.h.
Humanities or social science elective 3 s.h.

Second Semester
4:16 Principles of Chemistry Lab I 2 s.h.
22M:36 Engineering Calculus II 4 s.h.
22M:40 Matrix Algebra for Engineers 2 s.h.
29:17 Introductory Physics I 4 s.h.
57:6 Engineering II 3 s.h.

Course 4:14 Principles of Chemistry II is recommended during the second semester for students who are biomedical or chemical engineering majors. Students in these majors usually postpone taking 22M:40 Matrix Algebra for Engineers until the first semester of the sophomore year. Students pursuing a major in industrial engineering should review the social science requirement specified for that major before selecting any social science courses.

The above list of courses that art common for all the engineering majors assumes that entering freshmen qualify for the advanced rhetoric class, 10:3. Students who do not meet the eligibility requirement for 10:3 are required to complete the two-course sequence 10:1-2 Rhetoric, for a
total of 8 semester hours. However, only 4 semester hours may be applied toward the degree requirement for rhetoric.

Credits earned for courses below the level of the beginning courses specified in each engineering curriculum appear on a student’s grade report and permanent record, but generally are not used to satisfy any electives or required courses for an engineering degree. Examples of courses in this category besides 101:1 Rhetoric include mathematics courses 22M:1-20, chemistry courses 4:5-8, and physics courses 29:4-15.

For undecided engineering majors who want to postpone selecting an engineering major beyond the freshman year, a third semester of courses common to all the majors could include the following.

Third Semester

22M:41 Differential Equations for Engineers 3 s.h.
29:18 Introductory Physics II 4 s.h.
57:7 Statics 2 s.h.
57:8 Electrical Circuits 3 s.h.
57:9 Thermodynamics I 3 s.h.

Students pursuing three semesters of courses common to all majors may encounter a delay in graduation because of scheduling problems for program courses that require sequencing or that are offered only once a year.

Humanities and Social Sciences Requirements

The goal of the humanities and social sciences requirements is to provide more effective preparation for professional responsibilities by integrating humanities and social sciences into the undergraduate engineering curriculum.

Students select, with their adviser’s approval, a minimum of 16 semester hours of humanities and social science electives with at least 6 in the humanities and at least 6 in the social sciences. In each case, the 6 semester hours usually include a lower-level course followed by an advanced-level course from the same department. Social science courses in the industrial engineering major are specified. Students considering a major in this program should consult “Industrial Engineering” in this section of the Catalog for their required social sciences courses.

Courses that are primarily mathematical or scientific in nature and those that are designed specifically to develop introductory language skills or speaking, writing, artistic, or music skills are not acceptable as social science or humanities electives even though they are offered through departments listed below.

Humanities electives may be selected from any of the following departments and schools: African-American World Studies; American Studies; Art History; Classics; Asian Languages and Literature; Theatre Arts; English; History; Literature, Science, and the Arts; Music; Philosophy; Religion; Linguistics; or others approved by the curriculum committee of the College of Engineering.

Following an introductory-level course, students select a minimum of 3 semester hours of advanced (100-level) course work to secure sufficient depth of knowledge in an elected subject of study. This advanced course work must be in the same department as the introductory course unless prior approval has been obtained from the curriculum committee of the College of Engineering. Language courses do not satisfy any of the humanities requirements unless the courses are at or beyond the second-year level.

Social science electives may be selected from the following departments and schools: Anthropology, Urban and Regional Planning, Economics, Geography, Political Science, Psychology, Sociology, Journalism and Mass Communication, Social Work, or others approved by the curriculum committee of the College of Engineering. To ensure an adequate depth of knowledge in a chosen area of study and following an introductory-level course, students select a minimum of 3 semester hours of advanced (100-level) course work. This advanced course work must be in the same department as the introductory course unless prior approval has been obtained from the curriculum committee of the College of Engineering.

Combined Engineering/ Liberal Arts Program

Students may earn two University of Iowa baccalaureate degrees in a combined program in the Colleges of Engineering and Liberal Arts. 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.

Students in this combined program usually are able to meet the baccalaureate 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 combined degree program are assigned two faculty advisers, one in their major department in the College of Engineering and the other in their major department in the College of Liberal Arts.

To enter the combined degree program, students must be eligible for admission to the College of Engineering. Interested students should schedule an appointment with the assistant to the dean of the College of Engineering. Students must be approved for candidacy in the combined degree program by the College of Engineering and must be admitted to both the College of Engineering and the College of Liberal Arts.

Students who enter the program are required to complete the General Education Requirements and the requirements for the major in the College of Liberal Arts. Liberal arts high school course or unit requirements for admission apply to combined degree program applicants.

It is crucial that students enroll in the proper mathematics courses early in their course of study to expedite the completion of their program. The specific engineering courses taken by students varies according to the engineering major selected. Since courses in natural sciences, mathematics, humanities, and social sciences are accepted regularly for credit by both colleges, in many cases students satisfy the requirements of both colleges by taking a particular course.

To qualify for both degrees in the combined degree program, candidates must complete an overall total of 158 semester hours of credit, including at least 30 semester hours of courses offered by the College of Engineering and at least 30 semester hours of courses offered by the College of Liberal Arts.

Combined College of Engineering/M.B.A. Program

An Accelerated Professional Track (APT) program has been initiated by the College of Business Administration for superior engineering students who want to begin their M.B.A. studies while finishing their undergraduate degree. Engineering students with interest and competence in the applied sciences and business administration may enhance their managerial career opportunities through the APT.

This program allows superior undergraduate students to enroll in required M.B.A. course work during their junior and senior undergraduate years. Students may complete up to one-half of the M.B.A. curriculum as undergraduates and go on to receive an M.B.A. with just one year of graduate study.

To qualify for the APT program, students must have completed two years of engineering study, earned a 3.50 minimum grade-point average and indicated their intent to pursue both degree programs simultaneously on a full-time basis.

Admission to the APT program does not guarantee admission to the Graduate College. However, since the undergraduate admission requirements are very high and the undergraduate curriculum demanding, it is anticipated that admitted students will readily qualify for admission to the graduate M.B.A. program upon application.

APT students are required to work in cooperative education or summer internships but may petition to fulfill this requirement with previous work experience. This professional employment experience with private industry is considered to be an important part of the APT program and generally takes place the summer following the spring conferral of the engineering degree.

The M.B.A. curriculum is designed for upper-level students; no previous course work in business is required. The program consists of 36 semester hours of core material, 12 semester hours of concentration courses, and 12 semester hours of free elective credit. A total of 60 semester hours is required for the M.B.A. degree, of which 30 may be completed before the bachelor’s degree is awarded. Depending upon the engineering major selected, at least 9 semester hours of required course work in the engineering curriculum can be completed with M.B.A. courses (6N:213, 6N:228, and one or more additional courses as approved by the engineering major department).
Engineering students are assigned a major adviser in the College of Engineering. Upon acceptance into the APT program, advising for M.B.A. course work is provided by College of Business Administration staff. Coordination of the combined degree program for APT students is provided by the assistant to the dean of the College of Engineering and the associate dean of the College of Business Administration.

Combined B.S. in Engineering/M.S. or M.A. in Planning

A program combining a bachelor’s degree in engineering with a master’s degree in urban and regional planning has been developed for students who want to pursue a career in planning in either the public or private sector. Planning encompasses the development of alternatives to improve the quality of life in cities and regions.

Planners devise courses of action in response to a variety of problems and opportunities and assess the likely outcome of these actions. They are involved in diverse fields such as public transit, low-income housing, neighborhood preservation, environmental protection, infrastructure finance, downtown revitalization, social services, and economic development.

Students in the program may acquire a B.S. in engineering and an M.A. or M.S. in planning in a total of five or more academic years. Students should apply for the joint program either when they apply for admission to the College of Engineering or before they complete their sophomore year following matriculation. A letter requesting admission to this program should be submitted by the student to the College of Engineering.

As with the combined engineering/M.B.A. program, admission to this program does not guarantee admission to the Graduate College, which is required in order to complete the degree requirements in the planning program. Hence, students in this combined degree program should be aware of the admission requirements for the graduate planning program and should be prepared to meet these requirements when they apply for admission to the program (near the time when they are completing the B.S.E. degree requirements).

The curriculum is based on the philosophy that planners must develop the theoretical and analytical skills that permit them to identify issues and recommend alternate ways of resolving these issues. In addition, planners must develop the professional skills (e.g., report writing, presentations and briefings, computer literacy, team management) that allow them to function effectively in various organizational and political environments. Students become well versed in topics such as economic theory, quantitative methods, information presentation techniques, and approaches to citizen involvement.

At the heart of The University of Iowa planning program is an integrated core curriculum. Its purpose is to provide a rigorous foundation for the analysis of public and social issues. The core program is completed by engineering students in the last two years of the undergraduate program. Sectoral majors (areas of concentration) are organized around public policy problem areas. They include transportation, housing and community development, environmental quality, urban infrastructure, and economic development. Students fulfill the sectoral major requirement by completing 9 semester hours of credit in courses offered by various departments and schools of the University, including the graduate planning program and the College of Engineering. They complete these courses after graduating from the College of Engineering and while enrolled in the graduate program in urban and regional planning.

Each student is assigned an adviser from engineering and one from planning. During the first four years of the program, students work primarily with their engineering adviser and the assistant to the dean of the College of Engineering. For the fifth year, students confer with their graduate planning adviser.

Two Bachelor’s Degrees in Engineering

Recent College of Engineering graduates and current students may earn two bachelor’s degrees in engineering. The requirements for the second degree are to complete, with a 2.00 minimum grade-point average, at least 30 additional semester hours of residence course work beyond the requirements of 128 semester hours for the first degree program. The additional semester hours must include all courses required by the program selected for the second degree, including the senior-level design course sequence of the second degree program as well as any specific social science elective requirements. The technical electives selected for the second degree program 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 plan of study, which must be approved by the faculty of the second degree program and submitted to the office of the dean, before they may initiate course work in the second degree program. The proposed academic plan of study 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. The approved plan must be submitted to the office of the dean and placed in the student’s permanent file before the student begins course work in the second program. Any changes in the plan must be approved by the student’s faculty adviser in the second program and by the department chair of that program (the college petition form may be used for this purpose) and submitted to the office of the dean for inclusion in the student’s permanent file.

Minors

While fulfilling degree requirements in engineering, undergraduate students also may fulfill requirements for a minor in the College of Business Administration. Any minor or minors in any degree-granting department or approved program in the College of Liberal Arts. 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.

Students must inform the registrar’s office of their fulfillment of minor requirements when they apply for a degree. This assures that the minor designation is included on their transcript.

Minor in Business Administration

Requirements for this minor are two economics courses (6E:1 and 6E:2), two accounting courses (6A:1 and 6A:2), a marketing course (6M:100), a management course (6F:100), a finance course (6F:100), a computer course (6K:70), and a legal course (6J:47). In addition to these required courses, students usually complete a calculus course, and a probability and statistics course.

Engineering majors satisfy the mathematics and statistics requirements with courses 22M:35 and 22S:39. A 2.00 grade-point average in courses applicable to the minor is required. Students who want to complete a Master of Business Administration degree later should select courses that satisfy M.B.A. requirements.

Minor in Liberal Arts

Requirements for this minor are a minimum of 15 semester hours in the minor department, at least 12 of which are in advanced courses at The University of Iowa and acceptable to the department. Students should confer with the minor department to identify acceptable courses. Students must achieve a 2.00 grade-point average in the courses applicable to the minor. Courses to be counted toward the minor may not be taken pass/nonpass.

Cooperative Education Program

Cooperative education for engineering students, coordinated by Engineering Career Services, involves the integration of academic work with practical experience in an organized program. Participating students spend alternate periods in full-time academic study on campus and in full-time engineering-related employment in business, industry, or government.

Students can earn a substantial portion of college expenses during the work periods, but the success of the program depends on the work experience having significant educational value as well. This is assured by careful monitoring of the work experience provided by participating employers and by matching student interest and ability to the work situation.

The insight gained by involvement in the practical application of subject matter studied in the classroom usually results in improved motivation during the study periods, with a corresponding improvement in academic record. Another important aspect of the experience gained, although it is difficult to evaluate, is the increased awareness of the many nontechnical considerations involved in any engineering project.

The co-op phase ordinarily begins during or immediately following the sophomore year and
Undergraduate Academic Advising Center

Students who are considering engineering but want to explore various fields of study before they declare a specialized major should enroll in the College of Liberal Arts as open majors. They will be assigned an adviser from the Undergraduate Academic Advising Center. With the advisers’ help, students select courses appropriate for the engineering program while they explore other fields of interest. Students meet frequently and regularly with their advisers for the intensive advising support they need as they evaluate their educational alternatives and plan their programs of study. The advisers’ offices are located in Burge Hall and Dey House. For more information, contact the Undergraduate Academic Advising Center.

Academic Standards

Semester Load limit

A normal academic load is about 16 semester hours of course work for a semester, 8 semester hours for a summer session. No student may register for more than 18 semester hours in one semester, or 9 semester hours in a summer session, without permission.

Classification of Students

Students in the College of Engineering are classified by the number of semester hours of credit earned applicable to a bachelor’s degree in engineering.

Freshman—0 to 29 semester hours
Sophomore—30 to 59 semester hours
Junior—60 to 89 semester hours
Senior—90 or more semester hours

Grading System

The college uses a letter grading system with a plus or minus to designate gradations of performance between the letters. The numerical equivalents of the letter grades with the plus and minus options are as follows.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>4.33</td>
</tr>
<tr>
<td>A</td>
<td>4.00</td>
</tr>
<tr>
<td>A-</td>
<td>3.67</td>
</tr>
<tr>
<td>B+</td>
<td>3.33</td>
</tr>
<tr>
<td>B</td>
<td>3.00</td>
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<tr>
<td>B-</td>
<td>2.67</td>
</tr>
<tr>
<td>C+</td>
<td>2.33</td>
</tr>
<tr>
<td>C</td>
<td>2.00</td>
</tr>
<tr>
<td>C-</td>
<td>1.67</td>
</tr>
<tr>
<td>D+</td>
<td>1.33</td>
</tr>
<tr>
<td>D</td>
<td>1.00</td>
</tr>
<tr>
<td>D-</td>
<td>0.67</td>
</tr>
<tr>
<td>F</td>
<td>0</td>
</tr>
</tbody>
</table>

This grading system is used for all students in both undergraduate and graduate engineering courses. Grades of D- are passing grades; that is, courses completed with grades of D- or better count toward collegiate requirements. Grades of A+, A, or A- have a value of 4.33 in calculating grade-point averages for a student, but the averages displayed in University records will be truncated so they do not exceed 4.00.

Academic Probation and Good Standing

Students enrolled in the College of Engineering who fail to attain the following minimum semester and cumulative grade-point averages based on all work taken at The University of Iowa are placed or continued on academic probation.

Freshmen—1.80
Sophomores—1.90
Juniors—1.95
Seniors—2.00

Students whose semester and cumulative grade-point averages equal or exceed those appropriate to their classification are considered to be in good standing in the college.

Students are removed from, or placed on, academic probation only at the end of a semester. Students are not permitted to reregister without specific approval following two consecutive semesters on probation. Students who have not made satisfactory improvement in scholarship may be dismissed from the college; they may petition the assistant to the dean for permission to reenroll after an interval of two regular semesters.

Dropping and Adding Courses

Courses may be dropped with permission of the adviser and the instructor during the first three weeks of the semester or first one and one-half weeks of the summer session.

Courses may be dropped with permission of the adviser and the instructor at any time during the first ten weeks of the semester. Only under compelling circumstances may courses be dropped after the tenth week, in which case special approval must be granted by the adviser, the course instructor, and the associate dean. 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 third 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 as degree candidates to the College of Engineering in fall 1991 and after are limited to an overall maximum of five Ws while they are enrolled in the College of Engineering. Freshmen entering the University directly from high school with no prior full-time college experience are permitted to exclude Ws they receive during their first two sessions of enrollment.

Engineering students admitted before fall 1991 are limited to a maximum of five Ws beginning with their fall 1994 registration. Ws earned by these students before fall 1994 do not count toward the maximum of five.

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 will not be removed from the record. Requests for such exclusions are made to the assistant to the dean.

Withdrawal of Registration

Students in good academic standing who withdraw their registration during the final four weeks of a regular semester, or during the final three or two weeks of a twelve- or eight-week summer session, respectively, are not permitted to enroll for the semester immediately following without specific approval from the assistant to the dean.

Students on scholastic probation who withdraw their registration at any time without good cause are considered as having been dismissed for poor scholarship.

Withdrawal cards for students enrolled in the college are signed by the assistant to the dean only upon recommendation by the student’s adviser and department chair.

Pass/Nonpass Option

A maximum of two courses taken in the Colleges of Liberal Arts or Business Administration on a pass/nonpass basis may be applied toward satisfaction of the humanities and social sciences requirement. Students who want to take such courses in liberal arts or business administration pass/nonpass must meet the conditions and follow the procedures specified by those colleges. The pass/nonpass option may not be used for courses taken to satisfy the rhetoric requirement.

Students enrolled in courses taught in the College of Engineering may choose to be graded on a pass/nonpass basis under the following conditions:

- the signatures of the adviser and instructor must be obtained on the proper form, and the completed form must be submitted to the registrar 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- or above; the mark of N (nonpass) is given for grades of D+ 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 hours;
- 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

Students may elect to repeat a course with only the new grade being counted in their grade-point average. This option can be elected
only prior to completion of a course for which the repeated course is a prerequisite. The option may be applied to no more than three courses, and it may be applied only once to a given course.

Transfer students may apply the option on a prorated basis. For example, students who transfer no more than 42 semester hours of applicable engineering course work may use this option for a maximum of three courses, while students who transfer between 42 and 86 semester hours of credit may use this option for no more than two courses, and students who transfer 86 or more semester hours may use this option for only one course. Students who want to exercise this option should apply to the assistant to the dean.

Satisfactory/Fail Courses
The noncredit professional seminar courses required in each of the professional programs are offered only satisfactory/fail. No other engineering courses are offered on this basis. An F (failure) 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) or O (no report) that is not replaced by a final grade prior to the announced deadline during the student’s next regular semester of registration is replaced by a final grade of F (failure). Students with incomplete from the spring semester are exempt from completing the course during the succeeding summer session.

Credit by Exam or by Substitution
Advanced Placement Program
Students who have pursued college-level courses in high school through the Advanced Placement Program (APP) of the College Entrance Examination Board and have achieved satisfactory scores on the comprehensive examination administered though the APP are awarded college-level credit. For example, students earning scores of 3, 4, or 5 in an AB-level calculus course in the APP receive 4 semester hours of credit for 22M:35 Engineering Calculus I. Likewise, students earning scores of 3, 4, or 5 in a BC-level calculus course receive 8 semester hours of credit for 22M:35-36 Engineering Calculus I-II. Credit earned through other APP courses also may be applied to other engineering course requirements as appropriate to content and level, so long as credit for those requirements has not already been earned through other exams or course enrollments. Questions about APP credits should be directed to the assistant to the dean.

CLEP Credit
Credit earned through the College-Level Examination Program (CLEP) may be applied to fulfillment of the lower-level portion of the humanities and social sciences requirement. Hence, a maximum of 10 semester hours of credit may be satisfied by credit earned on any of the following CLEP exams: the social science subtest and the historical perspective subtest of the social science general exam; and any appropriate subject exams in social sciences and humanities.

Completion of the depth requirement in the social sciences and humanities using CLEP credit to satisfy the beginning-level prerequisite can be accomplished as follows.

- Social sciences: CLEP credit in the social science subtest of the social science general examination, followed by a 100-level course in any acceptable social science area
- Humanities: CLEP credit in the historical perspective subtest of the social science general examination, followed by a 100-level course in history

Credit earned on other CLEP subject exams also may be applied to meet other course requirements as appropriate in content and level on a nonduplicate basis. Questions about CLEP exams and credits should be directed to the assistant to the dean.

Credit by Examination
Students who have acquired knowledge in engineering subject matter from sources other than formal course registrations may be granted the opportunity to obtain credit toward graduation by examination. For example, credit for an engineering core course may be earned by achieving a satisfactory test score on a comprehensive exam similar to a final exam for that course. Conditions and limitations of this policy are established by the faculty of the College of Engineering. Students who want to apply for such an examination should contact the assistant to the dean.

Credit by Validation
Students with course credits obtained at an unaccredited institution may request validation of the credit up to a maximum of 12 semester hours. Credit by validation may be granted after students have completed at least 24 semester hours of course work at The University of Iowa that includes appropriate courses for which the work to be validated are prerequisites. Students who want to use this option should contact the assistant to the dean during their first semester of enrollment in the College of Engineering.

Credit from Other Colleges
Course requirements in engineering may be satisfied by credits earned from courses taken in other colleges of the University 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 assistant to the dean either prior to 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 assistant to the dean if, on a case-by-case basis, there is a match in the content and level of the transfer courses, and the grades earned for such courses are C or higher. Students who want to satisfy the engineering social sciences and humanities requirements or The University of Iowa rhetoric requirements by transfer work should contact the assistant to the dean for details.

Students planning to attend a two- or four-year institution before transferring to the College of Engineering are well advised to discuss the planned transfer with officials at both schools before embarking on a transfer program. The College of Engineering does have recommended course lists for most Iowa community colleges and some four-year colleges. The course lists are available by contacting the assistant to the dean. Once students are enrolled in the College of Engineering, all course work they have taken at other institutions must be preapproved by the assistant to the dean if credit for it is to be applied to meet engineering degree requirements.

By policy of Iowa’s State Board of Regents, a student who has earned 64 semester hours of college credit from all sources may transfer no more credit from a two-year college toward meeting the 128 semester hours required for graduation. If a student has earned more than 64 semester hours of credit from a two-year college, the credit and grades are used in computing the grade-point average and may be used to satisfy course requirements even though they may not be counted toward the total hours needed for graduation.

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. The petition form is available in the office of the dean. The form must be completed by the student and approved by the student’s adviser and by the chair of the academic department in which the student is majoring.

If the petition involves a required engineering core course, then it also must be approved by the associate dean who acts on behalf of the dean. The form must be completed by the student and approved by the student’s adviser and by the chair of the academic department in which the student is majoring.

Substitutions for required engineering core courses should occur infrequently and only under compelling circumstances. Substitutions of courses that are required by the student’s department major are governed by the faculty of that department; approval of these course substitutions is needed only from the faculty adviser and the department chair. All petitions must be forwarded to the office of the dean 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 adviser. The mark of R will be assigned to those registered for the course for zero credit where attendance and performance are satisfactory; if unsatisfactory, the mark of W will be assigned. Courses completed with a mark of R do not
To register for a course on an audit basis, students must obtain the instructor’s authorizing signature and the adviser’s signature and must register for O semester hours. 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 one and one-half weeks of a summer session.

**Misconduct and Complaints**

**Student Academic Misconduct**

Regulations dealing with cases of cheating or plagiarism are delineated by a collegiate policy. 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 student-student collaboration 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 if they want to protest the action.

**Student Complaints Concerning Faculty Actions**

In cases where complaints do not involve alleged student academic misconduct, students with complaints against faculty first should attempt to resolve the issue with the faculty member. 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 faculty ombudsperson when attempting to resolve a complaint. 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.

**Professional Registration**

Registration as a professional engineer is governed by the laws of each state. The minimum requirements include graduation from an accredited engineering curriculum of at least four years, followed by at least four years of practical experience.

The agency that controls and monitors the licensing procedure in Iowa is the State of 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 at the University near the time of graduation. Graduates of unaccredited programs must complete at least one year of professional experience to be eligible to take the engineering fundamentals exam. 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 an advanced exam in a specialty area following a minimum of four years of approved professional experience. At this point, the graduate engineer is a registered “Professional Engineer.”

**Graduate Programs**

The general rules and regulations for the graduate programs are established by the Graduate College. However, the specific admission and degree requirements for each graduate engineering program are included in the sections devoted to the individual programs. Also included in those sections is a description of the financial aid available in each program and the principal areas of study and research.

**College Facilities**

**Engineering Library**

The Engineering Library is a center of college activity. Its collection includes 90,000 books and 600 periodicals. It is equipped with CD-ROM stations and videocassette players and provides study spaces for 100 library users.

**Iowa Computer-Aided Engineering Network (ICAEN)**

This facility provides primary support for instructional computing in the College of Engineering. ICAEN consists of approximately 100 engineering workstations. Each of these is a powerful computer joined with a high-resolution video display for graphics applications. These workstations are tied together by a high-speed network, allowing all stations to share common data, programs, and peripheral devices.

The workstations are augmented by a large number of Apple Macintosh computers that can function as stand-alone facilities, be tied to the workstation network or Weeg Computing Center facilities, or be used to access national computer networks. A variety of printers, plotters, and other specialized devices are available through the ICAEN system.

Software supported by ICAEN includes several programming languages, graphics and word processing facilities, and electronic mail. Also available are a number of contemporary software packages for computer-aided engineering, including two- and three-dimensional drafting and design, data analysis, mathematical evaluation, surface and solids modeling, finite element modeling and analysis, computer-aided manufacturing, system simulation, control system analysis, and electronic design.

ICAEN facilities are used by students throughout the undergraduate and graduate engineering programs and in all engineering disciplines. Several large student laboratories provide study spaces for 100 library users.
Computer Services

In addition to local facilities provided by ICAEN, services of the Weeg Computing Center are available to students and faculty of the college. Access to Weeg facilities is available at student computing laboratories in the college. The college’s Center for Computer-Aided Design, located in the Engineering Research Facility, has extensive computer facilities, including a large workstation network, an Alliant FX/8 mini-supercomputer, an Alliant FX/2800 supercomputer, and advanced graphics equipment for research in computer-aided design and real-time interactive simulation.

The electrical and computer engineering department has a network of SUN workstations for teaching and research. In addition, a number of minicomputers and microcomputers are available within the college for specialized use by students and faculty.

Engineering Career Services

Engineering Career Services (ECS) provides comprehensive career services to all College of Engineering students. A trained staff is available to assist students individually at every stage of the career planning and job search process, from discovering skills and abilities to developing specific strategies that make the job search efficient and successful.

ECS helps students gain hands-on experience during their undergraduate study by helping them seek summer internship and cooperative education positions, as early as their freshman summer. Services for graduating students include current job listings, on-campus interviewing, and help with resume writing, job search skills, and interviewing skills.

Major ECS resources available to all engineering students include employer information, publication of current job openings (part-time, summer, and cooperative education) and information on hiring trends.

College Organization

The College of Engineering is organized into six departments and three research units. The six departments are biomedical engineering, chemical and bioengineering chemical, civil and environmental engineering, electrical and computer engineering, industrial engineering, and mechanical engineering. Each department offers undergraduate and graduate degree programs. Information about each of the degree programs follows in later sections.

The three research units are the Iowa Institute of Hydraulic Research, the Center for Computer-Aided Design, and the Iowa Institute of Biomedical Engineering.

Iowa Institute of Hydraulic Research

The Iowa Institute of Hydraulic Research (IIHR) has been widely acknowledged for many years to be an international leader in numerous areas of hydraulic engineering and fluid mechanics. Its research activities began in 1919 and in 1931 it was organized formally to coordinate capabilities, facilities, and resources available at the University for research on problems in engineering hydraulics and hydrology. It soon broadened its scope of activities to include fluid mechanics.

Active programs of basic and applied engineering research are conducted at IIHR in five modern, well-equipped laboratories with total floor space exceeding 72,000 square feet. Programs currently are being pursued in the following areas: sediment-transport mechanics; river engineering; dispersion processes; ice/arctic engineering; hydraulic structures; water resources simulation; computational hydrodynamics and fluid mechanics; hydrology; ship hydrodynamics; boundary layers (with emphasis on thick and three-dimensional boundary layers); turbulence and turbulent shear flows; and water-particle dynamics.

High-level involvement of graduate students is a hallmark of most IIHR projects. Because it is a unit of the College of Engineering, and because it is heavily involved in fluidics engineering for industry and in fundamental research programs, IIHR provides unique opportunities for valuable research and engineering experience to advanced-degree students and postdoctoral trainees as part of their educational programs.

Center for Computer-Aided Design

The Center for Computer-Aided Design was founded in 1982 to enhance research and development of mechanical system design methods using modern computer technology and simulation-based tools. In 1987, the Industry/University Cooperative Research Center for Simulation and Design Optimization of Mechanical Systems, sponsored by the National Science Foundation, was formed within the center. It is currently supported by some 20 industrial members. To advance research in vehicle driving simulation, the center established the Iowa Driving Simulator in 1990. As a result of the center’s ground-breaking research and its commitment to state-of-the-art simulation technology, the U.S. Department of Transportation in 1992 selected the center to be the host site for the National Advanced Driving Simulator (NADS).

The center’s research program focuses on mechanical system dynamic analysis and design, control systems analysis, structural optimization, dynamic systems visualization, and operator-in-the-loop simulation. A research facility, including an Alliant FX/2800 supercomputer, an Alliant FX/8 mini-supercomputer, a heterogeneous network of workstations ranging from desktop systems to high-performance 3-D graphics workstations, and other related computer equipment, supports the faculty, staff, and students associated with the center. Center researchers also have access to the Iowa Driving Simulator. The most advanced facility of its kind in the United States, the simulator is composed of an Evans and Sutherland CT6 Image Generator and a Gould front-end computer, a Harris Nighthawk 4404 real-time computer, and the center’s Alliant FX/2800. The center also makes this resource available to researchers from other University departments and to non-University researchers.

Faculty, staff, and students participating in the center lead the nation in research on operator-in-the-loop simulation and mechanical systems design and analysis. The center distributes the technology and software developed by its researchers to government and industrial participants for use in a broad range on mechanical and structural design activities.

Iowa Institute of Biomedical Engineering

The Iowa Institute of Biomedical Engineering was founded primarily to maximize the economic benefits that Iowa can realize from the University’s recognized strengths in the interdisciplinary areas of biomedical engineering and science. The institute accelerates the development of innovative biomedical and health care products from research and development, secures patents for newly developed products and processes, and transfers these innovations to Iowa industries.

The institute also helps Iowa industries improve productivity through effective utilization of new biomedical engineering techniques. It has developed ties with several Iowa companies and has provided research information on the construction of specialized vehicles for persons with disabilities and antivibration materials designed to alleviate the severity of industrial injuries caused by pneumatic tools.

Graduate and undergraduate student participation in interdisciplinary research and development is encouraged and supported by the institute. Institute faculty members engage in numerous consulting activities for industry, government, and other universities.

Course Numbering System

The title of each course offered by the College of Engineering is preceded by a two-digit prefix and a three-digit suffix separated by a colon. The first digit of the prefix is 5, which identifies the course as one offered by the College of Engineering.
The second digit of the prefix identifies the engineering core courses or the courses offered by the departments as follows.

1–Biomedical engineering
2–Chemical and biochemical engineering
3–Civil and environmental engineering
5–Electrical and computer engineering
6–Industrial engineering
7–Engineering core
8–Mechanical engineering

The two- or three-digit suffix of a course number identifies the level and type of course. Generally the suffix numbers below 100 designate courses primarily for undergraduates, numbers 100 to 199 designate courses for undergraduates and graduates, and numbers 200 and above designate courses primarily for graduates. The table below provides a more detailed listing of course numbers and the information they convey about level and type of course.

1-6–Freshman core courses
7-19–Sophomore core courses
20-29–Junior core courses
30-89–Required courses in undergraduate programs
91-94–Undergraduate professional program
95-97–Contemporary topics courses for undergraduates
98–Individual investigation courses for undergraduates
101-109–Courses for which little or no engineering, science, or mathematics background is required
110-189–Undergraduate elective or lower-level graduate course
190–Readings courses for nonmajors
191-194–Seminars for undergraduates and graduates
195-197–Contemporary topics courses for undergraduates and graduates
198–Individual investigations for graduates
199–M.S. thesis research
210-289–Upper-level graduate courses
291-294–Seminars for graduates
295-297–Contemporary topics courses for graduates
299–Ph.D. thesis research

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. The prerequisites and corequisites listed in each course description are given in terms of the courses offered at this university. Students who do not meet these requirements 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. Such students 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. Undergraduate nonmajors may enroll in engineering courses only by consent of the assistant to the dean. 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 satisfactorily undertake the course work.

Engineering Core Courses

All of the undergraduate engineering curricula, which are detailed in the following sections, build upon a core program as described in the earlier section entitled "Undergraduate Curriculum." Course descriptions follow for those courses of the core program that are offered through the College of Engineering. Not all of the following courses are required for each engineering major. Course requirements in a specific major are given in the curriculum listing in the section for that major. None of the following courses are available to nonmajors unless special permission is obtained from the assistant to the dean.

Engineering Core Courses

57:000 Cooperative Education Training 3 s.h.
Assignment: Engineering
For undeclared and undesignated engineering majors participating in the Cooperative Education Program; students register in this course during work assignment periods. Admission to Cooperative Education program and consent of faculty adviser required.

57:1 Engineering Honors Seminar 0 s.h.
May be repeated. Admission to the College of Engineering Honors Program and sophomore standing required.

57:2 he-teaching Internship: Engineering 0 s.h.
Students work with a professor teaching a course already completed by the students; students learn how to design and grade an exam, prepare for and give lectures, hold office hours for students, and develop classroom materials. Students must be nominated by department chair and meet eligibility requirements (available from associate dean of engineering).

57:5 Engineering I 3 s.h.

57:6 Engineering II 3 s.h.

57:7 statics 2 s.h.
Vector algebra, forces, couples, resultant of force-couple systems; Newton's laws, friction, equilibrium analysis of particles and finite bodies, control, moments of inertia, applications. Prerequisite: 22M:15. Corequisites: 22M:36 and 29:17.

57:8 Electrical Circuits 3 s.h.

57:9 Thermodynamics I 3 s.h.
Basic elements of classical thermodynamics, including first and second laws, reversibility and irreversibility, Carnot cycle, properties of pure substances; closed simple systems and one-dimensional steady flow systems, engineering applications. Prerequisites: 4:13 and 29:17. Corequisite: 22M:36.

57:10 Dynamics 3 s.h.
Vector calculus, Newton's laws, 3 D motion of multiparticle systems and 2-D motion of rigid bodies; applications. Prerequisites: 57:7 and 22M:36.

57:12 Linear Systems Analysis 3 s.h.
Analysis of continuous and discrete time systems; system classifications; system descriptions in terms of differential or difference equations and block diagrams; frequency domain analysis using Fourier and Laplace transforms; time domain analysis using convolution. Prerequisites: 57:8 and 22M:41.

57:14 Engineering Economy 3 s.h.
Basic concepts of engineering economy: time value of money, cash flow equivalence, depreciation, tax considerations, cost accounting overview; main analysis techniques-present worth, uniform annual cost, rate of return, benefit/cost ratio, replacement analysis and break even analysis. Prerequisite: 22M:36.

57:15 Materials Science 3 s.h.
Foundation course; relationship between structure and properties of materials at atomic, macro, micro level. Prerequisite: 4:13. Corequisite: 22M:35.

57:17 Computers in Engineering 3 s.h.
Digital systems and control using microcontroller based computers; computer organization, machine language, formatting formats, data types, assembly language, assemblers, cross development systems, serial and parallel I I O; system control using polling and interrupts; lab arranged. Sophomore standing required. Prerequisite: 57:6.

57:18 Principles of Electronic Instrumentation 4 s.h.
Principles of operation of diodes and field-effect and bipolar transistors; bias and small-signal design and analysis techniques; FETs and switches and amplifiers; operational amplifier circuits; LC fabrication technology; signal conditioning and data conversion; laboratory included. Prerequisite: 57:8.

57:19 Mechanics of Deformable Bodies 3 s.h.
Elementary theory of deformable bodies, stress, strain; application to beams, columns, shafts, pressure vessels, axial, transverse, bending torsion, combined and buckling loads. Prerequisite: 57:7. Corequisite: 22M:41.

57:20 Mechanics of Fluids and Transfer Processes 4 s.h.
Laws governing fluid flow and transport processes; hydrostatics. transfer of mass momentum and energy; laminar and turbulent flow and boundary layers; engineering applications, including measurement of fluid and flow properties. Prerequisites: 22M:42, 57:9, and 57:10.

57:21 Principles of Design I 3 s.h.
Two to three week projects involving identification, modeling, analysis of design problems using optimization principles, methodology, computer aided design. Junior standing required. Prerequisites: 22M:40 and 57:7.

57:22 Principles of Design II 3 s.h.
Probabilistic and statistical aspects of engineering design; probabilistic models, distribution fitting, discrete time simulation, project management, component and system reliability; emphasis on model construction, design of simulation experiments, applications in engineering design, technical report writing. Prerequisites: 57:21 and 22S:39.

Chair: Vijiay K. Goel
Associate professors: Edwin L. Dove, Robert Tucker
Visiting associate professor: David Wilder
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Biomedical Engineering

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Graduate courses are offered at this university. Students who do not meet these requirements 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. Such students 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. Undergraduate nonmajors may enroll in engineering courses only by consent of the assistant to the dean. 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 satisfactorily undertake the course work.

Engineering Core Courses

All of the undergraduate engineering curricula, which are detailed in the following sections, build upon a core program as described in the earlier section entitled "Undergraduate Curriculum." Course descriptions follow for those courses of the core program that are offered through the College of Engineering. Not all of the following courses are required for each engineering major. Course requirements in a specific major are given in the curriculum listing in the section for that major. None of the following courses are available to nonmajors unless special permission is obtained from the assistant to the dean.

57:000 Cooperative Education Training 3 s.h.
Assignment: Engineering
For undeclared and undesignated engineering majors participating in the Cooperative Education Program; students register in this course during work assignment periods. Admission to Cooperative Education program and consent of faculty adviser required.

57:1 Engineering Honors Seminar 0 s.h.
May be repeated. Admission to the College of Engineering Honors Program and sophomore standing required.

57:2 he-teaching Internship: Engineering 0 s.h.
Students work with a professor teaching a course already completed by the students; students learn how to design and grade an exam, prepare for and give lectures, hold office hours for students, and develop classroom materials. Students must be nominated by department chair and meet eligibility requirements (available from associate dean of engineering).

57:5 Engineering I 3 s.h.

57:6 Engineering II 3 s.h.

57:7 statics 2 s.h.
Vector algebra, forces, couples, resultant of force-couple systems; Newton's laws, friction, equilibrium analysis of particles and finite bodies, control, moments of inertia, applications. Prerequisite: 22M:15. Corequisites: 22M:36 and 29:17.

57:8 Electrical Circuits 3 s.h.

57:9 Thermodynamics I 3 s.h.
Basic elements of classical thermodynamics, including first and second laws, reversibility and irreversibility, Carnot cycle, properties of pure substances; closed simple systems and one-dimensional steady flow systems, engineering applications. Prerequisites: 4:13 and 29:17. Corequisite: 22M:36.
Students who complete the program may pursue traditional career opportunities in engineering, such as those rooted in mechanical engineering disciplines, or they may pursue new areas of engineering, such as design and development of biomedical instrumentation, diagnostic aids, life-support systems, prosthetic and orthotic devices, and man-machine systems. 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.

Several engineering college faculty members have joint appointments in the College of Medicine. Both biomedical engineering undergraduates and graduate engineering students participate actively with college faculty members and their colleagues in the life and health sciences on projects of mutual interest.

## Undergraduate Program

The curriculum outlined below is built on the foundation provided by the College of Engineering core curriculum and has been developed to prepare students for the challenges and opportunities associated with careers in the biomedical engineering profession. The program has been carefully designed to enable students to satisfy the entrance requirements of the Graduate College and, with the selection of a three-course sequence in organic chemistry in the elective courses, the Colleges of Medicine and Dentistry.

### Curriculum

*The humanities and social science electives must be selected to satisfy the humanities and social science requirements of the College of Engineering.

#### FRESHMAN YEAR

**First Semester**

- 413 Principles of Chemistry I 3 s.h.
- 10:3 Accelerated Rhetoric (or 10:1-2) 4 s.h.
- 22M:35 Engineering Calculus I 4 s.h.
- 57:5 Engineering I 3 s.h.
- 51:90 BME Freshman/Sophomore Forum 0 s.h.

**Second Semester**

- 4:14 Principles of Chemistry II 3 s.h.
- 4:16 Principles of Chemistry Lab I 2 s.h.
- 22M:36 Engineering Calculus II 4 s.h.
- 29:17 Introductory Physics I 4 s.h.
- 57:6 Engineering II 3 s.h.
- 51:90 BME Freshman/Sophomore Forum 0 s.h.

#### SOPHOMORE YEAR

**First Semester**

- 22M:40 Matrix Algebra for Engineers 2 s.h.
- 22M:41 Differential Equations for Engineers 3 s.h.
- 29:18 Introductory Physics II 4 s.h.
- 57:7 Statics 2 s.h.
- 51:90 BME Freshman/Sophomore Forum 0 s.h.

**Second Semester**

- 22M:42 Vector Calculus for Engineers 3 s.h.
- 57:8 Electrical Circuits 3 s.h.
- 57:9 Thermodynamics I 3 s.h.
- 57:10 Dynamics 3 s.h.
- 72:154 Biomedical Engineering Physiology 4 s.h.
- 51:90 BME Freshman/Sophomore Forum 0 s.h.

#### JUNIOR YEAR

**First Semester**

- 57:17 Computers in Engineering 3 s.h.
- 57:18 Principles of Electronic Instrumentation 4 s.h.
- 51:40 Biological Systems Analysis I 3 s.h.
- Engineering science core elective (see “Engineering Science Core Electives,” below) 3 s.h.
- *Humanities or social science elective* 3 s.h.
- 51:91 Professional Seminar: Biomedical Engineering 0 s.h.

**Second Semester**

- 22S:39 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
- Engineering science elective (see below) 3 s.h.
- 57:21 Principles of Design I 3 s.h.
- 51:70 Biomaterials I 4 s.h.
- 51:80 Biomedical Measurements I 3 s.h.
- 51:91 Professional Seminar: Biomedical Engineering 0 s.h.

#### SENIOR YEAR

**First Semester**

- 51:85 Biomedical Engineering Systems Design 3 s.h.
- Biomedical engineering elective (see “Biomedical Engineering Electives,” below) 3 s.h.
- Biomedical engineering science elective (see below) 3 s.h.
- Biomedical engineering elective (see below) 3 s.h.
- *Humanities or social science elective* 3 s.h.
- 51:91 Professional Seminar: Biomedical Engineering 0 s.h.

**Second Semester**

- 51:96 Biomedical Engineering Design Project 4 s.h.
- Biomedical engineering electives (see below) 5 s.h.
- *Humanities or social science electives* 6 s.h.
- 51:91 Professional Seminar: Biomedical Engineering 0 s.h.

#### Engineering Science Core Electives

One of these:

- 57:12 Linear Systems Analysis 3 s.h.
- 57:15 Materials Science 3 s.h.
- 57:19 Mechanics of Deformable Bodies 3 s.h.
- 57:20 Mechanics of Fluids and Transfer Processes 4 s.h.

#### Engineering Science Electives

One of these:

- 57:12 Linear Systems Analysis 3 s.h.
- 57:15 Materials Science 3 s.h.
- 57:19 Mechanics of Deformable Bodies 3 s.h.
- 57:20 Mechanics of Fluids and Transfer Processes 4 s.h.

A 100-level, 51-prefix course or other engineering science course approved by the adviser

#### Biomedical Engineering Electives

A total of 14 semester hours must be chosen with at least one course (3 semester hours) from the biomedical engineering electives and one 51-prefix course (3 semester hours) from the biomedical engineering science electives. The lists are as follows.

**BIOENGINEERING DESIGN ELECTIVES**

- 55:32 Introduction to Digital Design (or equivalent) 3 s.h.
- 55:8 Introduction to Electrical Engineering Design 3 s.h.
- 57:22 Principles of Design II (or equivalent) 3 s.h.

**BIOENGINEERING SCIENCE ELECTIVES**

- 51:140 Biological Systems Analysis II 3 s.h.
- 51:145 Biomedical Computer Systems 3 s.h.
- 51:150 Biomechanics 3 s.h.
- 51:154 Biomechanics of Aging 3 s.h.
- 51:155 Cardiovascular Biomechanics 3 s.h.
- 51:160 Biotransport Processes 3 s.h.
- 51:165 Cardiovascular Systems and Aging 3 s.h.
- 51:171 Intermediate Biomaterials 3 s.h.
- 51:173 Metals as Biomaterials 3 s.h.
- 51:174 Ceramics and Glasses as Biomaterials 3 s.h.
- 51:177 Composite Materials 3 s.h.
- 51:180 Biomedical Measurements II 3 s.h.
- 51:185 Physics and Analysis of Biomedical Images I 3 s.h.
- 51:186 Physics and Analysis of Biomedical Images II 3 s.h.

**OTHER ACCEPTABLE BIOENGINEERING ELECTIVES**

- 51:351 Intermediate Mechanics of Deformable Bodies 3 s.h.
- 53:133 Finite Element Techniques in Engineering I 3 s.h.
- 55:32 Introduction to Digital Design 3 s.h.
- 55:33 Introduction to Software Design 3 s.h.
- 55:41 Electronic Circuits 4 s.h.
- 55:42 Signals and Systems 3 s.h.
- 55:50 Communication Systems 3 s.h.
- 55:148 Digital Image Processing 3 s.h.
- 55:164 Computer-Based Control Systems 3 s.h.
Biomedical Engineering Subtracks

Biomedical engineering majors are encouraged to pursue one of the following three subtrack curricula.

BIOENGINEERING/BIOFLUIDS

Fifth Semester

57:19 Mechanics of Deformable Bodies 3 s.h.
or
57:20 Mechanics of Fluids and Transfer Processes 4 s.h.

Seventh Semester

57:22 Principles of Design II (or equivalent) 3 s.h.
51:150 Biomechanics 3 s.h.
or
51:151 Intermediate Mechanics of Deformable Bodies 3 s.h.
or
58:160 Intermediate Mechanics of Fluids 3 s.h.

Eighth Semester

Two of these:

51:155 Cardiovascular Biomechanics 3 s.h.
51:160 Biotransport Processes 3 s.h.
51:177 Composite Materials 3 s.h.
53:133 Finite Element Techniques in Engineering I 3 s.h.

BIOMATERIALS

Fifth Semester

57:19 Mechanics of Deformable Bodies 3 s.h.

Seventh Semester

57:22 Principles of Design II (or equivalent) 3 s.h.
51:150 Biomechanics 3 s.h.

Eighth Semester

Two of these:

51:155 Cardiovascular Biomechanics 3 s.h.
51:160 Biotransport Processes 3 s.h.
51:177 Composite Materials 3 s.h.

BIOELECTRICAL AND BIOSYSTEMS

Fifth Semester

57:12 Linear Systems Analysis 3 s.h.

Seventh Semester

55:32 Introduction to Digital Design 3 s.h.
55:42 Signals and Systems 3 s.h.
51:145 Biomedical Computer Systems 3 s.h.

Graduate Programs

The goal of graduate study at both the M.S. and Ph.D. levels is to educate students in the disciplines of biomedical engineering more deeply and broadly than is possible at the B.S. 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 biomechanics, cardiovascular and fluid biomechanics, biomaterials, bioinstrumentation, biosystems, 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 any particular field may accommodate these preferences 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 M.S. in biomedical engineering requires a minimum of 30 semester hours of course work and research. Students may choose either a thesis or nonthesis program; the latter must include at least 6 semester hours of 200-level courses. Students who choose the thesis program may count between 6 and 9 semester hours of credit for thesis research and writing toward satisfying the 30-semester-hour limit. Either degree may be a terminal degree or an intermediate step toward a Ph.D.

A tentative plan of study for each student is determined through consultation with an adviser. 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 semester hours of course work. The plan of study is then submitted for review to the department chair.

To earn the M.S., students are required to attain a 3.00 minimum grade-point average on a minimum of 30 semester hours of graduate work and successfully complete the final examination administered by their committee.

The requirements for the M.S. may be completed in one calendar year. However, students with assistantship duties and/or other constraints may need up to two calendar years to complete the degree.

Candidates for either of the M.S. degrees must have satisfactorily completed the following courses or their equivalents as undergraduates or graduates.

58:113 Mathematical Methods in Engineering 3 s.h.
51:130 Biomedical Engineering Labs 3 s.h.
72:154 Biomedical Engineering Physiology 4 s.h.

Two biomedical engineering courses chosen from any two of the bioelectrical, biomaterials, and biomechanics areas (the acceptable course(s) in each area are listed below):

51:141 Graduate Biological Systems Analysis 3 s.h.
51:150 Biomechanics 3 s.h.
or
51:155 Cardiovascular Biomechanics 3 s.h.
51:171 Intermediate Biomaterials 3 s.h.

An additional 15 semester hours or more as approved by the student’s adviser

The student’s plan of study should provide for as much advanced work as aptitude and previous preparation permit.

Biomedical Engineering Project Traineeship

Under the nonthesis M.S. program, the biomedical engineering department offers a small number of biomedical engineering project traineeships to select incoming graduate students who are interested in acquiring practical engineering project experience.

First Semester

58:113 Mathematical Methods in Engineering (or equivalent) 3 s.h.
51:130 Biomedical Engineering Labs 3 s.h.
51:286 Advanced Biomedical Engineering Project I 3 s.h.
51:287 Advanced Biomedical Engineering Project II 3 s.h.
51:288 Advanced Biomedical Engineering Project III 3 s.h.

Second Semester

58:115 Finite Element Techniques in Engineering I (or equivalent) 3 s.h.
51:287 Advanced Biomedical Engineering Project II 3 s.h.
51:288 Advanced Biomedical Engineering Project III 3 s.h.

Doctor of Philosophy

The doctoral program, including acceptable transfer credits, requires a minimum of 72 semester hours of graduate work. Of these 72 hours, at least 60 semester hours must be in formal course work taken after the B.S. is awarded, and at least 12 semester hours must
be in research and thesis credits. For students entering with an M.S., at least 36 semester hours of formal course work must be completed past the M.S., and at least 12 semester hours must be research and thesis credits. Based on research progress, examination results, or other measures, the student’s graduate committee may require additional formal course work in order to strengthen areas of perceived weakness.

Admission to the Ph.D. program is conditional until students successfully complete a qualifying examination, which is administered by the biomedical engineering faculty. The decision on whether the student’s performance on this examination is adequate for admission to the Ph.D. program is made by the biomedical engineering faculty.

Admission to Ph.D. candidacy requires a 3.25 minimum grade-point average on all graduate work done at The University of Iowa. Upon completion of the course work specified in the plan of study, with the grade-point average stipulated above, and upon the adviser’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.

Admissions and Financial Assistance

Students who have earned a baccalaureate or postbaccalaureate degree in an engineering curriculum or a curriculum in the mathematical or physical sciences, with a 3.00 minimum grade-point average and an acceptable score on the Graduate Record Examination (CRE) General Test (combined verbal and quantitative score of 1250) are eligible to be considered for admission to Master of Science study in biomedical engineering. Students may, under exceptional circumstances, be considered for conditional admission with a lower grade-point average and GRE General Test scores. Students on conditional status must achieve regular status within 8 semester hours of initial registration by attaining a 3.00 minimum grade-point average 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 study grade-point average, and other factors also may be considered in making admission decisions.

Students qualified for graduate study are encouraged to apply for fellowships and assistantships. Direct inquiries should be made to the departmental chair.

Special Facilities and Laboratories

Required Course Laboratories

There are two laboratories associated with two required undergraduate courses: Biomaterials I and Biomedical Measurements I.

The Biomaterials Laboratory is equipped to test mechanical and thermal properties of biomaterials and thin sectioning of hard tissues and prostheses for histology. This laboratory also is used for 51:173 Metals as Biomaterials and 51:174 Ceramics and Glasses as Biomaterials.

The Biomedical Measurements Laboratory is equipped for measuring biomedical variables of clinical and physiological interest and for designing electronic instrumentation in biomedical engineering. This laboratory also is used for 51:180 Biomedical Measurements 11.

Research Facilities and Laboratories

APPLIED MECHANICS LABORATORY

The Applied Mechanics Laboratory is equipped to study the biomechanics of small bone specimens under complex dynamic loading conditions.

BIOMATERIALS LABORATORY

The Biomaterials Laboratory is equipped to test mechanical thermal properties of biomaterials and thin sectioning of hard tissues and prostheses for histology.

HEMODYNAMICS LABORATORY

The Hemodynamics Laboratory is equipped to study cardiovascular fluid dynamics, particularly flow past valve prostheses and flow in the human aorta. In addition, the laboratory has an image-processing system based on the VAX computer with a Gould/DeAnza IP8400 image processor with video camera digitizer.

BIOMECHANICAL LABORATORIES I AND II

The biomechanics laboratories are equipped to study the biomechanics of head and neck trauma, lumbar spine kinetics, and the effect of vibration on the spine.

BIOMEDICAL IMAGE PROCESSING AND COMPUTING LABORATORY

This laboratory has an image-processing system used to digitize and analyze anatomical slides, photographs, X-rays, and CAT scan images.

BIOSYSTEMS laboratory

The Biosystems Laboratory is equipped to conduct physiological experiments on the cardiovascular and respiratory systems.

Holography Laboratory

The Holography Laboratory is a branch of the Iowa Laser Facility and is housed in the Engineering Building. The lab contains the following equipment: laser, helium neon, 15 milliwatt, wavelength = 633nm; laser, helium cadmium, 15 milliwatt, wavelength = 442nm; Newport research series vibration isolation table (4x 8 foot) with four pneumatic legs; Newport instant holographic camera; optical components-lenses, beamsplitters, prisms, spatial filters, gratings, shutter, shutter controller; plate holder, lens mounts, translation table, tilt table, and rotation stage. Other lasers may be available on a short term basis from the Iowa Laser Facility.

The laboratory’s capabilities include holographic interferometry using the static zero order fringe method, the dynamic fringe counting method, and/or the Haidinger fringe method for interpretation; dynamic real-time holographic interferometry; production of holographic gratings; and production of white light viewable images.

IMAGE PROCESSING LABORATORY

This laboratory is equipped to perform the sophisticated image processing procedures. It’s equipment centers around a Vax cluster of 5 VAX workstations, a Macintosh Iici, and one Micro Vax II, to which is connected a Gould/DeAnza IP8400 vector image processor, a video graphics copy device, a table digitizer, a video camera that is used as a densitometer and various other peripherals. In addition, one of the Vax stations is connected to a video frame grabber for image digitization. The cluster is connected to the University-wide broadband communications system through which data can be transferred from ICAEN, all Weeg machines, all hospital computers, and off-campus computers (such as the national supercomputer system).

Many investigators use this facility to analyze cardiac images obtained from cine-CT or ultrasound, and for cross-section of human spines, dental specimens, and so forth. Currently being developed is a series of courses on medical imaging that will use this equipment.
Courses

Biomedical Engineering

51:000 Cooperative Education Training 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. Admission to Cooperative Education Program and consent of faculty adviser required.

51:40 Biological Systems Analysis I 3 s.h.
Application of principles of control theory to analysis of biological systems; development of computer simulation techniques to study dynamic response of physiological systems. Offered fall semesters. Prerequisites: 226:41 and 72:154.

51:70 Biomechatronics 4 s.h.

51:80 Biomedical Measurements I 1 s.h.
Concepts of digital and analog design, with emphasis on circuits for biomedical applications using operational amplifiers, active filter, data acquisition, conversion and interfacing to microcomputer; patient safety; clinical circuits; laboratory projects. Offered spring semesters. Prerequisites: 51:40 and 57:18. Corequisite: 72:154.

51:85 Biomedical Engineering Systems Design 3 s.h.
Design of system elements, prosthetics; materials; case study of biomechanical system examples; computer-aided design methods, design of subsystems, product reliability. Offered fall semesters. Prerequisites: 51:70 and 51:85 and senior standing.

51:90 BME Freshman Sophomore Forum 0 s.h.
Presentation by faculty, graduate students, collaborators from the Colleges of Medicine, Dentistry, Law, may include visits to laboratories and industries.

51:91 Professional Seminar: Biomedical Engineering 0 s.h.
Professional aspects of biomedical engineering presented through lectures and discussions by guest speakers, field trips, film, panel discussions. May be repeated. Junior standing required.

51:98 Individual Investigations: Biomedical Engineering arr.
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. Consent of instructor required.

51:130 Biomedical Engineering Labs 3 s.h.
Introduction to the research labs associated with individual faculty members of the Department of Biomedical Engineering; laboratory experience in cardiovascular and respiratory control, hemodynamics, biomaterials, holography, biomechanics, vibration. Graduate standing required.

51:148 Holographic Methods 3 s.h.
Concepts of diffraction and wavefront reconstruction; in-line and off-axis holography, and implementing white light viewable holograms, including Benton, open-aperture, and Demouy holograms; applications of holography in experimental deformation analysis of solids, fluid flow visualization, display and image processing. Prerequisites: 29:18 or 29:117 or 29:130 or equivalent.

51:171 Intermediate Biomechatronics 3 s.h.
Property structure relationship of biological and implant materials; their interactions in vivo. Prerequisite: 51:70 or equivalent.

51:173 Metals as Biomaterials 3 s.h.
Property structure relationship of metals used to fabricate implant materials; their interactions in vivo. Prerequisite: 51:70 or equivalent.

51:174 Ceramics and Glasses as Biomaterials 3 s.h.
Property structure relationship of ceramics and glasses used to fabricate implant materials; their interactions in vivo. Prerequisite: 51:70 or equivalent.

51:177 Composite Materials 3 s.h.
Principles of mechanics of solid multiphase systems; applications in lightweight structural composites; materials replacement of human tissues; composites with fibrils, lamellar, particulate, cellular structures. Prerequisite: 51:151. Same as 53:137, 58:170.

Biomechanics/Biofluids

51:150 Biomechanics 3 s.h.

51:151 Intermediate Mechanics of Deformable Bodies 3 s.h.
Application of equilibrium analysis, strain-displacement relations, constitutive relationships to practical structural systems and elementary plane elasticity problems. Offered fall semesters. Prerequisite: 57:19. Same as 53:140, 58:150.

51:154 Biomechanics of Aging 3 s.h.
Techniques to quantify biomechanical/electrical characteristics of hard, soft tissues; kinematics, kinetics of body segments during daily activities, effect of age on hard and soft tissues, joints, nervous system, hearing, vision, cardiovascular system, spine; surgical procedures to alleviate pain, restore joint function; preventive measures to reduce fracture. Prerequisite: 57:10. Corequisite: 72:154.

51:155 Cardiovascular Biomechanics 3 s.h.
Anatomy and physiology of the human circulatory system; pressure flow relationship in arteries, elastic properties of the arterial wall, pulsatile flow dynamics, flow dynamics past valves; prostheses, flow through capillaries, force-velocity studies of heart muscle, force-deformation analysis of left ventricle, application of imaging techniques on left ventricular dynamics. Prerequisites: 57:19, 57:20, and 72:154.

51:160 Biostatic reportedly 3 s.h.
Application of momentum, mass, and mass transfer principles to biological systems, with emphasis on human beings; fluid mechanics of human tissues, different flows in the circulatory system, heart exchange between circulatory system and its environment; mass transfer in membranes. Prerequisites: 57:20 and 72:154.

51:165 Cardiovascular Systems of Aging 3 s.h.
Physiology and quantitative analysis of the cardiovascular system, effect of aging on its physiologuy, morphology, functioning, experimental, systems, and finite element analyses of the effects of aging applied to myocardial and vascular material properties, vascular mechanics and reactivity, pulmonary and arterial system dynamics.

51:250 Advanced Biomechanics 3 s.h.
Anatomy of the human musculoskeletal system, biomechanical basis of joint degeneration, and its evaluation techniques; mechanical properties of hard and soft tissues, kinematics, kinetics of human joints, including those for locomotion; experimental determination of joint forces, spinal biomechanics, design, analysis of artificial joints. Prerequisite: 51:150.

51:252 Advanced Cardiac Mechanics 3 s.h.
Anatomy and physiology of the human heart; cardiac muscle mechanics; imaging techniques for cardiac structures; 3D reconstruction of the human left ventricle; modeling of the heart as a chamber; finite element analysis of the left ventricle; experimental techniques in cardiology. Prerequisite: 51:155.

51:253 Clinical Biomechanics of Spine 3 s.h.
Anatomy of the spine (human, musculoskeletal system); biomechanical basis of joint degeneration and its evaluation techniques; mechanical properties of spinal ligaments, kinematics and kinetics of the spine, mathematical models of spine, scoliosis, braces for spinal stabilization, surgical procedures for internal fixation. Prerequisite: 51:150.

51:257 Theory of Viscoelasticity 3 s.h.
Linear theory of viscoelasticity; non-aging materials; Boltzmann superposition principle, linear thermostatics; viscoelastic foundations; time temperature supposition principle; boundary and initial value problem. Prerequisite: 51:151. Same as 53:247, 58:257.

Biomedical Engineering

51:140 Biological Systems Analysis II 3 s.h.
Application of control and systems analysis to study of biological systems; identification and simulation techniques utilizing linear analysis, deterministic and stochastic models; selected aspects of the cardiorespiratory system used as examples and problems. Prerequisite: 51:40 or 51:141.

51:141 Graduate Biological Systems Analysis 3 s.h.
Application of principles of system control theory to analysis of biological systems; development of computer simulation techniques to study dynamic response of physiological systems. Graduate standing required. Corequisite: 72:154.

51:145 Biomedical Computer Systems 3 s.h.
Data acquisition and experimental control in assembly language and a high-level language (FORTRAN, Pascal, or C) on microcomputers; digital signal processing techniques for analysis of EFT, auto and crosscorrelation heat averaging, FIR and IIR filtering. Prerequisites: 51:40 and 57:17. Corequisite: 51:80 or consent of instructor.

51:180 Biomedical Measurements 1 3 s.h.
Signals and noise, types of measurements, measurement errors; application of biomedical transducers to measure temperature, flow, force, strain; image processing; computer applications. Prerequisite: 51:80 or 51:181.

51:181 Graduate Biomedical Measurements 2 3 s.h.
Design, development, utilization of contemporary electronic instrumentation for measuring biomedical variables of clinical and research interest. Prerequisites: graduate standing and a basic electronics course. Corequisite: 72:154.

51:185 Physics and Analysis of Biomedical Images I 3 s.h.
Interaction of radiation with matter, physical principles of medical imaging modalities (X-ray, CT, nuclear medicine, PET, MRI, ultrasound); medical image reconstruction (-back projection), analysis (digital processing), clinical interpretation. Prerequisites: 51:40 or 51:141 or equivalent; 22M:42 or 58:113 or equivalent or 57:17 or equivalent.

51:186 Physics and Analysis of Biomedical Images II 3 s.h.
Physics and analysis of biomedical images; ultrasound, MRI, X-ray, tomography, PET etc.; temporal and spatial arrays, imaging segmentation, shape analysis, pattern recognition, parametric representation, texture analysis, limits of information content. Prerequisite: 51:185.

51:240 Advanced Biological Systems Analysis 3 s.h.
Analysis techniques from biocontrol (identification, estimation), signal processing (time series analysis, matched filters, adaptive estimation), information theory applied to the cardiovascular and ocularimetric systems. Prerequisite: 51:146 or consent of instructor.

51:245 Digital Processing of Biomedical Signals 3 s.h.
Techniques and analysis of signals with examples, with biomedical problems; system representation, special analysis, model-based spectral analysis, random signals techniques, numerical method, FIR and IIR digital filters; systems with noise. Prerequisites: 51:141 and 51:145, or consent of instructor.

Graduate Seminars, Advanced Topics,

51:190 Readings in Biomedical Engineering arr.
For graduate students with nonengineering majors who want credit in undergraduate biomedical engineering courses. May be repeated. Graduate standing in a discipline other than engineering required.

51:191 Seminar in Biomedical Engineering 0 s.h.
Presentation of recent advances in biomedical engineering. Graduate standing required.

51:195 Contemporary Topics in Biomedical Engineering arr.
New topics in biomedical engineering not covered in other courses; topics, frequency, and coverage determined by student/faculty interest. Senior or graduate standing required.

51:198 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. Graduate standing and consent of adviser required.

51:199 Research: Biomedical Engineering, M.S. of Thesis arr.
Experimental and/or analytical investigation of an approved topic for partial fulfillment of the requirements for the M.S. in thesis in biomedical engineering. Graduate standing and consent of adviser required.

51:246 Advanced Biomedical Engineering Project I arr.
Industrial or developmental biomedical engineering projects carried out by M.S. students in groups. Offered fall semesters. Graduate standing and consent of instructor required.
Chemical and Biochemical Engineering

Chair: Gregory R. Carmichael

Professors: J. Keith Beddow, Gregory R. Carmichael, Ravindra Datta, Jonathan S. Dordick

Professors emeriti: Karl Kammermeyer, James O. Osburn, Arthur F. Vetter

Associate professors: David G. Rethwisch, John M. Wiencek

Assistant professors: David W. Murhammer, Victor G.J. Rodgers

Adjunct assistant professor: Audrey Butler

Undergraduate degree: B.S.E. in Chemical Engineering

Graduate degrees: M.S., Ph.D. in Chemical and Biochemical Engineering

Chemical and biochemical engineering is the art and science of engineering applied to industrial processes in which raw materials are changed or separated into useful products. Chemical and biochemical engineers develop, design, and engineer the complete process as well as the equipment used in it. They choose the proper raw materials and operate the manufacturing facilities efficiently, safely, and economically.

Chemical engineers are involved in addressing today’s energy crisis, finding renewable raw materials to replace the dwindling natural resources, and working for pollution control. They are employed by basic industries such as chemicals, petroleum, specialty chemicals, coal, and solvents, as well as consumer-oriented industries such as plastics, food, fertilizers, pharmaceuticals, cosmetics, paints, and synthetic fibers.

Increasing numbers of chemical engineers are employed by new-materials manufacturing companies, biochemical industries, and environmental firms. They engage in research, process and product development, process and plant design, actual production operation, and sales. Many experienced chemical engineers become managers or administrators.

Undergraduate Program

The Bachelor of Science in Engineering is designed to meet modern technological requirements. Unlike most other fields of engineering, which are based primarily on physics and mathematics, chemical engineering principles are based on physics, chemistry, mathematics, and biological sciences. Courses in these disciplines, together with the common engineering core courses, provide a strong foundation.

During the junior and senior years, the emphasis is on chemical engineering courses such as heat and mass transfer, chemical reaction kinetics, process safety, unit operations laboratory, process dynamics and control, and process design. Experience in instrumentation, analysis, and design is obtained through an integrated laboratory program in the chemical engineering department. Routine use is made of computer-based data analysis, simulation, and design. A computer cluster is available for student use in the undergraduate lounge. Also included in the curriculum are elective courses in the humanities and social sciences.

Chemical engineering at Iowa gives students a chance to obtain a broad education that is at the leading edge of technology. It emphasizes fundamental concepts, problem solving, laboratory techniques, and the communication skills needed to keep pace in today’s and tomorrow’s technical world. Students are encouraged to gain research experience by working in individual laboratories.

Curriculum

*The humanities and social science electives must be selected to satisfy the humanities and social science requirements of the College of Engineering.

**At least 4 of the 6 semester hours of technical electives must be in the “engineering science” category.

FRESHMAN YEAR

First Semester

4:33 Principles of Chemistry I 3 s.h.
22M:35 Engineering Calculus I 4 s.h.
52:90 Freshman Seminar: Chemical and Biochemical Engineering 0 s.h.
57:5 Engineering I 3 s.h.
Rhetoric (10:1, 2, or 3) 4 s.h.
Social science elective 3 s.h.

Second Semester

4:14 Principles of Chemistry II 3 s.h.
4:16 Principles of Chemistry Lab I 2 s.h.
22M:36 Engineering Calculus II 4 s.h.
29:17 Introductory Physics I 4 s.h.
52:90 Freshman Seminar: Chemical and Biochemical Engineering 0 s.h.
57:6 Engineering II 3 s.h.

SOPHOMORE YEAR

First Semester

4:12 Organic Chemistry I 3 s.h.
22M:41 Differential Equations for Engineers 3 s.h.
29:18 Introductory Physics II 4 s.h.
52:41 Process Calculations 3 s.h.
52:91 Professional Seminar: Chemical Engineering 0 s.h.
57:7 Statics 2 s.h.

Second Semester

4:22 Organic Chemistry II 3 s.h.
(or advanced chemistry elective from approved list)
4:14 Organic Chemistry Laboratory 3 s.h.
52:42 Momentum Transport 3 s.h.
52:43 Chemical Engineering Thermodynamics 3 s.h.
52:91 Professional Seminar: Chemical Engineering 0 s.h.
*Humanities elective 3 s.h.

Senior Year

First Semester

4:33 Physical Chemistry I 3 s.h.
22M:72 Elementary Numerical Analysis 3 s.h.
52:44 Mass Transfer Operations 3 s.h.
52:91 Professional Seminar: Chemical Engineering 0 s.h.
57:8 Electrical Circuits 3 s.h.
57:15 Materials Science 3 s.h.

Second Semester

4:122 Physical Chemistry II 3 s.h.
(or advanced chemistry elective from approved list)
4:135 Physical Chemistry Laboratory 2 s.h.
22S:39 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
52:45 Chemical Reaction Kinetics 3 s.h.
52:87 Chemical Process Safety 3 s.h.
52:91 Professional Seminar: Chemical Engineering 0 s.h.
57:21 Principles of Design I 3 s.h.

Graduate Programs

The Department of Chemical and Biochemical Engineering offers curricula leading to the Master of Science and Doctor of Philosophy degrees. Through course work and research, students gain an understanding of the principles of chemical engineering science and then apply those principles to contemporary problems such as energy, environment, biotechnology, and materials. Research is emphasized since most opportunities for graduates are in research and development. A thesis is required for each degree.

All candidates in advanced degree programs are required to assist faculty members in teaching and research as part of the graduate training.

Research

Current research strengths of the Department of Chemical and Biochemical Engineering are in the areas of catalysis and reactor design, global and regional environmental research, separation
and bioseparation processes, biochemical engineering and applied biocatalysis, and particulate material processing sciences.

**Catalyst and Reactor Design**

Within the general field of kinetics, catalysis, and reaction engineering, research is being conducted in the areas of heterogeneous, homogeneous, supported molten-salt catalysis and supported molten-metal catalysis; gas-solid reactions; modeling and analysis of heterogeneous reactors; and design of novel reactor-separators, including membrane and catalytic distillation reactor-separators. Catalytic researchers are investigating a novel technique for biopolymer characterization equipment. 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 integration of biotechnology with traditional chemical engineering has led to an interdisciplinary area involving other engineering departments and the Departments of Chemistry, Biological Sciences, Biochemistry, and Microbiology and the College of Pharmacy.

The department also is active in solving 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 integration of biotechnology with traditional chemical engineering has led to an interdisciplinary area involving other engineering departments and the Departments of Chemistry, Biological Sciences, Biochemistry, and Microbiology and the College of Pharmacy.

The department also is active in the Center for Biocatalysis and Bioprocessing. The center’s laboratories provide state-of-the-art equipment in enzyme isolation, characterization, and applications, including several HPLC’s, all equipped with RI and photodiode array detectors, and including a preparative-scale HPLC; CC’S (capillary and packed capabilities); an FPLC; several spectrophotometers; a spectropho-photometer; a liquid scintillation counter; numerous temperature controlled shakers; preparative liquid chromatography systems; biopolymer characterization equipment (including DSC, TGA, and DMA); a freeze dryer; and standard organic synthesis equipment.

**Separation and Bioseparation Processes**

Research at The University of Iowa is devoted to developing better understanding and new techniques in the areas of separation and bioseparation processes. In particular, researchers are investigating a novel technique in ultrafiltration and microfiltration called transmembrane pressure pulsing. In this process, high frequency oscillating pressure across the membrane enhances the various fluxes through the membrane. In addition, electron paramagnetic resonance spectroscopy is being used to analyze temporal membrane fouling. Another new device is being investigated for preparative continuous electrophoresis. Electrokinetic dispersion, photoresponsive membranes for gas separation, and enzymatic reactor-separators also are being investigated.

Theoretical research is being conducted for developing generalized models of transport in porous media and in membranes involving various transport mechanisms and driving forces.

**Biochemical Engineering and Applied**

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 active in developing novel techniques in biocatalytic processing, including enzymes in organic solvents, enzyme-based biosensors, and biologically based membrane separators.

The department also is active in solving 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.

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**Global and Regional Environmental**

Contamination of the environment in which we live and work is a major problem facing today’s engineers. The Department of Chemical and Biochemical Engineering has an active research program in the environmental areas of atmospheric air pollution, indoor air pollution, and hazardous waste. 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 is an interdisciplinary area involving environmental engineering and the Center for Global and Regional Environmental Research.

**Particulate Material Processing Sciences**

Theoretical and experimental studies in morphological analysis of particulate materials are being conducted. Morphological analysis is concerned with the measurement of particle size, shape, texture, chemical properties, and physical properties. These methods are applied to particle formation processes and studies of particle and bulk behavior. Examples include wear debris analysis, crystallization and precipitation (formation processes), and dust explosions and contamination of particles (particle behavior).

**Master of Science**

A thesis and a minimum of 30 semester hours of graduate credit are required, including at least 24 semester hours completed in residence at The University of Iowa. Work completed in the Saturday and Evening Class Program as residence credit may not exceed 8 semester hours, but 6 semester hours may be completed in residence at another recognized graduate college or through the Guided Correspondence Study Program at The University of Iowa.

The minimum course work requirement is 24 semester hours (about eight courses), and the remainder of the 30 semester hours is devoted to research. To be eligible for the M.S., students are expected to maintain a 3.00 minimum grade-point average. M.S. candidates must defend their thesis at the final oral examination. Although it is possible to obtain an M.S. in one year, many students complete the requirements in three or four semesters.

**Doctor of Philosophy**

The Ph.D. is granted primarily on the basis of achievement rather than on the accumulation of semester hours of credit. However, candidates usually are expected to have completed three academic years of 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, and a thermodynamics course or bio-related course (e.g., 52-180 Biochemical Engineering), as well as seven additional courses. All must earn at least 72 semester hours of graduate credit.

Ph.D. candidates are expected to maintain a 3.25 minimum grade-point average.

All doctoral students are required to pass a qualifying examination and a written and oral comprehensive exam prior to candidacy for the degree. The Ph.D. comprehensive examination is the presentation and defense of the candidate’s Ph.D. proposal. These examinations are arranged by members of the examining committee. The rules for the comprehensive examination are published in the manual of the Graduate College.

There is no foreign language requirement. A final examination, which is a defense of the thesis, completes the doctoral program.

**Admission**

Full admission to graduate study is granted to students who have a B.S. in chemical engineering with satisfactory grades from a recognized American college or university. Graduates of foreign universities also are accepted, depending on evaluation of their records. Admission to the graduate program usually requires a 2.80 grade-point average.

Conditional admission to the M.S. program may be granted to students who have not fulfilled the above requirements, with approval from the chair of the chemical and biochemical engineering department.

Applicants should take the verbal and quantitative parts of the Graduate Record Examination (GRE) General Test; scores should be submitted with the application.

Graduate courses in chemical and biochemical engineering are designed for students who have an undergraduate background in chemical engineering. However, exceptional students from other areas also may apply for admission to the M.S. or even the Ph.D. program in chemical and biochemical engineering. Such students need to take certain undergraduate courses as background so they can perform in...
the graduate courses with minimum difficulty. Since these undergraduate courses are taken as makeup courses, they do not carry credit toward a graduate degree.

**Financial Aid**
A number of fellowships, assistantships, and scholarships are available to graduate students who qualify. These are awarded on a competitive basis.

**Special Facilities and Laboratories**

**Undergraduate Instruction**

**Engineering Core**

**MATERIALS SCIENCE LABORATORY**
This laboratory is equipped with optical microscopes and facilities for metallographic preparation, including a darkroom, Mechanical tensile testing instruments and hardness testing machines also are available. Heat treatment and sintering furnaces are available in a nearby laboratory. Teaching aids include metallography specimen kits, dislocation in LiF kits, and crystallography packages.

**Required Course Laboratories**

**UNIT OPERATIONS LABORATORY**
This is primarily an instructional laboratory for senior undergraduate students, which involves 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, packed column for gas absorption, and agitated extractor. Other equipment includes stirred-tank reactors, packed-bed reactor, gas chromatography, and a variety of instrumentation for measuring flow, pressure, temperature, and weight. Equipment in emerging areas of chemical engineering has recently been added, including a fully instrumented microbial fermenter, membrane separator, and polymer extruder. A small shop also is available to students for use under a technician’s supervision.

**PROCESS CONTROL LABORATORY**
The process control laboratory is a modern, computer-based instructional laboratory for seniors. It is integral to the senior process control course. The laboratory consists of computer control of a shell-and-tube heat exchanger, a stirred-tank reactor, and a three-tank flow process. Additional laboratories include instruction in the use of analog controllers.

The computer control laboratory is set up to provide an ensemble of learning experiences with the same equipment, so that analogies and better insight into the control process can be obtained. 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 the 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 through experimental evaluation; analysis of instrumentation characteristics and transfer functions; tuning and optimization of feedback control parameters (P, PI, and PID); system identification through frequency response methods; determination of system stability; and development of feed-forward control schemes.

**Computer Facilities**
The departmental computer facilities contain a variety of graphics workstations, printers, and microcomputers. The terminals connect to the University’s Weeg Computing Center, which makes available these computers: IBM 3090 and 3033, and a VAX 11/780. They also provide access to the college’s Computer-Aided Engineering Laboratory. The department is networked to the University’s Central Research Facility, devoted to molecular modeling, and to the GIS laboratory of the Center for Global and Environmental Research. The department also is connected to the Iowa Computer-Aided Engineering Network, which includes Hewlett-Packard workstations augmented with Apple Macintosh personal computers. The department has access to the University’s central research facility in high-speed vector computation. This facility has Encore Multimax and Alliant FX/8 mini-supercomputers and provides nodes for external links for access to supercomputers.

**CATALYSIS AND REACTION ENGINEERING FACILITIES**
A variety of equipment is available for the study of catalysis and reaction engineering. Techniques currently available include chemisorption and physiosorption (BET), microbalance, mass spectrometer, mercury porosimetry, gas chromatography, Fourier transform infrared spectroscopy (FTIR), access to X-ray diffraction, scanning electron microscopy (SEM), and transmission electron microscopy (TEM), a variety of reactor systems including a Berkey reactor, a Parr reactor, a membrane reactor-separator for homogeneous catalysis, a porous-walled reactor-separator, a slurry reactor, and catalyst preparation facilities. Also available are central research facilities such as the High-Field Nuclear Magnetic Resonance Facility and the Electron Microscope Facility.

**MATERIALS CHARACTERIZATION FACILITIES**
Facilities include a laboratory for the characterization of powders and particulate. The laboratory contains a variety of size and morphology instruments including a Quantachrome BET Surfacetron Analyzer; a Stereo-Pyrometer for measuring powder density; an Autoscan Mercury Porosimeter; a Microtextrics Sedigraph; TSI, El-Zone, and Coulter Particle counters and sizers; and a Shape Analysis for particle image analysis for morphological and texture determination.

Other facilities include sampling devices, devices for characterizing bulk properties; various mixers, grinders, and sizing equipment; optical microscopes; sintering furnaces; an abrasion tester; mounting and polishing equipment; a lab scale fluidized bed; and an extruder for the production of particles of specific size and shape. The laboratory also contains a fully controlled two-liter explosion chamber for the determination of dust explosibility and a Bruel and Kjaer fast fourier acoustic analyzer. In addition, there is access to the University’s Electron Probe Microanalysis and Electron Microscopy facilities.

There also are facilities available to study microelectronic materials. These include techniques and clean facilities to characterize crystal growth, wafer preparation, and etching techniques. In addition, the Hybrid Microelectronics Laboratory, housed in the electrical and computer engineering department, provides capabilities in small-scale microelectronic chip and substrate manufacturing, including vacuum deposition, a Cooke sputtering machine, photolithography apparatus, a belt furnace, air abrader, and a variety of electronic testing instruments.

**Separation AND BIOSEPARATION PROCESSES**
Equipment available for the study of separation processes includes a large-scale continuous-rotating, annular bed electrophoresis column; a packed-bed electrophoresis column; a Waters Delta Prep 3000 HPLC system; an Amicon DC 30 ultrafiltration system; a small-scale hollow fiber and spiral wind membrane pilot system; membrane permeability measurement apparatus; immobilized reactor-separators; and facilities for the fabrication of membranes. The laboratory is supported by additional gas and liquid chromatography, a Perkin-Elmer UV-Vis scanning spectrophotometer, a computerized data acquisition system, and other analytical equipment. The department also has pilot plant equipment for the study of filtration, distillation, extraction, and other equilibrium stage processes.

**BIOCHEMICAL ENGINEERING AND APPLIED BIOCATALYST**
Facilities in the Biochemical Engineering Laboratory include a three-liter agitated bioreactor and a 15-liter airtight fully controlled bioreactor, gas and liquid chromatographs, UV-Vis spectrophotometers, centrifuges, carbon dioxide incubators, Class II-A safety cabinets, microscopes, Coulter particle counter, rotary shaker, autoclave, 2-D gel electrophoresis equipment, and laboratory computers.
Through collaborative research agreements, graduate students also have access to specialized facilities for Electron Microscopy, Hybridoma Tissue Culture, Flow Cytometry and Cell Sorting, Mass Spectrometry, Recombinant DNA Research, Protein Structure, and Large-Scale Fermentation.

**LABORATORY OF APPLIED BIOCATALYSIS**

The Laboratory of Applied Biocatalysis is designed for the study of enzymes, immobilized whole cells, and biopolymer and bioprocessing technology. The laboratory occupies 1,800 square feet in the Chemistry Building and contains two analytical HPLC’s (equipped with a photodiode array and refractive index detection), a preparative HPLC, two gas chromatographs (with FID and ECD detection), a scintillation counter for radioactivity measurements, an optical polarimeter, two rotary evaporators, a low-pressure Pharmacia liquid chromatography device with fraction collector, two UV-Vis scanning spectrophotometers, a spectrofluorophotometer, four temperature-controlled orbital shakers, several large-scale enzyme reactors, a Karl-Fisher water titrator, an ultratfiltration system for protein separations, a water purification system, two analytical digital balances, a top-loading digital balance, a cold box, a refrigerator, a freezer, a Sorvall centrifuge, two microfuges, a dry-down oven, a freeze dryer.

**Courses**

**General Topics**

- **52:000 Cooperative Education Training**
  - 0 s.h.
  - Assignment: Chemical Engineering
  - Prerequisites: 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. Admission to Cooperative Education Program and consent of co-op faculty adviser required.

- **52:41 Process Calculations**
  - 3 s.h.
  - Solutions of industrial problems using material and energy balances; stoichiometric and nonstoichiometric chemical reactions, changes of state, solutions, mixing problems; computer applications. Prerequisite: 22M.36.

- **52:43 Chemical Engineering Thermodynamics**
  - 3 s.h.
  - Applications of thermodynamic principles to chemical and physical processes; prediction of material properties; phase equilibria and chemical equilibrium applied to mixtures and reacting systems. Prerequisite: 52:41.

- **52:47 Unit Operations Laboratory I**
  - 2 s.h.
  - Laboratory investigations of transport phenomena and chemical engineering unit operations; design of experiments, operating procedures, data collection techniques, report writing, computer usage, laboratory safety. Prerequisites: 52:42, 52:43, 52:44, and 52:46.

- **52:48 Unit Operations Laboratory II**
  - 2 s.h.
  - Open-ended laboratory studies of transport phenomena, chemical engineering unit operations, process control, and reaction kinetics; emphasis on project design, construction, development, evacuation. Prerequisites: 52:45 and 52:47.

- **52:87 Chemical Process Safety**
  - 3 s.h.
  - Applications of transport phenomena, thermodynamics, chemical, kinetic studies to safety of 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 and laboratory experiments. Prerequisites: 52:42 and 52:44. Corequisites: 52:45.

- **52:90 Freshman Seminar: Chemical and Biochemical Engineering**
  - 0 s.h.
  - Introduction to the profession. Presentations, visits to laboratories, industries.

**Biochemical Engineering**

- **52:108 Introduction to Biochemical Engineering**
  - 3 s.h.
  - Biochemistry, cellular biology, recombinant DNA and biotechnology; emphasis on engineering aspects of biotechnology, including enzyme kinetics, cell growth kinetics, transport phenomena in bioreactors, bioreactor design, bioprocesses, formulation and sterilization of growth media, commercial applications of biotechnology. Prerequisites: 4:16, 4:21, and 22M.36.

- **52:180 Biochemical Engineering**
  - 3 s.h.
  - Biochemical engineering design of bioreactor/fermenters, sterilization processes, process scale-up, development, enzyme kinetics, transport phenomena, and mathematical modeling. Prerequisite: 52:108.

- **52:247 Applied Enzymology**
  - 3 s.h.
  - Application of enzymes in biotechnology; enzymes as commercial biocatalysts, immobilized enzyme technology; isolation, purification, stabilization of enzymes; enzyme reactors; mechanisms of commercially important enzymes; enzyme catalysis in unusual environments, catalytic antibodies and ribonucleases. Prerequisites: 52:180.

- **52:275 Perspectives in Biocatalysis**
  - 1 s.h.

- **52:280 Engineering Aspects of Animal Cell Culture**
  - 3 s.h.
  - 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: 52:180 or consent of instructor.

**MASS Transfer**

- **52:240 Differential Mass Transfer**
  - 3 s.h.
  - Fundamentals of binary and multicomponent mass transfer processes and related phenomena in laminar and turbulent flows. Prerequisite: 52:144.

**Environmental Engineering**

- **52:152 Environmental Chemistry**
  - 3 s.h.
  - Principles of general, physical, organic chemistry applied in water and air systems; emphasis on qualitative and quantitative understanding of chemical and meteoric and equilibrium; acid-base reactions, complex formation, precipitation, dissolution, oxidation-reduction reactions, organic nomenclature. Prerequisite: 4:13. Same as 52:152.
Process Dynamics, Design, Analysis

52:85 Process Dynamics and Control in Design 3 s.h.
To provide an appreciation 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; emphasis on computer methods, including simulation and use of commercial software; laboratory emphasizes process analysis and design. Prerequisites: 52:43 and 52:44.

52:86 Chemical Engineering Process Design 3 s.h.
Design of chemical process plants, including application of process calculations, thermodynamics, kinetics, process synthesis, energy efficiency in operations, heat-exchanger network synthesis, physical property estimation, safety, computer-aided design, unit operations theory, process control, economics, and economic optimization. Prerequisites: 52:43 and 52:44.

Graduate Seminars, Advanced Topics, Research

52:190 Readings in Chemical and Biochemical Engineering.arr.
For graduate nonmajors who want to earn credit in an undergraduate chemical engineering course. May be repeated. Graduate standing in a discipline other than engineering and consent of instructor required.

52:191 Seminar in Chemical and Biochemical Engineering 0 s.h.
Presentation and discussion of recent advances and research in chemical and biochemical engineering by guest lecturers, faculty, and students. Graduate standing required.

52:198 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. Graduate standing and consent of supervising faculty advisor required.

52:199 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. Graduate standing and consent of faculty advisor required.

52:299 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. Consent of adviser required.
Second Semester

53:71 Principles of Hydraulics 3 s.h.
53:78 Principles of Hydrology 2 s.h.
53:91 Professional Seminar: Civil Engineering 0 s.h.
**53:92 Field Trip in Civil and Environmental Engineering 0 s.h.
53:155 Environmental Engineering: Engineered Systems 3 s.h.
57:8 Electrical Circuits 3 s.h.
57:21 Principles of Design I 3 s.h.
*Humanities or social science elective (100 level) 3 s.h.

SENIOR YEAR
First Semester

53:63 Transportation Engineering 3 s.h.
53:79 Hydraulic Design 3 s.h.
53:91 Professional Seminar: Civil Engineering 0 s.h.
**53:92 Field Trip in Civil and Environmental Engineering 0 s.h.
53:136 Structural Design II 3 s.h.
53:150 Environmental Engineering: Natural Systems 3 s.h.
*Humanities or social science elective 3 s.h.
Technical elective 3 s.h.

Second Semester

53:84 Project Design and Management in Civil Engineering 3 s.h.
53:85 Experiments in Civil and Environmental Engineering 2 s.h.
53:91 Professional Seminar: Civil Engineering 0 s.h.
**53:92 Field Trip in Civil and Environmental Engineering 0 s.h.
*Humanities or social science elective (100 level) 3 s.h.
Two technical electives 6 s.h.

Hydraulics and Water Resources Subtrack

SOPHOMORE YEAR

Second Semester

53:34 Structural Design I 3 s.h.
53:71 Principles of Hydraulics 3 s.h.
53:78 Principles of Hydrology 2 s.h.

Second Semester

53:91 Professional Seminar: Civil Engineering 0 s.h.
**53:92 Field Trip in Civil and Environmental Engineering 0 s.h.
53:84 Project Design and Management in Civil Engineering 3 s.h.
53:85 Experiments in Civil and Environmental Engineering 2 s.h.
53:91 Professional Seminar: Civil Engineering 0 s.h.
**53:92 Field Trip in Civil and Environmental Engineering 0 s.h.
*Humanities or social science elective (100 level) 3 s.h.
Two technical electives 6 s.h.

Graduate Programs

The graduate program in civil and environmental engineering at both the M.S. and Ph.D. levels prepares students for professional careers and further study. The principal areas of concentration are environmental engineering and science; hydraulics; hydrology and water resources; structures, mechanics, and materials; and transportation.
Research

Environmental Engineering and Salem

This 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 is conducted with programs including the Iowa Institute of Hydraulic Research, 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, Geology, Microbiology, Preventive Medicine 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 curricula are associated with the Iowa Institute of Hydraulic Research, a research organization that is world renowned. Senior staff members of the institute are professors in the program; they devote about half of their time to teaching.

The institute 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 the acquisition and processing of data. The Computational Laboratory for Hydrometeorology and Water Resources, with its high-speed computer facilities and advanced graphics and communication software, complements the hydrology and water resources curricula.

Structures, Mechanics, and Materials

The structures, mechanics, and materials curricula are directed primarily toward computer-aided structural design, optimization, and mechanics of materials. Special strengths exist in the areas of structural optimization, computational methods, concrete and prestressed concrete structures, soil behavior, ice engineering, and constitutive equations for metals and geotechnical materials. Course work and research in structural design and optimization, dynamics of structures, finite element techniques, soil mechanics and foundations, concrete structures, and continuum mechanics and plasticity are available.

Transportation

The transportation curriculum includes work in planning, design, construction, and operation of transportation systems and facilities. Cooperative relationships exist with the graduate programs in urban and regional planning and transportation studies. Cooperative research is conducted with the Public Policy Center, the Center for Simulation and Design Optimization, the DOT Midwest Transportation Center, the Iowa Driving Simulator, and the National Advanced Driving Simulator. (See “Urban and Regional Planning” and “Transportation Studies” in the College of Liberal Arts section of the Catalog.)

Master of Science

The Master of Science programs in civil and environmental engineering are designed to permit further concentration in the area or areas of the student’s 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.

In general, the plan of study, with or without thesis, must include a minimum of 30 semester hours, with no more than 6 semester hours allowed for the thesis. An additional 3 semester hours are required in the nonthesis environmental engineering and science curriculum.

Students, with the approval of their adviser, develop a plan of study that satisfies special requirements of their chosen curriculum.

All degree candidates are expected to have a 3.00 minimum grade-point average. They must pass an oral examination and, in some program options, a written examination.

Doctor of Philosophy

The doctoral degree is granted primarily on the basis of achievement, rather than on a prescribed course of study. Requirements for semester hours of course work vary among the specialty areas. Candidates usually need at least three years of full-time work beyond the baccalaureate degree, one year of which is devoted to the preparation of a dissertation that contributes to knowledge in the field. In some specialty areas, a qualifying examination is required for students who have not earned an M.S. in an approved curriculum. The Ph.D. program requires 72 semester hours beyond the baccalaureate degree. Some program options have higher requirements.

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 when virtually all of the student’s course work has been completed.

The program culminates in a final examination, in which candidates must successfully defend their dissertation.

Doctoral candidates are expected to maintain a 3.20 minimum grade-point average of throughout the doctoral program.

The program also cooperates in interdisciplinary doctoral programs with the program in applied mathematical sciences (see “Division of Mathematical Sciences” in the College of Liberal Arts section of the Catalog).

Admission

Each curriculum of the program is quite flexible; students may be admitted from all disciplines of engineering as well as from the mathematical and basic sciences.

Applicants for the master’s degree program are expected to have a cumulative 2.75 minimum undergraduate grade-point average; 3.00 is preferred. For admission to candidacy for the doctorate, the minimum grade-point average is 3.20 based upon previous graduate work.

Applicants whose grade-point averages are slightly lower are invited to correspond regarding admission possibility. A Graduate Record Examination (GRE) General Test score of at least 1100 (verbal and quantitative) is recommended. Lower GRE General Test scores are considered with other evidence of academic promise (recommendation letters, grade-point average). CRE General Test scores are used in admission and financial aid decisions.

All applicants must meet the general admission requirements of the Graduate College (see the Graduate College section of the Catalog).

Financial Aid

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.

Special Facilities and Laboratories

Undergraduate Instruction

Engineering Core

The freshman engineering course 57:5 Engineering I includes an introduction to the Iowa Computer-Aided Engineering Network (ICAEN), which is described under “College Facilities” in this section of the Catalog. Students in the course learn word processing on Macintosh microcomputers and elementary graphics using Hewlett-Packard workstations. Junior students in the course Principles of Design I make extensive use of the computer hardware and software available through ICAEN.

For information about laboratories affiliated with core courses coordinated by other engineering...
Required and Elective Course

- **53:30 soil** Mechanics (3 s.h.): equipped for determining the classification, seepage characteristics, stress-strain properties, and strength of soils.
- **53:71 Principles of Hydraulics (3 s.h.):** hydraulics of pressure conduits and open channels, dimensional analysis, flow measurements, hydraulic machinery, with laboratory.
- **53:85 Experiments in Civil and Environmental Engineering (2 s.h.):** consists of experimentation in the environmental and structural areas; offered at the Environmental Engineering Laboratory and the undergraduate Structures/Mechanics/Materials Laboratory as a survey course with hands-on experimentation.

Graduate Facilities and Laboratories

**ENVIRONMENTAL ENGINEERING AND SCIENCE LABORATORIES**

Research in environmental engineering is conducted in the department’s Philip F. Morgan Sanitary Engineering Research Laboratory at the Iowa City North Municipal Wastewater Treatment Plant, at the Environmental Engineering Laboratory of the University Water Treatment Plant, and in the Hazardous Substances Research Laboratory at the Engineering Research Facility.

The Morgan laboratory is devoted to research activities in the wastewater treatment area. It includes a walk-in incubator for temperature-controlled treatment studies, a modern wet chemistry laboratory, a 10,000-gallon aeration tank, and space for bench and pilot studies of wastewater treatment.

The Environmental Engineering Laboratory is equipped for both routine and advanced chemical and biological analyses of water and provides space for both bench and pilot scale studies. The University Water Treatment Plant is especially designed to enable the study of treatment operations and processes.

The Hazardous Substances Research Laboratory is a 2,100-square-foot facility designed specifically for research into the properties and reactivity of chemical compounds of environmental concern. The laboratory consists of a suite of eight rooms connected by a central hallway, which is entered through an air lock. The laboratories are maintained at a positive pressure relative to the hallway to reduce the influx of dust. Ventilation in the laboratories is “once through,” which means that air is not recirculated, thus eliminating the possibility of cross-contamination. Air in the laboratories is constantly passed through High Efficiency Particulate Air (HEPA) filters, which make low-level and trace analyses possible.

Analytical instrumentation in the laboratory includes HPS890 Series II gas chromatography with flame ionization and nitrogen/phosphorus detectors and with thermal conductivity and electron capture detectors; HP5890 Series I gas chromatography with flame ionization and electron capture detectors; Tekmar purge and trap (connected to FID); Gilson gradient and isocratic analytical HPLC; Perkin Elmer atomic absorption spectrophotometer with graphite furnace, autosampler, and mercury/hydride system; Beckman LS6000IC liquid scintillation counter; Dionex 5000i ion chromatography; and a Milton Roy Spectronic 601 UV/visible spectrophotometer.

Three of the rooms in the laboratory are environmental chambers capable of maintaining temperatures from 0 to 60 degrees celsius to provide control for chemical and biochemical reactions. The laboratory has a 50-cubic-foot plant-growth chamber with light, temperature, and humidity control. An additional 400 square feet of laboratory space is available for projects that do not require “clean” conditions. The center also includes a Hewlett-Packard workstation for modeling studies as well as a number of personal computers for data acquisition and analysis.

The laboratory is affiliated with the U.S. EPA Region 7 and 8 Hazardous Substances Research Center, the Center for Health Effects of Environmental Contamination, a cooperative unit of the Colleges of Engineering and Medicine, and the NIEHS Environmental Research Core Center.

A 1000-square-foot air pollution laboratory in the Center for Global and Regional Hydrometeorology and Water Resources Laboratories.

The teaching and research functions of the department are closely connected to the research and contractual activities of the Iowa Institute of Hydraulic Research, which also includes a Computational Laboratory for Hydrometeorology and Water Resources.

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, a dispersion flume, a wave tank, three special low-temperature flow facilities for investigation of ice phenomena, an environmental hydraulic flume for modeling of atmospheric flumes, a refrigerated wind tunnel, a computer-controlled data handling system, 2-D and 3-D laser doppler anemometers for microscale velocity measurements, and extensive computational facilities.

The Computational Laboratory for Hydrometeorology and Water Resources utilizes a Hewlett-Packard DN10000 superminicomputer, several Hewlett-Packard high-speed workstations, and graphic terminals and peripherals. It is equipped with advanced graphic software, communication software, mathematical software packages, and a Geographic Information System (GIS).

**STRUCTURES, MECHANICS, AND MATERIALS LABORATORIES**

Laboratories for optimal design, plasticity, soils, structural testing, and ice engineering are available for teaching and research. The optimal design laboratory has a state-of-the-art network of Hewlett-Packard workstations and other peripherals. It is used to conduct research on modern computational methods for design optimization of complex structural systems.

The structures, soils, and plasticity labs are equipped for the determination of physical and mechanical properties of metals, concrete, soils, and plastics. Equipment includes a computer-controlled MTS axial-torsional test system, universal testing machine, and a creep machine.

The ice engineering research lab has a uniaxial MTS test system with a state-of-the-art data acquisition system. There also is a Timms Olsen testing machine, two ice tanks, a milling machine (in a cold room for preparation of ice samples), and a variety of other equipment to allow testing of the mechanical properties of ice and of ice/structure interaction processes.

Courses

**Special Topics**

53:00 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. Admission to the Cooperative Education Program and consent of faculty adviser required.

53:10 CEE Freshman Seminar 0 s.h.

Introduction to civil and environmental engineering curriculum and profession; presentations by senior undergraduate students, graduate students, faculty, laboratory visits. Open only to freshmen.
panel discussions. May be repeated. Junior standing required.

53:83 Surveying and Remote Sensing 3 s.h.

53:84 Project Design and Management in Civil Engineering 3 s.h.

53:85 Experiments in Civil and Environmental Engineering 2 s.h.

53:95 Professional Seminar: Civil Engineering 0 s.h.

53:99 Individual Investigations: Civil Engineering arr.

53:111 Numerical Calculations 3 s.h.

53:113 Mathematical Methods in Engineering 3 s.h.

53:115 Computer-Aided Engineering 3 s.h.

53:212 Analytical Methods in Thermo-Field Mechanics 3 s.h.

53:214 Analytical Methods in Mechanical Systems 3 s.h.

53:231 Advanced Structural Dynamics 3 s.h.

53:232 Advanced Structural Dynamics 3 s.h.

53:233 Finite Element Techniques Engineering II 3 s.h.

53:235 Applied Optimal Design 3 s.h.

53:236 Optimization of Structural Systems 3 s.h.

53:242 Topics in Solid Mechanics 3 s.h.

53:244 Energy Principles in Structural Mechanics 3 s.h.

53:246 Continuum Mechanics and Plasticity 3 s.h.

53:247 Theory of Viscoelasticity 3 s.h.

53:251 Continuum Mechanics and Elasticity 3 s.h.

53:265 Theory of Solid Mechanics 3 s.h.

53:266 Fluid Mechanics 3 s.h.

53:30 Soils Mechanics 3 s.h.

53:32 Modern Structural Analysis 3 s.h.

53:33 Structural Analysis 3 s.h.

53:34 Reinforced Concrete Structures 3 s.h.

53:35 Structural Design of Steel Structures 3 s.h.

53:36 Reinforced Concrete Structures 3 s.h.

53:37 Advanced Structural Analysis I 3 s.h.

53:38 Prestressed Concrete Structures 3 s.h.

53:39 Foundations of Structures 3 s.h.

53:40 Intermediate Mechanics of Deformable Bodies 3 s.h.

53:45 Fatigue/Durability in Design 3 s.h.

53:46 Fatigue/Durability in Design 3 s.h.

53:48 Hydrogeology and Groundwater Quality 3 s.h.
53:104 Groundwater Modeling 3 s.h.
- Principles and equations of groundwater flow and contaminant transport
- Aquifer test analysis
- Pollutant transport, numerical methods, stochastic approaches, applications of groundwater modeling software.
- Prerequisites: 22M:26 or 22M:36, and 12:166 or 53:103. Same as 12:184.

53:150 Environmental Engineering: Natural Systems 3 s.h.
- Environmental chemistry and biology of air, water, soil quality, air and water pollution, lichenology, global atmospheric change, fate and effects of pollutants; hazardous substances; risk assessment, standard setting. Prerequisite: 4:13.

53:151 Biological Treatment Processes 3 s.h.

53:152 Environmental Chemistry I 3 s.h.
- 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: 4:14. Same as 52:152.

53:153 Environmental Chemistry Laboratory 3 s.h.
- 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: 4:16 or equivalent. Corequisite: 53:152.

53:154 Environmental Microbiology 3 s.h.
- Fundamentals of microbiology and microbial ecology with application in water quality and biodegradation of priority pollutants; lectures and laboratory. Corequisite: 53:152.

53:155 Environmental Engineering: Engineered Systems 3 s.h.
- Water supply and treatment processes; wastewater treatment processes; processes for air pollution control, groundwater remediation; soil and waste management. Prerequisites: 53:71 and 53:150, or consent of instructor.

53:156 Physical-Chemical Treatment Processes 3 s.h.
- Theory of physical and chemical operations and processes in water and wastewater treatment, including fundamental aspects of process dynamics; lectures, laboratory. Prerequisites: 53:150 and 53:152. Corequisite: 53:155.

53:157 Environmental Engineering Design 3 s.h.
- Application of physical, chemical, and biological processes and operations to the design of water and wastewater treatment systems; applications in soil and hazardous waste treatment. Prerequisites: 53:71, 53:150, and 53:155.

53:158 Solid and Hazardous Waste 3 s.h.
- Sources, characteristics, collection, disposal of solid and hazardous wastes; environmental impacts of hazardous waste management; resource recovery systems. Prerequisite: 53:150. Same as 53:159. Corequisite: 53:158.

53:159 Air Pollution Control Technology 3 s.h.
- Sources, environmental and health impacts, regulations, modeling of air pollution; processes and alternative strategies for control; global climate considerations. Prerequisite: 53:150 or consent of instructor. Same as 52:159.

53:160 Modeling Analysis 3 s.h.
- Application of numerical analysis to transport phenomena, chemical kinetics and reactor design, emphasis on model formulation and numerical solutions; ordinary and partial differential equations. Consent of instructor required. Same as 52:147.

53:161 Atmospheric Chemistry and Physics 3 s.h.
- Basic principles of chemical and physical processes affecting atmospheric trace gas and pollutant cycles; emphasis on atmospheric photochemistry, aerosol science, major sources and removal processes. Consent of instructor required. Same as 52:163.

53:204 Theories of Environmental Policy and Assessment 3 s.h.
- Major concerns about environment and human health and basis on which legislation has been enacted to deal with these concerns; exploration of legislation that has major effects on environmental policy. Prerequisite: 53:150. Same as 63:252.

53:251 Environmental Systems Modeling 3 s.h.
- Mathematical models of environmental systems including rivers, lakes, estuaries, treatment systems for conventional and toxic pollutants. Prerequisites: 53:150, 53:152, and 53:155; or consent of instructor.

53:252 Environmental Chemistry II 3 s.h.
- Solid-liquid interface problems, heterogenous equilibria, environmental organic chemistry, modeling of chemical equilibrium and kinetics, redox chemistry, atmospheric chemistry. Prerequisite: 53:152.

53:254 Environmental Toxicology 3 s.h.

53:255 Industrial Wastewater and Hazardous Wastes 3 s.h.
- Sources, characteristics, treatment of industrial wastewaters to meet environmental standards; by-product and reuse applications; hazardous waste management and control processes. Prerequisites: 53:150, 53:151, 53:155, and 53:156.

53:275 Perspectives in Biocatalysis 1 s.h.

Transportation

53:63 Transportation Engineering 3 s.h.
- History of transportation, regulation and control of services, roadway construction and maintenance, economics and control, operation and control strategies, economic evaluation of transport alternatives, route location. Prerequisites: 22S:39 and 57:21.

53:163 Simulation Application to Transportation 3 s.h.
- Transportation systems management and traffic engineering; intersection design; development of network models and discrete simulations; topics in transport systems evaluation; network optimization and transit scheduling. Same as 102:262.

53:262 Transportation Demand Analysis 3 s.h.
- Application of city planning procedures and traffic engineering techniques to solution of transportation problems; travel characteristics, forecasting methods, trip generation, distribution, assignment models. Prerequisite: 22S:39. Same as 102:262.

Hydraulics, Hydrology, and Water Resources

53:71 Principles of Hydraulics 3 s.h.
- Hydraulics of pressure conduits and open channels, dimensional analysis, flow measurements, hydraulic machinery, with laboratory. Prerequisite: 57:20.

53:78 Principles of Hydrology 2 s.h.

53:79 Hydraulic Design 3 s.h.
- Storage reservoirs, design of dams and control works, water and wastewater transfer conduits, underground storage. Prerequisites: 53:71, 53:78, and 22 S:39.

53:116 Probabilistic Methods in Hydroscience 3 s.h.
- Common probabilistic models used in hydrology, hydraulics, and water resources; deterministic models and estimation of model parameters; analysis of data and model building; uncertainty analysis. Prerequisites: 22M:42 and 22M:39.

53:117 Remote Sensing 3 s.h.
- Fundamentals of electromagnetic waves, atmospheric radiation transport, passive remote sensing, weather radar, hydrologic application of remote sensing. Prerequisite: 53:116 or consent of instructor.

53:169 Intermediate Mechanics of Fluids 3 s.h.
- 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. Prerequisite: 57:20. Same as 58:169.

53:170 Flow in Open Channels 3 s.h.
- Energy and momentum principles in open channel flow; uniform flow; gradually varied flow; rapidly varied flow; unsteady flow, flood routing. Prerequisite: 53:71.

53:171 Water Resources Engineering 3 s.h.
- Planning and economic analysis of water resources projects; stochastic models, probabilistic methods, catastrophic analysis; decision rules, risk assessment, physical and economic aspects of construction and operation of Froude and Reynolds models; modeling of hydraulic machinery, rivets, tidal flows, heat exchanges, ice phenomena; modern instrumentation and data-handling techniques. Prerequisite: 53:169.

53:177 Theory and Practice of Hydraulic Modeling 2 s.h.
- Theoretical bases for hydraulic models developed from governing equations; theory of dimensional analysis; practical aspects of construction and operation of Froude and Reynolds models; modeling of hydraulic machinery, rivets, tidal flows, heat exchanges, ice phenomena; modern instrumentation and data-handling techniques. Prerequisite: 53:71.

53:178 Hydrometeorology 3 s.h.
- Atmospheric thermodynamics, precipitation processes; evaporation; infiltration; surface runoff; runoff; relations; runoff hydrography; storage problems; frequency, intensity, duration studies of storms, floods, droughts; hydrometeorological observations and network design; watershed modeling; urban hydrology climate. Prerequisite: 53:78.

53:179 Hydroclimatology 3 s.h.
- Thermodynamic and flow characteristics of the atmosphere; occurrence of precipitation associated with mid latitude weather systems, evaporation, measuring precipitation and evaporation, floods and droughts, regional precipitation climatology, atmospheric dynamics. Prerequisite: 53:78.

53:270 Coastal Hydrodynamics 3 s.h.
- Waves, tides, harbor oscillations; coastal structures, estuary dynamics, salinity intrusion, sediment transportation in estuaries; beach processes and evolution. Prerequisite: 53:169.

53:271 Hydraulic Transients 3 s.h.
- Unsteady flow in closed conduits; method of characteristics; transients caused by centrifugal pumps; transients in power plants; resonance; transient cavitation; surge tanks; unsteady flow in open channels. Prerequisites: 53:169 and 53:170.

53:272 Environmental Dispersion processes 3 s.h.
- 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: 53:169.

53:273 Computational Hydraulics 3 s.h.
- General review of numerical methods; one-dimensional unsteady flow; quasi-two-dimensional unsteady flow; unsteady dispersion in rivers; water and sediment routing in rivers; calibration. Prerequisites: 53:169 and 53:170.

53:276 Viscous Flow 3 s.h.
- Equations of compressible viscous flow; classical exact analytical and numerical solutions; flow regimes and approximations; laminar boundary layers; equations, solution methods and applications; introduction to stability theory; incompressible turbulent flow: mean-flow and Reynolds-stress equations, modeling, solution procedures, and applications; compressible boundary layers. Prerequisite: 53:169. Same as 58:260.

53:277 Inviscid Flow 3 s.h.
- Fluid Flow of an inviscid, incompressible fluid; steady and unsteady, two- and three-dimensional flows, irrotational flows; forces and moments acting on bodies; conformal mapping; method of images; separation of variables; slender body theory; Green’s functions and integral equations; numerical methods; inviscid compressible flow, shock waves. Prerequisite: 53:169. Same as 58:262.
Electrical engineers make vital contributions to nearly all facets of modern society through their work in areas such as medical imaging, robotics, satellite communications, and fiber optics. From automated teller machines and high-definition television to remotely-piloted vehicles and satellite-originated weather maps, electrical engineers’ contributions to computer hardware and software and to telecommunications are changing everyday life profoundly.

Many benefits that have sprung from electrical engineering technology now are taken for granted - noninvasive imaging of the brain, astonishing views of the solar system’s outer planets, and international telecommunications and broadcasting. Electrical engineers also play crucial roles in major emerging technologies, such as computer networking; wireless, optical, and satellite communication; automated manufacturing; lasers; and medical imaging.

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.

Graduates of the program are employed in semiconductor, aerospace, telecommunication, radio, television, computer, and power industries. The electrical engineer works in research, design, development, manufacturing, sales, market analysis, consulting, field service, and management.

Undergraduate Program

The undergraduate program provides a strong background in basic electrical and computer engineering subjects, physics, and mathematics and allows for concentration in several areas through six technical elective courses usually taken in the senior year. Students can concentrate in one or more areas chosen from computers, control, communication, electronics, and applied physics.

Curriculum

*The humanities and social science electives must be selected to satisfy the humanities and social science requirements of the College of Engineering.

**FRESHMAN YEAR

First Semester

412 Principles of Chemistry I 3 s.h.
103 Accelerated Rhetoric 4 s.h.
22M:35 Engineering Calculus I 4 s.h.
57:5 Engineering I 3 s.h.

Second Semester

416 Principles of Chemistry Lab I 2 s.h.
22M:36 Engineering Calculus II 4 s.h.
22M:40 Matrix Algebra for Engineers 2 s.h.
29:17 Introductory Physics I 4 s.h.
57:6 Engineering II 3 s.h.

Sophomore Year

First Semester

22M:41 Differential Equations for Engineers 3 s.h.
29: 18 Introductory Physics II 4 s.h.
57:7 states 2 s.h.
57:8 Electrical Circuits 3 s.h.
57:9 Thermodynamics I 3 s.h.

Second Semester

22M:42 Vector Calculus for Engineers 3 s.h.
57:12 Linear Systems Analysis 3 s.h.
57:17 Computers in Engineering 3 s.h.
57:18 Principles of Electronic Instrumentation 4 s.h.

*Humanities or social science elective 3 s.h.

Junior Year

First Semester

22S:39 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
55:32 Introduction to Digital Design 3 s.h.
55:41 Electronic Circuits 4 s.h.
55:42 Signals and Systems 3 s.h.
55:91 Professional Seminar: Electrical Engineering 0 s.h.

*Humanities or social science elective 3 s.h.

Second Semester

55:33 Introduction to Software Design 3 s.h.
55:50 Communication Systems 3 s.h.
55:60 Control Systems 3 s.h.
55:70 Electromagnetic Theory 3 s.h.
29:83 Modern Physics 3 s.h.

Senior Year

First Semester

55:72 Electrical Engineering Materials and Devices 3 s.h.
55:88 Principles of Electrical Engineering Design 3 s.h.
55:91 Professional Seminar: Electrical Engineering 0 s.h.
Technical electives (see “Technical Electives” below) 9 s.h.

*Humanities or social science elective 3 s.h.

Second Semester

55:89 Senior Electrical Engineering Design 3 s.h.

Technical electives (see “Technical Electives” below) 9 s.h.

*Humanities or social science elective 4 s.h.

Technical Electives

Students must choose at least two courses from the following list. Technical electives must have an engineering orientation and cannot be drawn from the social sciences, the humanities, or skills courses. Students should consult The Undergraduate Manual for details.

55:35 Computer Architecture and Organization 3 s.h.
55:68 Power Systems Analysis 3 s.h.
55:130 Switching Theory 3 s.h.
55:131 Introduction to VLSI Design 3 s.h.
55:138 Testing Digital Logic Circuits 3 s.h.
55:141 Power Electronics 3 s.h.
55:143 Linear Integrated Electronics 3 s.h.

Chair: Sudhakar M. Reddy


Professor emeritus: Earl D. Eyman

Associate professors: David R. Andersen, Er-Wei Bai, Thomas F. Bogges, Thomas L. Casavant, Irith Pomeranz

Visiting associate professor: Milan Sonka

Assistant professors: Mark S. Andersland, Theophano Mita, Helen Na, B. Ramkumar, Peter Schwartz

Visiting assistant professor: Krishan Nap.

Undergraduate degree: B.S.E. in Electrical Engineering

Graduate degree: M. S., Ph.D. in Electrical and Computer Engineering
Electrical and Computer Engineering ● Engineering 359

Graduate Programs

Electrical and computer engineering offers curricula leading to the Master of Science and Doctor of Philosophy degrees. Thesis and nonthesis M.S. programs are available; either may precede Ph.D. studies. A special M.S. subtrack in software engineering also is available. Excellence in scholarship and research is stimulated by close contact with the faculty throughout the period of graduate study and through programs tailored to fit individual needs.

Students select an adviser and, with the adviser, plan an individual program bounded only by a few broad guidelines imposed by the Graduate College and by the program. Close interdisciplinary ties with other departments exist both within and outside the college, especially with the Departments of Internal Medicine, Radiology, Physics, Computer Science, Mechanical Engineering, and Biomedical Engineering. The principal areas of concentration are waves and materials, computer systems, signal and image processing, and control systems and robotics. Each is briefly described here.

Research

Waves and Materials

Plasma physics, electro-optics, nonlinear optics, optical signal processing, acousto-optics, and heterojunction materials and device investigations utilize specialized laboratories in the Engineering Building, Van Allen Hall, and Iowa Advanced Technology Laboratories. Collaborative research with the physics department is directed toward topics in nonlinear plasma physics of a theoretical as well as experimental nature. These topics include plasma confinement and stability and nonlinear wave phenomena, such as solitons and shocks. Research activities in the ultrafast photonics facility include nonlinear optics, and high-speed characterization of optical and electronic properties of semiconductors. Together, the systems used in this research provide optical pulses with temporal durations ranging from 30 femtoseconds to 30 nanoseconds, wavelengths ranging from the ultraviolet to the infrared, repetition rates from pulses delivered upon demand up to 100 MHz, and peak powers exceeding 1 GW.

In the electro-optics laboratory, research focuses on acousto-optics, in which sound-carried signals are processed by light. An additional area of interest is unconventional microscopy, in particular, near-field optical microscopy, which aims to make visible details smaller than the wavelength of light.

Research in the area of silicon-based heterojunction materials and devices also is being conducted. Novel electronic and opto-electronic devices are grown by low-temperature chemical vapor deposition and tested using a variety of electronic and optical techniques. Specific materials of interest include silicon carbide and silicon-germanium grown on silicon substrates.

Computer Systems and Software Engineering

Research emphasis in computer systems is directed toward high performance computer architecture design, parallel programming paradigms, parallel debugging environments, highly reliable computer systems, design and testing of VLSI circuits, parallel algorithms for VLSI Computer-Aided Design (CAD) tools, and distributed computing. Areas of interest include fault-tolerant computing, testing of digital logic circuits, parallel architectures, coding, and VLSI circuit design. Research in software engineering focuses on software reliability analysis and tools for software development and debugging.

This work is supported by departmental facilities, including a network of SUN and HP workstations as well as a network connection to College, University, and national facilities. These include the ICAEN (the college’s computing center), the University’s Weege Computing Center, national supercomputer centers, federal laboratories, and facilities at other universities.

Current projects include design of easily testable, VLSI circuits; test pattern generation for VLSI circuits, parallel algorithms for routing and logic simulation; applications of distributed/parallel processing for real-time dynamic simulation; performance evaluation of parallel computers; programming environments for portable MIMD computing; debugging techniques and software tools for high-performance parallel software development.

Signal and Image Processing

Image processing and basic and applied signal processing are areas of emphasis. A digital signal processing laboratory and an image analysis laboratory are available to support this research. The Cardiovascular Image Processing Laboratory, located in the Cardiovascular Center at The University of Iowa Health Center, also is available. Collaborative research with faculty in the Departments of Radiology, Medicine, 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, band-limited extrapolation for limited angle tomography, algorithm development for tomographic imaging of ionospheric distributions, and the design of resolution analysis techniques for imaging systems.

Current projects in image processing include automated detection of vessel borders and coronary trees in angiograms using artificial intelligence techniques, detection and tracking of cardiac motion from magnetic resonance images, analysis of cardiac motion patterns, automated analysis of intravascular ultrasound images, semantic approaches to segmentation of three-dimensional brain images based on genetic optimization algorithms, knowledge-based techniques for identification of pulmonary airway trees from CT images, and three-dimensional segmentation techniques for quantification of lung disease using fractals. There also is work directed toward developing image halftoning schemes that incorporate models of the human visual system.

Control Systems and Robotics

Current research emphasizes optimal, adaptive, digital, robust and stochastic control; multi-arm robot manipulators; and the control of discrete event dynamical systems. Recent work has concerned the estimation, identification, and robust control of linear and nonlinear dynamical systems; the coordination of cooperating robot arms; the control applications of neural networks; and the use of control theory to analyze distributed computing, communications, and manufacturing systems.

Master of Science

There are two M.S. options: with and without thesis. The thesis option requires 30 semester hours of course work, including at least 12 semester hours from an approved list of courses in electrical and computer engineering. The nonthesis option requires 36 semester hours of course work, with a minimum of 18 semester hours from an approved list of courses in electrical and computer engineering. The M.S. semester-hour requirements do not include courses required for electrical engineering undergraduates. Six semester hours of credit must be earned in 55:199 Research in Electrical and Computer Engineering. M.S. Thesis by students in the thesis option. Without thesis, a total of not more than 3 semester hours of independent study credit may be included in the required 36-semester-hour total.

Candidates for the master’s degree in electrical and computer engineering also 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 candidates must consist of an oral defense of the thesis. At the time of graduation, candidates for the master’s degree must have acquired a 3.00 minimum cumulative grade-point average.

M.S. Subtrack in Software Engineering

The department offers an M.S. subtrack in software engineering, in both thesis and nonthesis options. Successful completion of the subtrack results in the designation “with specialization in software engineering” on the student’s transcript. The nonthesis subtrack requires completion of a minimum of 36 semester hours; the thesis

55:144 Digital Integrated Electronics 3 s.h.
55:146 Digital Signal Processing 3 s.h.
55:148 Digital Image Processing 3 s.h.
55:150 Communication Theory 3 s.h.
55:152 Introduction to Information and Coding Theories 3 s.h.
55:160 Control Theory 3 s.h.
55:164 Computer-Based Control Systems 3 s.h.
55:172 Solid State Physical Electronics 3 s.h.
55:178 Optical Signal Processing 3 s.h.
57:21 Principles of Design I 3 s.h.
57:22 Principles of Design II 3 s.h.
option requires 30 semester hours. Both require completion of the following four software engineering core courses.

55:180 Fundamentals of Software Engineering 3 s.h.
55:182 Software Engineering Project I 3 s.h.
55:183 Software Engineering Project II 3 s.h.

In addition, both options require completion of at least three courses chosen from the following:

55:131 Introduction to VLSI Design
55:132 High Performance Computer Architecture
55:133 Graph Algorithms and Combinatorial Optimization
55:134 Computer Communications
55:232 Parallel Computing and Advanced Architecture
55:234 Distributed Computing
22C:116 Advanced Operating Systems and Concurrent Programming

An additional 6 semester hours of course work from the approved list of electrical and computer engineering courses is required for the nonthesis option and 3 semester hours for the thesis option. All rules for additional credit and nongraduate courses are expected to take the qualifying exam. 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 exam.

Admission

The minimum requirement for admission to the graduate program is a 2.75 grade-point average for M.S. students and a 3.25 for Ph.D. students on all courses in electrical and computer engineering, mathematics, and physics. M.S. students with grade-point averages less than 2.75 but better than 2.50 in courses in electrical and computer engineering, mathematics, and physics 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 a conditional basis. In such cases, students may need to complete additional course work without earning graduate credit before being granted regular admission status.

Each application is reviewed on an individual basis. Extenuating circumstances may permit deviations from the usual standards.

Financial Aid

A number of fellowships, traineeships, assistantships, scholarships, and industrial grants are available to graduate students who qualify. These are awarded on a competitive basis.

Special Facilities and Laboratories

Undergraduate Instruction

Engineering Core

Electrical and computer engineering provides core instruction for the college in systems, electrical circuits, and electronics. A key part of this core teaching responsibility lies in providing the students of the college with their first experience with engineering laboratory instrumentation.

Undergraduate Laboratories

The undergraduate laboratories consist of the traditional electronics laboratories plus special laboratories for microcomputer, CAD for VLSI circuits, control systems, communication systems, signals and systems, optics, and image processing.

Graduate Facilities and Laboratories

The department has laboratories intended primarily for graduate research in the areas of parallel processing, imaging processing, CAD for VLSI circuits, software engineering, electro-optics, plasma physics, control systems, and cardiovascular image processing. A network of SUN, IBM, and HP workstations and server nodes provides departmental computing support. This network is tied to the College of Engineering ICAEN 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.

Courses

Special Topics

55:000 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. Admission to Cooperative Education Program and consent of cooperative faculty adviser required.

55:85 Principles of Electrical Engineering Design I 2 s.h.
55:86 Principles of Electrical Engineering Design II 2 s.h.
55:88 Principles of Electrical Engineering Design 3 s.h.


55:89 Senior Electrical Engineering Design 3 s.h.
Individual or team project; demonstration of completed project and formal engineering report. Senior standing required. Prerequisites: 55:33, 55:50, and 55:60. Corequisite: 55:88
55:91 Professional Seminar: Electrical Engineering 0 s.h.
Professional aspects of electrical engineering presented through lectures and discussions by guest speakers, field trips, films, panel discussions. May be repeated. Junior standing required.

Individual projects for electrical engineering undergraduate students; laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research. Consent of supervising faculty adviser required.

Digital Systems, Computers, software Engineering

55:32 Introduction to Digital Design 3 s.h.
Modem design and analysis of digital switching circuits; combinational logic; sequential circuits and system controllers; interfacing and bus design; design methodologies using medium- and large-scale integrated circuits; lab arranged. Prerequisites: 57:18, and 57:17 or 22C:18.

55:33 Introduction to Software Design 3 s.h.
Design of software for exam. The final requirement for exam systems; cross-development environment; algorithm design and structured programming; data structures; interfacing of high-level and low-level languages; device drivers; example applications to engineering problems; lab arranged. Prerequisite: 57:17.
55:35 Computer Architecture and Organization 3 s.h.
Basic concepts; computer evolution, register transfer level design, simulation techniques, instruction sets (CISC and RISC), ALU design, and control design; analysis of computer instructions, functions, hardwired and microprogrammed control, memory hierarchies, virtual memory, cache memory, interrupts and DMA; input/output; introduction to high-performance techniques, pipelining multiprocessor; students design and simulate a simple processor. Offered spring semesters.
Prerequisites: 55:32 and 55:38.

55:130 Switching Theory 3 s.h.
Switching algebras; lattices; functional decomposition; symmetric functions; threshold logic; multiple-valued logic; combinational circuits - minimization, multiple-output networks; sequential circuits - critical races, essential hazards, fundamental-mode, pulse mode, state reduction; fault testing - path sensitizing, boolean difference; multiple faults. Prerequisite: 55:32.

55:131 Introduction to VLSI Design 3 s.h.
MOS devices and circuits; introduction to CAD tools; 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; MOS subsystem design; system case studies, introduction to high speed digital circuits, design projects; lab. Prerequisites: 55:32 and 55:41.

55:132 High Performance Computer Architecture 3 s.h.
Problems involved in designing and analyzing current machine architectures; hierarchy and memory design, pipeline processing; vector machines, numerical applications, multiprocessor architectures and parallel algorithm design techniques; evaluation methods and deterministic relationship between computer design and design goals. Prerequisite: 55:35 or 22C:31.

55:133 Graph Algorithms and Combinatorial Optimization 3 s.h.
Combinatorial optimization problems; time complexity; graph theory and algorithms; combinatorial optimization algorithms; complexity theory and NP completeness; approximation algorithms; greedy algorithms and matroids. Prerequisite: 55:33.

55:134 Computer Communications 3 s.h.
Computer networks, ISO model, network topology, communication of digital data, data link control; errors and error control; point-to-point networks; broadcast networks, local network architecture; transport services; internetworking; user services. Prerequisites: senior standing in electrical and computer engineering or computer science; and 22S:59 or 22S:120. Same as 22S:178.

55:135 Computer Graphics Systems 3 s.h.
Design of vector and raster graphics hardware; three-dimensional transformations for viewing, clipping, geometry, perspective transformations; scan conversion, shading, bump and texture mapping; hidden surface and shadow algorithms; applications to engineering problems; lab. Prerequisite: 55:33.

55:136 Advanced VLSI Design 3 s.h.
First and higher-order models of transistors, models of interconnects, evaluation of circuit performance, circuit optimization, GaAs and ECL digital integrated circuits, ASIC design, practical problems of CMOS VLSI, small geometry MOS transistors and interconnects, VLSI models, algorithm design for VLSI; lab. Prerequisite: 55:131.

55:137 Testing Digital Logic Circuits 3 s.h.
Logic models for faults; fault detection in combinational and sequential circuits; fault-diagnosis; design for testability; random testing, compressed data testing, built-in testing. Prerequisites: 55:32 and 55:41.

55:180 Fundamentals of Software Engineering 3 s.h.
Principles of software specification, design, implementation, testing/maintenance, integration, project management, human factors, management and technical communication; design methodologies; software validation and verification, group project. Open only to seniors in electrical and computer engineering or computer science. Students standing in electrical and computer engineering or computer science required. Same as 22C:180.

Formal models and methods and their application in all phases of software engineering processes - operational, architectural, model-based and property-based specification methods; verification of consistency and completeness of specifications; verification of properties of software - specification construction and verification using methodology tools. Same as 22C:181.

55:182 Software Engineering Project 1 3 s.h.
Estimation, risk analysis, scheduling, tracking and control, software metrics; CASE tools and project management techniques; team project; first of two semesters. Prerequisite: 55:181. Same as 22C:182.

55:183 Software Engineering Project II 3 s.h.
Continuation of 55:182, which is prerequisite. Same as 22C:183.

55:220 Advanced Logic Synthesis 3 s.h.
Synthesis of multiple output circuits; finite state machines; algebraic factoring; testability preserving transformations; design verification; high-level synthesis. Prerequisites: 55:130 and 55:131, or consent of instructor.

55:232 Parallel Computing and Advanced Architecture 3 s.h.
Design and use of state-of-the-art parallel computer systems; relationship to applications computing algorithms, languages, compilation, operating systems, interconnection networks; SIMD, MIMD, data-flow, shared/unshared memory, hybrid and nonconventional architectures. Prerequisite: 55:132.

55:234 Distributed Computing 3 s.h.
Fundamental problems in design, implementation, use of distributed computing systems; hardware topology issues; interprocess communication, concurrency control, synchronization; distributed algorithms; fault tolerance, reliability. Prerequisites: 55:130 and 55:132.

55:351 Statistical Communication Theory 3 s.h.
Representation of signals, random processes; elementary detection and estimation theory; detection of known, unknown signals in noise; estimation of continuous waveforms; applications to speech processing, communications, radar. Prerequisite: 55:150.

55:152 Introduction to Information and Coding Theories 3 s.h.
Quantitative measure of information; discrete and continuous sources; source encoding; error detecting codes; discrete and continuous channels; block and convolutional codes. Prerequisite: 55:30.

Controls
55:60 Control Systems 3 s.h.
Linear feedback control systems; transfer functions; time and frequency domain analysis of system characteristics and stability; lab arranged. Prerequisite: 55:42.

55:66 Electromechanical Systems 3 s.h.
Electromechanical energy conversion principles; basic rotating machines; direct-current machines-theory, applications; alternating-current machines-theory, applications: Prerequisites: 55:12 and 55:70.

55:68 Power Systems Analysis 3 s.h.
AC fundamentals; transmission lines; power system representation, load-flow, stability studies; economic operation; faults, symmetrical components. Prerequisite: 55:12.

55:160 Control Theory 3 s.h.
State space approach; controllability, observability, canonical forms; Luenberger observers; feedback control via pole placement; stability, minimal realization; advanced topics. Prerequisite: 55:40 or 58:131. Same as 58:133.

55:161 Control System Design 3 s.h.
Design techniques for linear control systems; classical compensation methods, state feedback; optimal control; regulator and backing control; dynamic programming. Prerequisite: 55:131 or equivalent. Same as 58:132.

55:163 Random processes in Control and Communications 3 s.h.
Basic concepts of probability and random variables; sequences of random variables; multivariate Gaussian distribution; random processes; special analysis; analysis of random processes in linear systems; Markov, Gaussian, Poisson processes, applications to system analysis. Prerequisites: 55:50 and 55:60.

55:164 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: 55:60 or 58:131. Same as 58:134.

55:165 Introduction to Robotics 3 s.h.
Coating transformation; kinematics, inverse kinematics; manipulator dynamics; trajectory planning; manipulator control; force and compliance control; robot programming languages; laboratory projects. Prerequisite: 55:60.

55:262 Stochastic Control Systems 3 s.h.
Modeling of controlled stochastic systems; complete and partial information dynamic programming; separation of estimation, control; Kalman filtering; infinite horizon dynamic programming; system identification; stochastic adaptive control. Prerequisites: 55:160 or 55:164, and 55:163.

55:264 Nonlinear Stability 3 s.h.
Concepts of different types of stability; LaSalle's theorem; Lyapunov's methods; periodic systems; slow time varying systems; linearization principle; Popov's criterion; Circle Criterion; Discrete Time Systems; Discrete-time Contraction principle. Prerequisites: 55:160 and 55:164.

55:266 Advanced Control Theory 3 s.h.
Optimal control, tracking control, state reconfiguration, nonlinear systems, linearization, describing function, optimal filtering, prerequisite: 55:160. Same as 58:231.

Waves and Materials
55:70 Electromagnetic Theory 3 s.h.
Electric and magnetic forces, Maxwell's equations, wave propagation; applications, including radiation, transmission lines, circuit theory. Prerequisites: 22M:42 and 29:18.

55:72 Electrical Engineering Materials and Devices 3 s.h.
55:170 Advanced Electromagnetic Theory 3 s.h.
Time varying fields; plane wave propagation, reflection, refraction; transmission lines, Smith chart, scattering matrix, coupled modes; metallic and dielectric wave guides; microwave resonators; antennas, antenna arrays. Prerequisite: 55:70.

55:171 Linear and Non-linear Waves 3 s.h.
Wave phenomena, basic properties of waves; sound, surface, mechanical, water, electromagnetic waves; nonlinear shocks, solitons. Senior standing required.

55:172 Solid State Physical Electronics 3 s.h.
Semiconductor physics, semiconductor devices; elementary quantum mechanics, statistics, and transport; bipolar, MOS transistors; physics of device operation as it relates to circuit design. Prerequisites: 55:72 and 29:83.

55:173 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. Same as 29:193.

55:177 Electromagnetic Foundations of Optics 3 s.h.
Microscopic origins of macroscopic optical properties of matter; dipole radiation; normal modes of matter; optical activity; anisotropic crystal optics; electro optical, magneto-optical, acousto-optical phenomena; spontaneous Brillouin, Raman, Rayleigh scattering. Prerequisite: 55:70 or equivalent. Same as 29:180.

55:178 Optical Signal Processing 3 s.h.
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; convoloes, correlations, matched filters, synthetic aperture radar, optical computing. Prerequisite: 55:42 or 55:70. Same as 29:184.

55:179 Electro-Optics 3 s.h.
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: 55:70. Same as 29:182.

55:272 Quantum Electronics 3 s.h.

55:274 Laser Principles 3 s.h.
Laser theory, stimulated emission, dispersion theory, broadcasting mechanisms, rate equations, gain saturation, optical resonators, mode-locking, Q-switching techniques, survey of laser types, modes of operation. Prerequisite: 55:170 or equivalent. Same as 29:224.

55:276 Nonlinear Optics 3 s.h.
Primarily classical treatment of second, third-order optical nonlinearities; phase matching, harmonic generation, three and four wave mixing, self-focusing self phase modulation, stimulated scattering of light, applications. Same as 29:222.

55:278 Advanced Optical Signal Processing 3 s.h.
Review of two dimensional systems, optical Fourier transformation, holography, optical spatial filtering, correlation, convolution; matched filtering and optical pattern recognition; acousto-optical cells and signal processing; moiré interferometric optical processing; spatial light modulators and hybrid optical signal processing systems; associative processors based hybrid spatial light modulator and optical computer. Prerequisite: 55:170.

55:198 Individual Investigations: Electrical and Computer Engineering 3 s.h.
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. Graduate standing and consent of faculty adviser required.

55:199 Research: Electrical and Computer Engineering M.S. Thesis 3 s.h.
Experimental and/or analytical investigation of approved topic for partial fulfillment of requirements for M.S. degree in thesis in electrical and computer engineering. Graduate standing and consent of faculty advisor required.

55:291 Seminar: Plasma Physics 3 s.h.
Discussion of current research. Consent of instructor required. Same as 29:261.

55:295 Advanced Topics in Electrical and Computer Engineering 3 s.h.
Discussion of current literature in electrical and computer engineering. Consent of instructor required.

Experimental and/or analytical investigation of approved topic for partial fulfillment of requirements for Ph.D. in electrical and computer engineering. Consent of faculty advisor required.

Industrial Engineering

Chair: Andrew Kusiak
Professors: James R. Buck, Andrew Kusiak, John M. Littschwager, J. Richard Simon
Associate professors: Dennis L. Bricker, Thomas A. Dingus, Gary W. Fischer
Associate professor emeritus: Edward M. Mielnik
Graduate degrees: M. S., Ph.D. in 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 systems 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.

Undergraduate Program

The undergraduate curriculum in industrial engineering requires a strong foundation of courses in engineering science, mathematics, design, manufacturing, social sciences, and humanities. Advanced courses include specialty courses in manufacturing operations and robotics, human factors (ergonomics), management, economics and information systems, concurrent engineering, production, quality control, and operations research.

Curriculum

FRESHMAN YEAR

First Semester
4:13 Principles of Chemistry I 3 s.h.
Accelerated rhetoric (10:3) 4 s.h.
22M:35 Engineering Calculus I 4 s.h.
57:5 Engineering I 3 s.h.
Humanities elective (see below) 3 s.h.

Second Semester
4:16 Principles of Chemistry Laboratory I 2 s.h.
22M:36 Engineering Calculus II 4 s.h.
22M:40 Matrix Algebra for Engineers 2 s.h.
29:17 Introductory Physics I 4 s.h.
57:6 Engineering II 3 s.h.

SOPHOMORE YEAR

First Semester
22M:41 Differential Equations for Engineers 3 s.h.
29: 18 Introductory Physics II 4 s.h.
57:7 Statics 2 s.h.
57:9 Thermodynamics I 3 s.h.
57: 14 Engineering Economy 3 s.h.

Second Semester
22S:39 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
31:3 General Psychology (social science elective) 4 s.h.
57:8 Electrical Circuits 3 s.h.
57: 15 Materials Science 3 s.h.
Economics elective (see below) 3 s.h.

JUNIOR YEAR

First Semester
56:31 Manufacturing Processes 3 s.h.
56:142 Human Factors Engineering 3 s.h.
57:17 Computers in Engineering 3 s.h.
57:21 Principles of Design I 3 s.h.
Mathematics-statistics elective (see below) 3 s.h.
Engineering science elective (see below) 3 s.h.

Second Semester
56:91 Professional Seminar: Industrial Engineering 0 s.h.
56:131 Manufacturing Systems 3 s.h.
56: 140 Ergonomic Design 3 s.h.
57:22 Principles of Design II 3 s.h.
Humanities elective (100 level) 3 s.h.
Technical elective (see below) 3 s.h.
**SENIOR YEAR**

**First Semester**
- 31:156 Psychology in Management (social science elective) 3 s.h.
- 56:91 Professional Seminar: Industrial Engineering 1 s.h.
- 56:134 Concurrent Engineering 3 s.h.
- 56:171 Operations Research 3 s.h.
- 56:178 Digital Systems Simulation 3 s.h.
- Technical elective (see below) 3 s.h.

**Second Semester**
- 56:91 Professional Seminar: Industrial Engineering 0 s.h.
- 56:160 Operational Systems Design 4 s.h.
- 56:162 Quality Control 3 s.h.
- 56:166 Production Systems 3 s.h.
- Technical elective (see below) 6 s.h.

**Economics Electives**
Students may select from the following list.
- 6E:100 Economics for Business 3 s.h.
- 6E:119 Economics of the Government Sector 3 s.h.
- 6E:125 International Economics 3 s.h.
- 6E:129 Economic Growth and Development 3 s.h.
- 6E:133 Environmental and Natural Resource Economics 3 s.h.
- 6E:135 Regional and Urban Economics 3 s.h.
- 6E:141 Economics of American Industries 3 s.h.

**Humanities and Social Science Electives**
These must be selected to satisfy the College of Engineering requirements. Noted social science electives are highly recommended. An advising guide for humanities sequences may be obtained from the office of the dean.

**Mathematics and Statistics Electives**
Students may select from the following list.
- 22M:42 Vector Calculus for Engineers 3 s.h.
- 22M:72 Elementary Numerical Analysis 3 s.h.
- Advanced statistics course (with adviser’s approval) 3 s.h.

**Engineering Science Electives**
Students may select one of the following courses.
- 57:10 Dynamics 3 s.h.
- 57:12 Linear Systems Analysis 3 s.h.
- 57:18 Principles of Electronic Instrumentation 4 s.h.
- 57:19 Mechanics of Deformable Bodies 3 s.h.
- 57:20 Mechanics of Fluids and Transfer Processes 4 s.h.
- Technical Electives
Students may select 9 semester hours from the list below, plus 3 semester hours with consent of adviser; or 6 semester hours from the list below, plus 3 semester hours from the engineering science electives and 3 semester hours with consent of adviser.
- 56:98 Individual Investigations: Industrial Engineering 3 s.h.
- 56:132 Introduction to Industrial Robotics 3 s.h.
- 56:138 Artificial Intelligence in Design and Manufacturing 3 s.h.
- 56:143 Advanced Ergonomics/Human Factors 3 s.h.
- 56:146 Advanced Managerial Psychology 3 s.h.
- 56:150 Information Systems Design 3 s.h.
- 56:151 Microcomputer Applications 3 s.h.
- 56:153 Engineering Administration I 3 s.h.
- 56:155 Quantitative Investment Analysis 3 s.h.
- 56:156 Engineering Economic Decisions 3 s.h.
- 56:163 Quality Engineering I 3 s.h.
- 56:164 Reliability Theory and Practice 3 s.h.
- 56:176 Regression and Design 3 s.h.
- 56:195 Contemporary Topics in Industrial Engineering 3 s.h.

**Specialization in Quality Engineering**
Quality engineering is the specialization in the engineering profession that is concerned with the design, manufacture, delivery, maintenance, and use of products and services over their life cycles. Since quality is the fitness of these products or services to meet customer needs, engineers must identify and improve quality throughout all phases of the design creation and use. Quality has an economic dimension in costs that occur during the design, manufacture, and use of products and services.

The background requirements of quality engineering are similar to those of industrial engineering. Consequently, a specialization in quality engineering can be obtained through the judicious selection of elective courses in the industrial engineering program. For the specialization requirement, 12 semester hours are required from the following list.
- 56:153 Engineering Administration I 3 s.h.
- 56:163 Quality Engineering I 3 s.h.
- 56:164 Reliability Theory and Practice 3 s.h.
- 56:176 Regression and Design 3 s.h.
- 22S:158 Experimental Design and Analysis 3 s.h.

These courses replace the 12-semester-hour technical elective requirement of the industrial engineering program. Students who meet the requirements of the quality engineering specialization receive certificates noting this emphasis in conjunction with their B.S.E. degree in industrial engineering.

**Graduate Programs**
Graduate programs in industrial engineering are tailored to meet the needs of the individual. Each student’s program of study is based on his or her background, career objectives, and sound academic practice. The curriculum is highly flexible; the goal is academic excellence.

There are five principal areas of academic focus in the graduate program in industrial engineering: manufacturing, human factors engineering/ergonomics, engineering management, quality and production control, and operations research and applied statistics.

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 in computer-aided process planning, computer-aided design, computer-controlled manufacturing, concurrent engineering, and applications of artificial intelligence in manufacturing are covered.

Ergonomics, or human factors studies, concentrate on applying the psychological, physiological, and sociological sciences and arts to problems in manufacturing and service systems. These problems concern fitting jobs and organizations to the people who perform those jobs within the organization as well as managing and motivating those people. Courses in the 40 series cover these topics.

Engineering management studies concentrate on engineering administration, engineering economics, and information systems. This area is covered by courses in the 50 series.

The quality and production control area consists of facilities design, quality assurance, reliability, and production control. This area of concentration is covered by courses in the 60 series.

Studies in operations research and applied statistics concentrate on mathematical, 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. Courses in the 70 series cover these topics.

Students in the graduate program participate in research in the areas of their academic concentration. Ongoing manufacturing research consists of flexible manufacturing systems, design, optimum control of processes, adaptive manufacturing control of turning and welding, parametric robotic control, and automatic pattern recognition of parts.

Current research in human factors ergonomics consists of investigating the effects of visual and auditory displays on human information processing; predicting human performance time statistics with cognitive tasks, and the effects of aging on human performance. Industrial engineering faculty and students use the Iowa Driving Simulator, which is one of the most advanced simulation facilities in the world. Other research in this area includes computer-aided problem solving, machine-person compatibility, ground vehicle control, intelligent highway vehicle systems, and techniques of ergonomic data collection and analysis.

Some current research in engineering management consists of entrepreneurship, parametric cash flow analysis, strategic management, and economic risk analysis. Quality and production control research currently focuses on measures for corporate quality, computer-aided layout and scheduling,
just-in-time production, inspection, and on-line expert systems in process control.

Ongoing research in operations research and applied statistics is centered on optimization, expert systems in scheduling and dispatching, simulation and random number generation, and the development of programming techniques for classification problems. Other research is directed toward extending the capabilities of computer graphics.

Master of Science

Two M.S. programs are available: thesis and nonthesis. Students considering eventual admission to a Ph.D. program should select the thesis option, which requires a minimum of 30 semester hours of 100- or 200-level courses, including a maximum of 8 semester hours of research. Students who elect the nonthesis option must complete a minimum of 36 semester hours of course work at the 100 or 200 level, including at least 9 semester hours at either the 200 level or at the 100 level with the designation “advanced” or “contemporary topics” in the course title.

Each student develops a tentative plan of study through consultation with his or her adviser; the final plan of study is reviewed by the student’s examining committee and approved by the industrial engineering program chair and the Graduate College dean.

Entering students in all programs need a background in computer programming, probability, statistics, and mathematics equivalent to that required in accredited undergraduate engineering programs. Both verbal and written skills in the English language are essential. Engineering management and human factors students will find psychology and engineering economics to be useful preparation. Compensatory course work may be required for students with nonengineering backgrounds.

Students are required to maintain a 3.00 minimum grade-point average on all graduate course work (both 100- and 200-level courses) at The University of Iowa in order to be eligible for the M.S. The nature of the final examination is specified by the examining committee. It may consist of both written and oral exams. Student course preparation and thesis defense or an appropriate individual investigation normally are included.

Doctor of Philosophy

Typically, Ph.D. programs in industrial engineering require at least 72 semester hours of study, including research for the dissertation. Actual study requirements above this minimum are specified by the student’s advisory committee. There is no foreign language requirement or special requirement for research techniques. Admission to degree candidacy requires a 3.25 minimum grade-point average on all graduate work taken at The University of Iowa and the demonstration of a capacity for individual achievement.

Upon completing the course work specified by the adviser and advisory committee, the student is admitted to the comprehensive examination, which includes both written and oral parts. Part of this examination usually includes the presentation of a dissertation proposal, so that the advisory committee can evaluate the student’s academic preparation in light of the research to be performed. Upon satisfactorily completing this examination, the student is accepted as a candidate for the Ph.D. and usually has only to complete and defend the dissertation.

Part-time Ph.D. study is discouraged.

Admission

Students with an M.S. objective may be admitted from an ABET-accredited baccalaureate curriculum in any engineering discipline or in the mathematical or physical sciences with a 2.75 minimum grade-point average and/or an acceptable score on the Graduate Record Examination (GRE) General Test (typically at least 400 verbal, 650 quantitative). Applicants from non-U.S. institutions must meet equivalent conditions for regular admission. Students may be considered for conditional admission with a lower grade-point average and lesser GRE General Test scores.

Students from business or social science programs who have adequate mathematical preparation also may be considered for regular or conditional admission. Students on conditional status must achieve regular status within two sessions of registration by attaining a 3.00 minimum grade-point average and gaining regular acceptance by the industrial engineering program faculty; otherwise, they are dismissed. Admissions may be limited by the number of faculty and other available resources.

Students with a Ph.D. objective may be admitted from an ABET-accredited baccalaureate or a postbaccalaureate curriculum in any engineering discipline or in the mathematical and physical sciences with a 3.00 minimum grade-point average and/or an acceptable GRE General Test score (typically at least 500 verbal, 750 quantitative). Applicants from outside the United States must meet equivalent requirements for regular admission as determined by The University of Iowa. Students also may be admitted from business or social science programs as determined individually. Students who want to earn a Ph.D. and who have a B.S. degree or an M.S. degree without thesis usually are first admitted to the M.S. program. All admissions to the Ph.D. program are approved by the departmental graduate studies committee.

Financial Aid

A number of one-quarter-time and one-half-time graduate student teaching and research assistantships are available. 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 higher stipend instructor positions. Students should write to the chair of the industrial engineering department for further information.

Special Facilities and Laboratories

Engineering Core

Information about laboratories associated with core courses coordinated by other departments can be found in the Catalog sections for each of the other engineering departments.

Required and Elective Course Laboratories

Industrial engineering occupies the north wing of the fourth floor in the Engineering Building. Most departmental classes and seminars meet there, and faculty and graduate student offices are located there. Departmental laboratories are located in the Engineering Building. The Iowa Driving Simulator is located in the Engineering Research Facility.

INTEGRATED MANUFACTURING SYSTEMS LABORATORY

This facility has equipment that supports instructional and research needs in manufacturing operations and systems. Included are a variety of small-scale robots; automatic vision and sensing devices; microcomputers of various types; Hewlett-Packard workstations, a digital camera for computer pattern recognition; a television camera, recorder, and player; precision controller devices; programmable controllers; actuation devices; and reconfigurable construction units for modeling physical material handling systems.

Software is available for part geometry, generating computer numerical control (CNC) programs, computer process planning, expert systems, and for other general purposes.

HUMAN FACTORS/ERGONOMICS LABORATORY

This laboratory facilitates human factors/ergonomics research and education. It contains microcomputers and minicomputers with numerous peripherals for the real-time collection and analysis of human performance data as well as alternative forms of information displays and human response recorders.

IOWA DRIVING SIMULATOR (IDS) LABORATORY

Many students and faculty in ergonomics/human factors are associated with the ground vehicle simulator located in the Engineering Research Facility. The facility contains a state-of-the-art computer vision system for generating high-definition visual scenes, which include other moving vehicles that operate in intelligent ways. There is a Ford Taurus body in the laboratory with realistic auditory and vibratory cues. The IDS is controlled by computers with power approximating a Cray. The laboratory will continue to serve as the primary driving simulator on campus until the new National Advanced Driving Simulator (NADS) is completed on the University’s Oakdale campus.

COMPUTER-AIDED MANUFACTURING (CAM) LABORATORY

This laboratory is used to teach CAD (computer-aided design) and CAM programming and to set up projects to demonstrate various
computer-integrated manufacturing technologies. Hardware and software are available to design parts and plan processing, including generation of CNC program files.

Typical activities conducted in the laboratory include geometric modeling; transfer of geometric files and other design data to conduct process-planning experiments; assignment of part codes and identification of the most cost-effective machine assignments for the part processing; definition of the operation sequences and calculation of optimal process settings; generation of CNC part programs and support data; and download of appropriate machining instructions and data to preset CNC machines (small-scale or full-scale) to make the parts. Laboratory equipment includes IBM, Macintosh, and Apple IIe microcomputers; HP workstation; small-scale machine tools (milling and turning); and different types of industrial controls.

**COMPUTER NUMERICAL CONTROL (CNC) MACHINING LABORATORY**

Students gain hands-on experience in programming and operating a CNC lathe and an automated storage and retrieval system in this laboratory. CNC programs can be developed through the machine control keyboard or downloaded via RS232C data link from a programming station in the CAM Laboratory. Research studies in the machinability of various metals for different cutting tool and machining variables are being conducted. An automated storage and retrieval system and robot for assembly of electronic components are used for instruction and research projects.

Future additions to the laboratory include the purchase of a full-size CNC milling machine, a coordinate measurement machine, machine loading robot, and additional test, measurement, and recording equipment to interface with the machine tools.

**MANUFACTURING PROCESSES LABORATORY**

This laboratory provides improved facilities and equipment for automated arc welding. Gas metal arc welding (GMAW or MIG) systems are used in undergraduate courses to demonstrate process control issues, and in research to investigate process relationships during high-speed welding. A full-size welding robot fabrication cell is also planned for the laboratory to facilitate further investigation of the weld process variable control problem and analytically based, off-line programming techniques.

**INTELLIGENT SYSTEMS LABORATORY**

Hewlett-Packard workstations, IBM personal computers, and Macintosh IIci microcomputers with extended disc and operating memory are housed in this laboratory. Software for design and building intelligent systems is available, including expert system shells (VP Expert, NExpress), logic programming languages (LISP, PROLOG), intelligent CAD design software (Ashlar-Vellum), simulation software (SIMAN, SLAM, TESS), a voice recognition system, specialized programs for design of products and systems, and software for analysis of design and manufacturing processes.

### Courses

#### Special

**56:000 Cooperative Education Training** 0 s.h.
Assignment: Industrial Engineering 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. Admission to Cooperative Education Program and consent of faculty advisor required.

**56:91 Professional Seminar: Industrial Engineering** 0-4 s.h.
Professional aspects of industrial engineering presented through lectures and discussion by guest speakers, field trips, films, panel discussions. May be repeated. Junior standing required.

**56:98 Individual Investigations: Industrial Engineering** 1 arr.
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. Consent of course adviser required.

#### Manufacturing

**56:31 Manufacturing Processes** 3 s.h.
Fundamentals of operating typical industrial materials including casting, heat treating, welding, machining, numerical control, forming, finishing, automation, economics, design considerations, planning of manufacturing operations; performance and quality measurement; laboratory exercises and projects. Offered fall semesters. Prerequisite: 57:15.

**56:311 Manufacturing Systems** 3 s.h.
Manufacturing as systems consisting of computer and microprocessor-based control systems; part design and manufacture using CAD/CAM; technical and economic make-offs regarding the design, selection, implementation of various degrees of computer aiding in manufacturing systems; computer numerical control (CNC) machining, automated material handling, automated assembly, flexible manufacturing systems. Offered spring semesters. Prerequisites: 56:31 and 57:21, or consent of instructor.

**56:132 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. Prerequisites: 56:31 and 57:6.

**56:134 Concurrent Engineering** 3 s.h.
Design and manufacturing specifications based on customer needs; design methodologies of products; reengineering of design and manufacturing processes; tools for concurrent engineering; group projects. Offered fall semesters. Prerequisites: 56:31, 56:140, and 57:22.

**56:138 Artificial Intelligence in Design and Manufacturing** 3 s.h.

**56:231 Computer-Integrated Manufacturing** 3 s.h.
Design and operational issues related to the integration of computers in manufacturing systems; theoretical and applied topics. Offered fall semesters. Graduate standing or consent of instructor required.

**56:236 Artificial Intelligence in Design and Manufacturing** 3 s.h.
Neural networks, knowledge acquisition and verification techniques, concept learning: applications of artificial intelligence in concurrent engineering. Consent of instructor required.

#### Human Factors/Ergonomics

**56:140 Ergonomic Design** 3 s.h.
Human-centered design of manufacturing systems, commercial products; time-methods-motion study, information sampling, workplace and handbook design, human factors of product quality, community service design for occupational safety and health, cognitive engineering in ergonomics design, design of selection and training systems; laboratories and design projects. Offered spring semesters. Prerequisites: 22S:39 or 22S:120 and 56:142.

**56:142 Human Factors Engineering** 3 s.h.
Design of operator machine systems and development of optimum work environment through principles of behavioral science; emphasis on sensory and perceptual processes, motor skills, experimental methodology. Offered fall semesters. Prerequisite: 31:1 or 31:3. Same as 31:155.

**56:143 Advanced Ergonomics/Human Factors** 3 s.h.
Theory of signal detectability and inspection, information theory, behavioral decision theory, perception and reaction time experiments, cognitive tasks of information-seeking, human reliability, process control, problem solving. Offered spring semesters. Prerequisite: 56:142. Corequisite: 56:140.

**56:145 Psychology in Management** 3 s.h.
Application of psychological principles to human relations and supervision, motivation, leadership, communication, group pressures. Offered fall semesters. Same as 31:156.

**56:146 Advanced Managerial Psychology** 3 s.h.
Selected recent literature on managerial psychology. Offered spring semesters. Prerequisite: 56:145.

**56:240 Advanced Topics in Human Factors Design** 3 s.h.
Design, evaluation techniques for complex human/system interfaces; application of design and evaluation principles and techniques to real-world problems; design, critique of several consumer products. Prerequisite: 56:143 or consent of instructor.

**56:241 Research Methods in Human Factors Engineering** 3 s.h.
Logic and methods of research in the discipline; usability testing, system evaluation, engineering research, design, execution, analysis, reporting of human factors research. Prerequisite: 56:143 or intermediate level statistics course or consent of instructor.

#### Engineering Management

**56:150 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: 56:140.

**56:151 Microcomputer Applications** 3 s.h.
Programming and interfacing microcomputers for industrial applications; essentials of microprocessor-based applications; software, hardware, peripherals; control algorithms, interface circuits, software for applications such as process control, machine control, robot systems, product testing, material handling, decision support; laboratory projects; primarily for senior and graduate industrial engineering students. Offered spring semesters. Prerequisite: 56:17 or consent of instructor.

**56:153 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. Corequisites: 31:156.

**56:155 Quantitative Investment Analysis** 3 s.h.
Investment criteria; benefits/cashflow analysis; risk analysis; applications in production and quality planning; facilities-equipment acquisition and replacement; research, development, design, capital budgeting. Offered fall semesters of odd-year Prerequisites: 22S:39 or 22S:120 and 57:14, or consent of instructor.

**56:156 Economic Engineering Decisions** 3 s.h.
Risk analysis; decisions in design and management applications, decision rules, utility theory, Bayesian analysis and information, conjugate distributions, decision strategies, multicriteria objectives. Offered fall semesters of even years. Prerequisites: 22S:39 or 22S:120, and 57:14, or consent of instructor.

**56:250 Software Systems for Engineering Applications** 3 s.h.
Design and implementation of computer-based systems relating to management and engineering problems; principles, practices in the development of computer software systems; application and use of data structures in software design, current topics in the field; design project required. Offered spring semesters of even years. Prerequisite: 56:160 or consent of instructor.

**56:255 Engineering Administration II** 3 s.h.
Continuation of 56:153; readings that emphasize practices in superior and high technology organizations. Offered spring semesters. Prerequisite: 56:155 or consent of instructor.
Quality and Production Control

56:160 Operational Systems Design 4 s.h.
Project involving the design of products and related operational systems in an industrial or service organization, including associated entrepreneurial or intrapreneurial planning. Offered spring semesters. Prerequisites: 56:154 and 57:14.

56:162 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 spring semesters. Prerequisite: 22S:39. Same as 22S:133.

56:163 Quality Engineering I 3 s.h.
Engineering techniques for designing quality into manufactured products; process design; analysis of multifactor experiments, economics of reducing variation, critique of Taguchi methods. Offered spring semesters. Corequisite: 56:162 or consent of instructor.

56:164 Reliability Theory and Practice 3 s.h.
Theory and models relating to the life of components and repairable systems: common distributions, hazard functions; exact and approximate systems; renewal, repair theory; related parameter estimation. Offered fall semesters. Prerequisite: 56: 162.

56:166 Production Systems 3 s.h.
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, knowledge-based systems. Offered spring semesters. Prerequisite: 56:171.

56:263 Quality Engineering II 3 s.h.
Continuation of 56:166; signal-to-noise ratios, other data transformations; empirical model building and response surface methods for quality engineering; combined-array, product-array techniques for optimizing quality. Prerequisite: 56: 163.

Operations Research and Applied Statistics

56:171 Operations Research 3 s.h.
Operations research models and applications emphasizing both deterministic and probabilistic models: linear programming, duality, parametric analysis, dynamic programming, queueing theory, games, decision theory. Offered fall semesters. Prerequisites: 22S:39 and 57:21.

56:176 Regression and Design 3 s.h.
Analysis of the multiple linear regression model, matrix approach, residual analysis, variable selection, dummy variables, regression diagnostics, use of statistical computer packages. Prerequisite: 22S:120 or equivalent. Same as 22S:132.

56:178 Digital Systems Simulation 3 s.h.
Digital simulation modeling and analysis; emphasis on construction of models and interpretation of model outputs; discrete time modeling, continuous time modeling, network modeling, combined discrete-continuous-network modeling; construction of model related databases, applications. Offered fall semesters. Prerequisite: 57:22 or graduate standing.

56:270 Linear Programming 3 s.h.
Mathematical models, theory, algorithms for linear optimization, including variants of the simplex algorithm, duality theory, post-optimality analysis, decomposition of large-scale problems, piece-wise linear programming. Offered spring semesters. Prerequisite: 56:171 or equivalent.

56:271 Nonlinear programming 3 s.h.
Mathematical models, theory, algorithms for constrained and unconstrained optimization; nonlinear, geometric, quadratic, dynamic programming; optimality conditions; aspects of duality theory. Offered spring semesters. Prerequisite: 56:171 or equivalent.

56:272 Integer Programming and Network Flows 3 s.h.
Theory, algorithms, applications 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 and location of facilities in networks. Offered fall semesters. Prerequisite: 56:171 or equivalent.

56:273 Stochastic Systems 3 s.h.
Probabilistic operations research models and algorithms, with emphasis on applications in manufacturing and production planning, random processes: Markov chains and applications, probability of decision problems; queuing models. Prerequisites: 56:171 and introductory course in probability models.

Graduate Seminars, Advanced Topics, Research

56:191 Graduate Seminar Industrial Engineering 0 s.h.
Recent advances and research in industrial engineering presented by guest lecturers, faculty, students. Graduate standing required.

56:195 Contemporary Topics in Industrial Engineering 3 s.h.
New topics or areas of study not offered in other industrial engineering courses; topics based on faculty/student interest. Senior standing required.

56:198 Individual Investigation: Industrial Engineering 3 s.h.
Individual projects for industrial engineering graduate students: laboratory study, engineering design, analysis and simulation of an engineering system, computer software development, research. Graduate standing and consent of adviser required.

56:199 Research: Industrial Engineering, M.S. 3 s.h.
Thesis Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for M.S. with thesis in industrial engineering. Graduate standing and consent of adviser required.

56:295 Advanced Topics in Industrial Engineering 3 s.h.
Discussion of current literature in industrial engineering. Consent of instructor required.

56:299 Research: Industrial Engineering, Ph.D. 3 s.h.
Dissertation Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for Ph.D. in industrial engineering. Consent of adviser required.

MECHANICAL ENGINEERING

Chair: Lea-Der Chen

Graduate standing and consent of adviser required.

M.S. 3 s.h.
Graduate degrees: B.S.E. in Mechanical Engineering

M.S., Ph.D. in 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, environmental control, materials processing, transportation, materials handling, and other purposes. A description of the field includes thermal-fluids engineering and mechanical systems engineering.

THERMAL-FLUIDS ENGINEERING

Thermal-fluid phenomena occur in many engineering systems and devices, such as aircraft; gas turbines; heat exchangers; material processes; heating, ventilating, air-conditioning, and refrigerating systems; and biomedical systems. Work on these systems requires an interdisciplinary team in which the mechanical engineer is an important member.

MECHANICAL SYSTEMS

Mechanical systems and machines are the foundations of human technology. Examples of such systems and devices are manufacturing equipment, automobiles, tractors, ships, home appliances, packaging machinery, and aircraft.

Mechanical engineers find employment opportunities in a wide variety of jobs, including those in industry, government, and education. Mechanical engineers form an integral part of most industries, including aerospace firms, energy-generation utilities, automobile manufacturers, food- and metal-processing industries, petroleum refineries, electronic and computer manufacturers, heavy construction vehicle manufacturers, thermal comfort firms, and farm implement firms.

Undergraduate Program

The objective of the mechanical engineering program is to provide the student with a sound preparation for a career in the field. In addition to the specified courses in the curriculum, students choose social science, humanities, and technical elective courses in accordance with program guidelines. Upper-level students are required to work on group projects in a senior-level capstone design course, 58:86 Mechanical Engineering Project. Participation in established research projects may be arranged. The undergraduate education of a mechanical engineer at The University of Iowa is based on four curriculum stems: mathematics and basic sciences; engineering sciences; engineering design; and humanities and social sciences. Mathematics, physics, and chemistry are considered to be basic disciplines on which a future mechanical engineer must build. Parallel to the mathematics and basic sciences are the engineering sciences: statics, dynamics, thermodynamics, mechanics of deformable bodies, mechanics of fluids and transfer processes, materials science, and electrical sciences. An understanding of these sciences enables a mechanical engineer to design parts of systems, to understand the total mechanical system, to plan the production and utilization of energy, to plan and operate industrial manufacturing facilities, and to design automatic control systems for machines and other mechanical systems.

In addition to the purely mechanical engineering considerations, there are many complex issues in our modern society that involve environmental, economic, managerial, and political decision making. Therefore, mechanical engineers must possess appreciation of social and humanitarian issues relating to government, business, religion, history, language, and international relations.

Curriculum

To earn a Bachelor of Science in mechanical engineering, students must complete a minimum of 128 semester hours of credit. The curriculum is arranged so that courses in the
four stems are introduced in an effective sequence and with a balanced emphasis.

*The humanities and social science electives must be selected to satisfy the humanities and social science requirements of the College of Engineering.

FRESHMAN YEAR

First Semester
413 Principles of Chemistry I 3 s.h.
10:3 Accelerated Rhetoric 4 s.h.
22M:35 Engineering Calculus I 4 s.h.
57:5 Engineering I 3 s.h.
*Social science elective 3 s.h.

Second Semester
416 Principles of Chemistry Lab I 2 s.h.
22M:36 Engineering Calculus II 4 s.h.
22M:40 Matrix Algebra for Engineers 2 s.h.
29:17 Introductory Physics I 4 s.h.
57:6 Engineering II 3 s.h.

Sophomore Year

First Semester
22M:42 Vector Calculus for Engineers 3 s.h.
29:18 Introductory Physics II 4 s.h.
57:7 Statics 2 s.h.
57:9 Thermodynamics I 3 s.h.
57:15 Materials Science 3 s.h.
*Humanities or social science elective 4 s.h.

Second Semester
22M:41 Differential Equations for Engineers 3 s.h.
57:8 Electrical Circuits 3 s.h.
57:10 Dynamics 3 s.h.
57:19 Mechanics of Deformable Bodies 3 s.h.
*Humanities elective (100 level) 3 s.h.

Junior Year

First Semester
225:39 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
57:12 Linear Systems Analysis 3 s.h.
57:20 Mechanics of Fluids and Transfer Processes 4 s.h.
57:21 Principles of Design I 3 s.h.
57:18 Principles of Electronic Instrumentation 4 s.h.
58:91 Professional Seminar: Mechanical Engineering 0 s.h.

Second Semester
29:83 Modern Physics 3 s.h.
58:40 Thermodynamics II 3 s.h.
58:45 Heat Transfer 3 s.h.
58:52 Mechanical Systems 3 s.h.
58:91 Professional Seminar: Mechanical Engineering 0 s.h.
*Humanities elective 3 s.h.

Senior Year

First Semester
58:48 Thermal-Fluid Systems Design 4 s.h.
58:55 Mechanical Systems Design 4 s.h.
58:91 Professional Seminar: Mechanical Engineering 0 s.h.
Technical electives 6 s.h.
*Social science elective (100 level) 3 s.h.

Technical Electives

These permit students to develop a broader background and a deeper understanding in selected fields of mechanical engineering. Because most of these courses build on earlier courses in the curriculum, students' choices may result from an interest developed in the basic courses. Students should consult with and obtain approval from their academic adviser before selecting elective courses.

Guidelines for selecting technical electives are:

1. a minimum of two electives from mechanical engineering courses must be taken;
2. engineering courses at the 100 level, as well as mathematics, physics, or chemistry courses at a more advanced level than those required in the curriculum, may be taken as technical electives;
3. one elective course may be chosen from engineering courses that are required in another engineering curriculum;
4. one course from the College of Business Administration may be elected, with the exception of accounting or economics courses numbered below 100; economics courses may be taken as social science electives; and
5. a maximum of 3 semester hours of individual investigation may be used as elective credit; individual investigations are not routinely undertaken, but they may be allowed in special circumstances.

Guidelines for selecting technical electives are:

Students are encouraged to take courses in several areas to gain a broad background in mechanical engineering. The following are some technical elective courses.

Control Systems Engineering
58:131 Feedback Control Systems 3 s.h.
58:132 Control System Design 3 s.h.
58:133 Control Theory 3 s.h.
58:134 Computer-Based Control Systems 3 s.h.

Mechanical Systems Engineering
58:130 Computer-Aided Engineering 3 s.h.
58:150 Intermediate Mechanics of Deformable Bodies 3 s.h.
58:151 Planar Kinematics and Dynamics of Machines 3 s.h.
58:153 Fundamentals of Vibrations 3 s.h.
58:155 Intermediate Dynamics 3 s.h.
58:156 Fatigue/Durability in Design 3 s.h.
58:159 Fracture Mechanics 3 s.h.
58:170 Composite Materials 3 s.h.

Thermal Systems Engineering
58:140 Intermediate Thermodynamics 3 s.h.
58:145 Intermediate Heat Transfer 3 s.h.
58:146 Combustion and Propulsion Engineering 3 s.h.

Graduate Programs

The goal of the graduate program in the Department of Mechanical Engineering at both the M.S. and Ph.D. levels is to educate students in the disciplines of mechanical engineering in more depth and breadth than is possible at the B.S. level. This preparation allows 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, as well as on sound academic practice. Departmental faculty members have teaching and research expertise in energy 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. M.S. students desiring a more general program may combine emphases, while those wishing a degree of specialization in energy conversion, materials engineering, automatic control, or chemical processes may combine departmental courses and appropriate electives from other departments of the College of Engineering and the University. Ph.D. programs may center in any of these areas through choice of appropriate course work and research topic.

Information on the graduate programs in mechanical engineering is published in the Graduate Student Handbook available in the department office.

Research

Fluid Mechanics

The graduate program in fluid mechanics provides the student with 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. Elucidation of
fundamental principles and techniques of solving problems in the various fields of application are emphasized, with focus on the use of computers, both in the mathematical modeling of flow phenomena and in the acquisition and processing of experimental data.

Although most of the relevant courses are offered by the Department of Mechanical Engineering, students are strongly encouraged to take applied mathematics and classical mechanics courses offered by the mathematics and physics departments in the College of Liberal Arts and by other departments in the College of Engineering.

Current research projects include computational modeling of viscous and turbulent flows; vortex dynamics; unsteady flows; flow separation and control; biofluid dynamics; automobile aerodynamics; ship hydrodynamics; viscous flow around ships; propulsion flow and propulsion-body interactions; free-surface effects; nonlinear wave theory; two-body hydrodynamic interactions; underwater acoustics; low Reynolds-number flows; quantitative flow visualization and image processing; and laser Doppler and thermal anemometry for flow analysis.

**Thermal Sciences**

The graduate program in thermal sciences and systems provides students with a rigorous and broad foundation in the theoretical and experimental aspects of the subject, thus preparing them for careers in industry, teaching, and government. The program emphasizes fundamentals of thermodynamics, heat transfer, and combustion, and associated analytical, numerical, and experimental methods used in energy conversion systems. Areas of concentration include fluid mechanics, thermodynamics, heat transfer, phase-change, and combustion.

Although most of the relevant courses are offered by the department, students are encouraged to supplement them with courses from other departments in mathematics and classical physics in the College of Liberal Arts and other departments in the College of Engineering, in order to balance their programs.

Current research projects include analytical, numerical, and experimental investigations of convective and radiative heat transfer with real gas and surface effects; laminar and turbulent heat transfer; shock ignition of particle-laden gases, hot spot ignition of condensed-phase energetic materials, transition to detonation in granular materials; natural convection; turbulent jet as well as turbulent flow; diffusion flames, spray atomization and combustion, liquid-metal combustion; transport phenomena in materials processing, melting and solidification, porous media, double-diffusive convection; optimal control of thermal systems; electronic thermal control; and flow visualization of complex convection processes.

**Mechanical Systems**

The graduate program in mechanical systems provides students with a strong background in theoretical, computational, experimental, and applied aspects of the subject and prepares them for careers in high-level applied research, advanced system analysis, design, and teaching.

The program emphasizes fundamental principles, techniques, and experimentation used to analyze and design mechanical systems. Areas of concentration include vehicle dynamics and simulation, machine dynamics, optimal design, structural optimization, control systems, and fatigue and fracture mechanics.

Although most of the relevant courses are offered by the Department of Mechanical Engineering, students are encouraged to take appropriate courses offered by the mathematics, statistics, and physics departments in the College of Liberal Arts and those offered by other departments in the College of Engineering.

Current research projects include state space theory of structural optimization; design sensitivity analysis of rigid and flexible mechanical systems; computer-aided design; computer-aided engineering visualization and communication; geometric modeling; mechanical system modeling; integrated computer-aided engineering design; real-time dynamic simulation; vehicle system dynamics; dynamic systems with intermittent motion; design sensitivity analysis of structural systems; shape optimal design; optimization of built-up structures; optimal structural design under dynamic loads; computer-aided analysis; design and optimization of large-scale mechanical systems; control system modeling and simulation; design of controls for nonlinear systems based on interfacing of mechanical system and control system simulation programs; simulation of hydraulic control actuation; damage-tolerant design using fracture mechanics; and fatigue behavior and life prediction under constant and variable amplitude loading.

**Master of Science**

The M.S. program requires a minimum of 30 semester hours of course work and research. Students may choose the thesis or nonthesis program. Usually, 6 and no more than 9 semester hours of credit for thesis research and writing may be counted toward the 30-semester-hour requirement. Each student determines a plan of study in consultation with an adviser and submits the plan to the department chair for approval.

To earn the M.S., the student must maintain a 3.00 minimum grade-point average 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 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.

**Doctor of Philosophy**

Typically, Ph.D. programs in mechanical engineering require approximately 90 semester hours of credit-including research for the dissertation-beyond the baccalaureate degree. Students must pass the qualifying examination administered in the department to be formally admitted to the doctoral program.

The student takes the comprehensive examination after passing the qualifying examination and when the course work specified in the plan of study 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, the student must be in good academic standing and must be recommended by his or her adviser. 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. degree usually can be completed in three to four years beyond the M.S. degree.

**Admission**

Students who have earned a baccalaureate or master’s degree in an engineering curriculum or in a curriculum in the mathematical or physical sciences are eligible to be considered for admission to the graduate program in mechanical engineering. In order to be considered for regular admission, the student must have a 3.00 minimum grade-point average on all previous college-level work and minimum Graduate Record Examination (GRE) General Test scores of 500 verbal and 750 quantitative. For students whose native language is not English, a minimum Test of English as a Foreign Language (TOEFL) score of 350 may be substituted for the GRE verbal requirement.

Students may, under exceptional circumstances, be considered for conditional admission with a lower grade-point average and/or GRE or TOEFL test scores. The student with conditional status must achieve regular status within one semester (excluding summer sessions) after admission. To satisfy this requirement, the conditionally admitted student must attain a 3.00 minimum grade-point average on an initial registration of 9 semester hours at The University of Iowa. Students who have not submitted their GRE and/or TOEFL scores by the end of the first regular semester after admission will have their registration for the subsequent semester canceled by the Graduate College.

**Financial Aid**

Financial support is available to M.S. and Ph.D. students, primarily through teaching and research assistantships from the Department of Mechanical Engineering, the Center for Computer-Aided Design, and the Iowa Institute of Hydraulic Research. 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. Advanced doctoral students also may qualify for higher stipend instructor positions. All applications for financial support should be submitted directly to the department chair.

M.S. students with a one-quarter-time or more appointment are required to register for a minimum of 9 semester hours during fall and spring semesters until they have completed 30 semester hours of course and research work beyond the baccalaureate degree; Ph.D. students with one-quarter-time or more appointments must register for a minimum of 9 semester hours during fall and spring semesters until they have completed 90 semester hours of course and research work beyond the baccalaureate degree. Once they meet these minimums, graduate students must register for a minimum of 3 semester hours each semester. Students with appointments must register during summer sessions. 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. One semester of final M.S. or post-Ph.D. comprehensive registration is permitted for students who have completed their requirements but have not yet received their degrees.

Special Facilities and Laboratories

Undergraduate Instruction

Engineering Core

The laboratories for fluid flows and transport processes contain a wind tunnel; a water flume; a water flume; a water flume; and oil flow devices; and facilities for numerous 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 engineering departments, see the subsection for each department.

Required and Elective Course Laboratories

The mechanical engineering laboratory for experimental engineering provides undergraduate students with exposure to contemporary sensors, signal conditioners, instrumentation, and computer-aided data acquisition systems.

The laboratory for mechanical engineering projects provides for either group 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 on-line on computer. Experiments in heat transfer measurements are made in this laboratory.

Graduate Facilities and Laboratories

FLUID MECHANICS

The program in fluid mechanics is conducted in close collaboration with the Iowa Institute of Hydraulic Research, which houses some of the most modern research facilities in the world. The equipment available to graduate students includes several wind tunnels and hydraulic flumes, an environmental flow facility, a 300-foot towing tank, two special low-temperature flow facilities for investigation of ice phenomena, pulsatile-flow apparatus, unsteady flow water tunnel, hot-wire and laser anemometer systems, and computer-based data-acquisition systems.

In the department, the facilities available include a flow visualization and imaging system with CCD (Charge Coupled Devices) camera, a low-speed wind tunnel, a water table, and a water flume. Institute and engineering college workshops provide the necessary support.

THERMAL SCIENCES

Facilities for research in the thermal sciences and systems consist of a spectral bidirectional reflectometer for radiant property measurements, a low-pressure combustion chamber, a diffusion flame test rig, a 20-liter explosion vessel, an air atomization spray apparatus, test stands for melting and solidification studies, and various optical measurement systems. Laser-based diagnostics (e.g., laser-induced fluorescence, planar imaging, and laser Doppler anemometry) are available for turbulent flow, heat transfer, and combustion studies. Flow visualization and imaging by CCD camera is available for the study of complex fluid motion, heat convection, and combustion flows.

Several laboratories are served by computer-based data-acquisition systems. Workstations connected to IC# and the Weeg Computing Center are available for data reduction and analysis.

FATIGUE AND FRACURE

Experimental facilities for the fatigue and fracture mechanics segment of the department include access to a scanning electron microscope, a field computer data-acquisition system, modern servo-hydraulic closed-loop fatigue test equipment, and equipment for characterization of material properties. Normal strength of materials test equipment also is available.

MECHANICAL SYSTEMS

Simulation activities in the mechanical systems area are usually carried out in the Center for Computer-Aided Design. The center’s computing facilities consist of an Alliant FX/50 supercomputer, an Alliant FX/8 mini-supercomputer, a large heterogeneous network of workstations ranging from desktop systems to high-performance 3-D graphics workstations, and other related computer equipment. Center researchers also have access to the Iowa Driving Simulator (IDS), the most advanced facility of its kind in the United States. The IDS is composed of an Evans and Sutherland CT6 Image Generator and Gould front-end computer, Harris Nighthawk 4404 and 1202 real-time computers, and the center’s Alliant FX/500.

Courses

Special Topics

58:00 Cooperative Education Training Assignment: Mechanical Engineering 0 s.h.

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. Admission to the Cooperative Education Program and consent of the cooperative education faculty advisor required.

58:80 Experimental Engineering


58:86 Mechanical Engineering project

Application of mechanical, thermal, fluid systems design; student or group design projects initiated at various levels in the design process and earned through to higher levels; emphasis on synthesis, written and oral communication. Corequisite: 58:68 or 58:55.

58:91 Professional Seminar: Mechanical Engineering

0 s.h.

Professional aspects of mechanical engineering: presentations, student/faculty interaction, professional society involvement, panel discussions, plant trips, journal articles required.

58:98 Individual Investigations: Mechanical Engineering

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Individual projects for mechanical engineering undergraduate students; laboratory study; engineering design project; analysis, synthesis, simulation of an engineering system; computer software development, research. Consent of advisor required.

General

58:110 Computer-Aided Engineering

3 s.h.

Computer graphics, visualization of engineering design and analysis data, solid modeling, window-based user interface development, applications of these techniques to engineering problems. Prerequisite: working knowledge of FORTRAN or Pascal. Same as: 33:115.

58:111 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:40, 22M:41, and 22M:42. Same as: 53:111.

58:113 Mathematical Methods in Engineering

3 s.h.


58:115 Finite Element Techniques in Engineering

3 s.h.

Finite-element methods; basic concepts; one and two-dimensional boundary value problems; applications to heat transfer and fluid flow; stress analysis, axial deformation, bending, torsion problems; two-dimensional elasticity problems; plate bending, shells; practical applications using commercially available software. Prerequisite: 57:19. Same as: 53:133.

58:149 Engineering Optics

3 s.h.

Principles of geometrical and physical optics; imaging, fiber optics, matrices for systems, optical systems and devices; Fresnel equations; interference; polarization; diffraction; scattering; absorption; lasers. Prerequisites: 22M:41 and 29:18.
58:232 Analytical Methods in Thermo-Fluid Mechanics 3 s.h.

Thermodynamics of irreversible processes, kinetic theory, thermodynamic relations, real gas behavior, local equilibrium, multiphase systems, numerical applications to selected topics. Prerequisite: 58:40.

58:167 Aerodynamics 3 s.h.

58:167 Equations of fluid motion; inviscid-flow theory; airfoil and wing parameters; thin- and thick-airfoil theory; viscous effects; laminar and turbulent boundary layers; laminar flow, unswpt, swept, planar, and delta wings; compressible subsonic and transonic flow past airfoils, supersonic airfoils. Prerequisites: 57:20 and 57:28.

58:245 Conductive Heat Transfer 3 s.h.

Heat conduction and diffusive transport of mass and momentum; phenomenological laws and analogies; diffusive transport properties; steady and unsteady, moving boundary problems; analytical, numerical solution techniques; inverse heat conduction; coupled heat and mass diffusion; diffusion in multiphase and multicomponent systems. Prerequisite: 58:145.

58:246 Convective Heat Transfer 3 s.h.

Convective heat transfer; analysis of forced and free convection; differential and integral formulation of boundary layers; heat, mass, momentum transfer in laminar and turbulent flows inside tubes and external surfaces; combined forced and free convection; convection at high velocities; heat transfer with phase change. Prerequisite: 58:145.

58:247 Radiative Heat Transfer 3 s.h.

Radiant energy transport of radiative interchange among surfaces separated by nonparticipating and participating media; radiation properties of solids, gases; pyrometry; combined radiation-conduction and radiation-convection heat transfer. Prerequisite: 58:145.

58:248 Combustion Theory 3 s.h.

Laminar flame theory; turbulent combustion; spray combustion; thermal ignition; pollutant formation, oxidation; combustion diagnostics. Prerequisites: 58:145, 58:160, and graduate standing.

58:260 Viscous Flow 3 s.h.

Evaluations of viscous flow; classical exact analytical and numerical solutions; flow regimes and approximations; laminar boundary layers—equations, solution methods, applications; stability theory; incompressible turbulent flow—mean flow and Reynolds-stress equations, modeling, solution procedures, applications to free and forced convective boundary layers. Prerequisite: 58:160. Same as 53:276.

58:262 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: 58:160. Same as 53:277.

58:265 Waves in Fluids 3 s.h.

Acoustic wave theory; general solutions of plane, cylindrical, spherical waves; reflection and refraction of sound waves; kinematic waves; shallow water waves; hydraulic jumps, infinitesimal wave theory; Kelvin ship wave patterns; nonlinear water waves; propagation of solitary waves; internal gravity waves. Prerequisites: 58:113 and 58:160.

58:267 Multiphase Flow and Heat Transfer 3 s.h.

Basic models; advanced two-phase flow; phase transition, boiling; condensation; multiphase boiling, condensation; mathematical modeling; instantaneous equations, instantaneous space-averaged equations, local time-averaged equations; gas-liquid flows; liquid-solid flows. Prerequisites: 58:145 and 58:160.

58:268 Turbulent Flows 3 s.h.

Turbulent flows; statistical description of turbulence; instability and transition; turbulence closure modeling; free shear and boundary layer flows; complex shear flows; development of computational strategies; recent literature on applications, chaos phenomena. Prerequisite: 58:160.

58:269 Computational Fluid Dynamics and Heat Transfer 3 s.h.

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 solution of one- and two-dimensional compressible and incompressible fluid flow and heat transfer problems. Graduate standing required. Prerequisite: 58:111.

58:296 Advanced Topics in Thermal and Fluid Engineering 3 s.h.

Thermodynamics, fluid mechanics, heat and mass transfer, related experimental and analytical techniques; selection of subject and content determined by instructor/student interest. Graduate standing required.
Mechanical Engineering 371

58:250 Advanced Computer-Aided Engineering 3 s.h.
Object-oriented engineering system abstraction, C programming technique, object-oriented software construction for engineering problems, engineering knowledge on software development methodology and computer networks. Graduate standing required.

58:251 Continuum Mechanics and Elasticity 3 s.h.
Cartesian tensors, geometric foundations; concept of stress, strain, motion; fundamental physical laws; constitutive equations and finite elasticity; equations of linear elasticity; elastic extension, torsion, bending of bars. Prerequisites: 53:113 and 53:140. Same as 53:241.

58:252 Mechanical Design in Dynamics 3 s.h.
Mechanical system dynamic analysis, synthesis, design optimization. Prerequisites: 58:151, 58:155, and 58:253.

58:253 Computational Methods in Dynamics 3 s.h.
Computational methods in formulation and computer solution of equations of motion of large scale mechanisms, machines, planar and three-dimensional systems. Prerequisites: 58:113, 58:151, and 58:155.

58:254 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: 58:113 and 58:150. Same as 53:244.

58:255 Topics in Solid Mechanics 3 s.h.
Plane theory of elasticity; stress around a crack tip; flow theory of plasticity and application; crack tip plastic zone; simple mechanical models of viscoelastic behavior. Prerequisite: 58:251 or equivalent. Same as 53:242.

58:256 Theory of Viscoelasticity 3 s.h.
Linear theory of viscoelasticity; non aging materials; Boltzman superposition principle, linear functional; thermodynamic foundations; time-temperature superposition principle; boundary and initial value problems. Prerequisite: 58:150 or 58:251. Same as 51:257, 53:247.

58:257 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: 53:241 or equivalent. Same as 53:246.

58:258 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: 58:113, 58:115, and 58:150.

58:299 Research: Mechanical Engineering Ph.D. Dissertation 3 s.h.
Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for Ph.D. in mechanical engineering. Consent of adviser required.
Graduate College

Dean: Leslie Sims
Associate deans: James F. Jakobsen, Charles M. Mason
Assistant dean: William C. Welburn
Graduate examiner: Caren Cox
The University of Iowa has been a leading center of advanced study for three-quarters of a century. Presently, more than one-fifth of its enrollment is in the Graduate College. This unusually 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 faculty members at the ranks of assistant professor, associate professor, and professor. A 12-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.

Degree Programs

The Graduate College confers the Master of Arts (M.A.), Master of Science (M.S.), Master of Arts in Teaching (M.A.T.), Master of Fine Arts (M.F.A.), Master of Physical Therapy (M.P.T.), Educational Specialist (Ed.S.), Master of Social Work (M.S.W.), Master of Physician Assistant Studies (M.P.A.), Doctor of Philosophy (Ph.D.), and Doctor of Musical Arts (D.M.A.) degrees.

The college currently confers degrees in the following major fields.

Accounting – M.A.*
Afro-American Studies – M.A.*
American Studies – M.A.*, Ph.D.
Anatomy - 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.
Biotechnology - M.S.*, Ph.D.
Biomedical Engineering-M.S.* , Ph.D.
Botany – 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.
Communication Studies– M.A.*, Ph.D.
Comparative Literature – M.A.*, M.F.A., Ph.D.
Computer Science – M.S.*, Ph.D.
Criminal Justice and Corrections– M.A.*

Dance – M.F.A.
Dental Hygiene – M.S.***
Dental Public Health-M.S.
Economics-M.A.*, Ph.D.
Education – M.A.*, M.A.T. ***, Ed.S.**, Ph.D.
Electrical and Computer Engineering– M.S.*, Ph.D.
Endodontics – M.S.
English - M.A.*, M.F.A., Ph.D.
Exercise Science – M.S.*, Ph.D.
Film and Video Production – M.F.A.
French – M.A.*, Ph.D.
Genetics – Ph.D.
Geography - M.A.*, Ph.D.
Geology - M.S.*, Ph.D.
German – M.A.*, Ph.D.
Greek – M.A.**
History – M.A.*, Ph.D.
Hospital and Health Administration– M.A.*, Ph.D.
Human Nutrition – Ph.D.***
Immunology - Ph.D.
Industrial Engineering– M.S.*, Ph.D.
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 Biology - Ph.D.
Museum Methods - M.A.***
Music– M.A.*, M.F.A., D.M.A., Ph.D.
Neuroscience – Ph.D.
Nursing- M.A.*, Ph.D.
Operative Dentistry - M.S.
Oral and Maxillofacial Surgery – M.S.
Oral Science – M.S., Ph.D.
Pathology – M.S.
Pathology - M.S.
Pediatric Dentistry - M.S.
Periodontology – M.S.
Pharmacology - M.S., Ph.D.
Pharmacy – M.S.*, Ph.D.
Philosophy – M.A.*, Ph.D.
Physical Education – M.A.*, Ph.D.
Physical Therapy – M.A., M.P.T. **
Physician Assistant Studies – M.P.A.**
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.
Prosthodontics- M.S.
Psychology - M.A.*, Ph.D.
Quality Management and Productivity - M.S.*
Radiation Biology - M.S., Ph.D.
Religion- M.A. *, Ph.D.
Russian – M.A.*
Science Education-M.S.*, Ph.D.
Social Studies – M.A.*
Social Work-M.S.W. *
Sociology - M.A.*, Ph.D.
Spanish-M.A.*, Ph.D.
Speech Pathology and Audiology - M.A.*, Ph.D.
Statistics- M.S.*, Ph.D.
Stomatology-M.S.
Theatre Arts - M.F.A.
Third World Development Support– M.A.
Urban and Regional Planning– M.A.*, M. S.*

*Degree offered with or without thesis
**Nonthesis degree
***Student entry suspended

Ad Hoc Interdisciplinary Ph.D. Programs

In addition to the degree programs listed above, the graduate faculty has authorized the awarding of ad hoc interdisciplinary Ph.D. degrees. There are no provisions for ad hoc interdisciplinary programs at the master’s level. Students seeking approval for ad hoc interdisciplinary Ph.D. programs must previously have been admitted to and enrolled in a departmental program in the Graduate College. For details, see Section XII.E. in “Rules and Regulations of the Graduate College” in this section of the Catalog.

Aging Studies Program

The Aging Studies Program is a multidisciplinary nondegree program administered by the College of Liberal Arts in cooperation with other colleges of The University of Iowa. The program is designed to complement graduate degree programs for students with academic, professional, research, or service career interests in aging. An entry is made on a student’s transcript certifying completion of an approved curriculum in aging studies. For further details, see “Aging Studies Program” in the College of Liberal Arts section of the Catalog.

Applied Mathematical Sciences

The Applied Mathematical Sciences Program is a broad-based interdisciplinary program leading to the Ph.D. Students combine study of theoretical and applied aspects of a mathematical science (mathematics, statistics, or computer science) with study in a science (behavioral, biological, engineering, medical, physical, or social). See “Applied Mathematical Sciences” under “Division of Mathematical Sciences” in the College of Liberal Arts section of the Catalog for a list of faculty and a further description of the program.

Genetics

The Ph.D. program in genetics is an interdepartmental program involving members of the Departments of Biochemistry, Biological Sciences, and Microbiology as well as a number of faculty members in clinical departments. See “Genetics” in the College of Liberal Arts section of the Catalog for a list of participating faculty, degree requirements, and courses offered.

Human Nutrition

The Human Nutrition Program provides interdisciplinary training for doctoral candidates who desire careers in research or teaching in a medical setting. See “Human Nutrition” in the College of Medicine section of the Catalog.

Interuniversity Center for Film and Critical Studies in Paris

The University of Iowa is one of a consortium of 21 colleges and universities associated with
the Council on International Educational Exchange (CIEE), that sponsors a Film Studies Program and a Contemporary Criticism and Culture Program. These are two unique academic opportunities offered at the Centre d’Études Supérieures 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.

A recent addition to the program is a 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 directly sponsored 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 Communication Studies.

Joint Programs within the Graduate College

Various joint programs have been developed whereby students simultaneously work toward two graduate degrees. Consult the appropriate sections of this Catalog for further information.

Joint Law and Graduate Degree Programs

Joint programs under which students can simultaneously pursue degrees 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 the College of Law section of the Catalog.

Medical Scientist Training Program

The Medical Scientist Training Program (MSTP) is an interdisciplinary M.D.-Ph.D. program offered jointly by the College of Medicine and the Graduate College. See “Medical Scientist Training Program” in the College of Medicine section of the Catalog.

Molecular Biology

The Ph.D. program in molecular biology is interdisciplinary in nature, involving members of the Departments of Biological Sciences, Biochemistry, Medicine, Microbiology, Pathology, and Physiology and Biophysics. See “Molecular Biology” in the College of Medicine section of the Catalog.

Neuroscience Program

The Neuroscience Program is designed to provide an interdisciplinary and interdepartmental approach to graduate education and research training aimed at understanding the structure, function, and development of the nervous system and its role in behavior. See “Neuroscience Program” in the College of Medicine section of the Catalog.

Quality Management and Productivity

The interdisciplinary Program in Quality Management and Productivity leads to the M.S. Cosponsored by the Departments of Statistics and Actuarial Science, Industrial Engineering, and Management Sciences, the program seeks to train students who are interested in the total quality management of products and services, an area of increasing importance in business and industry. Details are provided in the College of Liberal Arts section of the Catalog.

Transportation Studies

The Program in Transportation Studies is an interdisciplinary, nondegree-granting program that coordinates course work leading to student certification in the areas of planning, analysis, and operation of transportation systems. Students participate in the program to complement work toward a graduate degree in civil and environmental engineering, geography, or urban and regional planning. When the graduate degree is awarded, an entry is made on the student’s transcript certifying completion of the Program in Transportation Studies. For further details, see “Transportation Studies” in the College of Liberal Arts section of the Catalog.

Urban and Regional Planning

The graduate program in urban and regional planning is a professional master’s program that prepares students for positions in government and the private sector. The program has a strong policy orientation that enables its graduates to understand the factors affecting a particular urban or regional problem and to develop workable solutions. Students may choose to specialize in transportation and infrastructure planning, environmental and energy planning, housing and community development, and economic development. A number of joint degrees are offered. For further details, see “Urban and Regional Planning” in the College of Liberal Arts section of the Catalog.

Research Resources

The many and diverse research activities of the University are centrally administered by the Office of the Vice President for Research, which has a cooperative relationship with the Graduate College. For further information, see “Research Activities” in the Special Resources at Iowa section of the Catalog.

Financial Assistance

Approximately half of the University’s graduate students receive some form of University-administered financial assistance. Eligibility requirements and application procedures are set forth in “Section VII, Graduate Appointments” in “Rules and Regulations of the Graduate College” in this section of the Catalog. The following are the primary sources of assistance.

TEACHING AND RESEARCH ASSISTANTSHIPS

Available in most departments; stipends typically range between $9,600 and $11,500 for half-time assistants; assistants also are eligible for tuition scholarships. Assistants (one-quarter time or more) are classified as residents for fee purposes.

IOWA ARTS FELLOWSHIPS

For first-year University of Iowa graduate students entering M.F.A. programs, IOWA ARTS FELLOWSHIPS are available as demonstrates exceptional progress toward completion of the M.F.A.; no departmental service obligations.
Rules and Regulations of the Graduate College

The following text is from the Manual of Rules and Regulations of the Graduate College.

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 a formal admission statement from the director of admissions. Applicants may obtain the proper forms from the Office of Admissions.

In addition to these forms, official transcripts from each undergraduate and graduate institution attended must be submitted to the director of admissions 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. GRADUATE RECORD EXAMINATION

All applicants prior to consideration for admission should take the General (Aptitude) Test of the Graduate Record Examination (GRE) or, for applicants to graduate programs in business administration, the Graduate Management Admission Test (GMAT). Applicants for whom admission data are complete, with the exception of scores on the GRE or the GMAT, may, depending on departmental policy, be admitted if they meet all other requirements. The GRE, or the GMAT, must be taken before the end of the student’s first session of enrollment. The test is given several times a year at test centers established under the direction of Educational Testing Service, Princeton, New Jersey. The judgment of acceptable levels of performance on this test and its weight in the decision on admission of a student is left to the departments. Some departments in fields where GRE Subject (Advanced) Tests are available require these in addition to the General (Aptitude) Test. Inquiries about GRE Subject (Advanced) Test should be addressed to the director of the department in which the applicant is interested.

C. ENGLISH FOR FOREIGN STUDENTS

Prior to consideration for admission, foreign student applicants whose native language is other than English must take and pass TOEFL (Test of English as a Foreign Language), 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. The examination is given at various times of the year and in many centers throughout the world. Inquiries should be addressed to the director, TOEFL, Educational Testing Service, Princeton, New Jersey 08541.

Foreign students transferring from unfinished degree programs of other universities in the United States who have not taken this examination, or who have received a grade lower than the minimum established by the Graduate College dean, must take the TOEFL examination and receive a passing grade prior to consideration for admission.

The Graduate College will advise the departments of those students barely passing the TOEFL test. Individual departments may require such students to take and pass a course at The University of Iowa in English usage designed especially for foreign students.

D. EARLY ADMISSION

A student who is within six semester hours 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.” “Section XI. Two-Year 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 “special students.” (See definition of “special status” in next paragraph.) 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.

6. STATUS UPON ADMISSION

All students upon admission fall into one of the following categories:

1. Regular-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 professional (or personal) improvement.

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. (See minimum grade-point requirements, “Section I.H.”) The student on conditional status must achieve regular status within two sessions of registration in the Graduate College by attaining a grade point average of at least 2.50 (3.00 for doctoral students) and acceptance by the major department, or be dismissed.

3. Special-Students with a valid bachelor’s degree and at least a 2.30 grade-point average...
who are not planning to become candidates for a graduate degree or certificate. Registration as a special student is allowed for only one semester or summer session. Before registration for any subsequent session, including another summer session, a special student must file an application and be admitted by a department or program to regular or conditional status. A student registering as a special student can take no more than two courses during a semester or eight semester hours during the eight-week summer session.

H. MINIMUM REQUIREMENTS FOR ADMISSION

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. For nondoctoral students, a minimum grade-point average of 2.30 is required for admission to conditional status. A minimum of 2.50 is required for admission to regular status. The grade-point average is computed only on graduate work if the student has completed at least 12 graduate hours. If the student has not completed 12 graduate semester hours, the grade-point average is computed upon the undergraduate and graduate work completed. In cases in which a student applying for admission has a grade-point average below the minimum required, but has a Graduate Record Examination score above a point to be designated by the Graduate College dean, his or her papers shall be forwarded to the department concerned for examination and decision.

Students applying for admission to a doctoral program with 12 or more semester hours of graduate work must meet a minimum grade-point average of 3.00 on the graduate work. For students with less than 12 semester hours of graduate work, a minimum of 2.70 is required on the entire record of collegiate work.

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.

For State Board of Regents’ formal admission requirements, see the Iowa Administrative Code: Board of Regents section of the Catalog.

I. 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 special 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 Council.

J. READMISSION

Students who are admitted to and enroll in the Graduate College, but who then fail to register for a period of 36 months or more, must apply for readmission. Their acceptance is dependent upon departmental approval for the session in which readmission is desired. Consideration of the application for readmission will be governed by the departmental and Graduate College admissions standards in effect at the time of reaplication.

Section II. Registration

A. STANDARD SCHEDULE

Students registered in the Graduate College may register for no more than 15 semester hours of credit in graduate courses. In a schedule of mixed graduate and undergraduate courses, two hours of undergraduate credit may be substituted for one for limited hour of graduate credit, with registration limited to a total of 18 semester hours. 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 eight semester hours, or nine semester hours if two or more semester hours of undergraduate work are included. 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. Nine semester hours in the regular semester constitute full-time registration. (Fellows are required to carry at least nine semester hours 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 semester hours per semester and eight semester hours during the eight-week summer session.

B. COURSES NOT INCLUDED IN TOTAL REGISTRATION

In addition to a full schedule, a graduate student may register for courses printed in the Schedule of Courses as carrying zero semester hours of credit.

C. CHANGES IN ANNOUNCED CREDIT

Graduate students may not register for more credit in any course than that printed in the Schedule of Courses, but may register for less credit, or no credit, by permission of the instructor. The number of courses a graduate student may take for no credit is subject to the consent of the adviser 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 semester hours during a semester or six semester hours during the eight-week summer session.

2. Five-eightths-time appointees may register for not more than ten semester hours during a semester or five semester hours during the eight-week summer session.

3. Two-thirds- and three-quarter-time appointees may register for not more than nine semester hours during a semester or five semester hours during the eight-week summer session.

4. Seven-eighths-time appointees may register for not more than seven semester hours during a semester or four semester hours during the eight-week summer session.

5. Full-time appointees, including full-time instructors, may register for not more than six semester hours during a semester or three semester hours 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 one semester hour 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 semester hours permitted for a semester and the eight semester hours permitted for the eight-week summer session. Registration after the last day of the third 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.

6. 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 nine semester hours 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 circumstances:

1. Course work transferred from another institution,

2. Correspondence courses.

H. EXTRAMURAL FEES AND PRIVILEGES

Extramural course work may be counted as residence credit only if the student has been admitted to a departmental program in the Graduate College (see “Section I.G”) and pays established fees. (See “Section XII.K” for special fees applicable to postcomprehensive registration, which should not be confused with extramural registration for residence credit.)
L. CORRESPONDENCE COURSES
Correspondence study credits do not count as residence credits. Not more than nine semester hours of graduate correspondence work can be applied toward an advanced degree. Such credit must be acceptable for the student’s plan of study and must be earned after the student has enrolled in the Graduate College. In some instances, graduate-level correspondence study credit earned after a student has received a bachelor’s degree but before enrolling in the Graduate College may later be counted toward an advanced degree with approval of the Graduate College dean upon recommendation of the major department. A graduate student may not register for correspondence courses without the approval of the executive of his or her major department and of the Graduate College dean.

J. 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. Courses below 100 are not accepted for graduate credit. 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.

K. AUDITING OF COURSES
Upon the recommendation of the instructor and the adviser, the dean of the Graduate College may grant permission to graduate students to audit courses for zero credit. Auditing is permitted only for a student who is currently registered.

L. 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 IV. Academic Standing, Probation, and Dismissal

A. NONDOCTORAL STUDENTS
A student, except one on conditional status, shall be placed on probation if, after completing eight semester hours of graduate work, his or her cumulative grade-point average on graduate work done at The University of Iowa falls below 2.50. If, after completing eight more semester hours of graduate work at this university, his or her grade-point average remains below 2.50, he or she shall be denied permission to reregister; otherwise, the student shall be restored to good standing.

B. DOCTORAL STUDENTS
A doctoral student on regular status shall be placed on probation if, after completing eight semester hours 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 eight more semester hours of graduate work at this university, his or her grade-point average remains below 3.00, he or she shall be denied permission to reregister; otherwise, the student shall be restored to good standing.

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 V. Traveling Scholar Program

A. PURPOSE
The program, under the auspices of the Committee on Institutional Cooperation representing 14 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 adviser, who will approach an appropriate faculty member at the possible host institution in regard to a visiting arrangement.
Graduate College committee, consisting of both student and faculty members, to conduct the review and recommend to the dean possible courses of action. The review by the Graduate College is final.

Section V. Credits

A. Transfer of Graduate Credit

Graduate work at other institutions will be entered on the student’s permanent record by the registrar 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.

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.)

C. Reduction in Credit

For courses or seminars in independent study, thesis, and research, an instructor may report less credit than the number of semester hours for which a student is registered.

D. 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.

E. 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 No Graduate Credit

These are A+, A−, B+, B−, C+, C−, S, and S−—satisfactory.

B. Marks Carrying Graduate Credit

These are 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.”) Students who receive the mark of I must remove that mark within the first session of registration after the closing date of the session for which it is given, or else the grade becomes F, except that students with I’s from the spring semester are exempt from completing the course during the succeeding summer session.

Specific deadlines for the submission of student work to the faculty and for the faculty’s report on I grades to the registrar will be set by the Graduate College dean for each session and printed in the academic calendar. Courses may not be repeated to remove incomplete; removal of an I is accomplished only through completion of the specific work for which the mark is given.


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. In general, these requests may be granted for no more than one session and must be reviewed by the Graduate Council before being granted for longer periods. 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 adviser 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 third 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.

6. 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 grade-point average, 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: (a) registration in the Graduate College; (b) cumulative grade-point average of at least 3.00; (c) a GRE score or a GMAT score above a point to be designated by the Graduate College dean; (d) 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 I.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. Faculty research assistants appointed by the Graduate College pay their own fees. Graduate appointments beginning in August are usually made by the Graduate College dean upon recommendation of the various departments in March of each year, although applications may be considered at any time. Application should be made on the form provided by the Graduate College and should be accompanied by recommendations and/or a letter summarizing the student’s qualifications.

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. DISMISSAL OF ASSISTANTS

A uniform policy defining procedures to be followed in the dismissal of assistants has been approved by the Board of Regents. Copies of this policy are available in the office of the Graduate College dean.

G. CREDIT

No academic credit is allowed for the teaching or research service for which the student receives payment as a graduate or a faculty research assistant.

H. LOANS

Graduate students requiring financial assistance may apply for loans at the Office of Student Financial Aid. See “Financial Aid” in the Learning at Iowa section of the Catalog.

I. 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.

J. RESEARCH ASSOCIATESHIPS AND POSTDOCTORAL FELLOWSHIPS

These provide for independent research. Appointment is made through the Office of the Vice President for Academic Affairs.

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 not later than ten weeks after the start of the semester or one week after the start of the summer session in which the degree will be conferred. The student must have the application signed by his or her adviser. Failure to file the application by the deadline 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 but are away from the University campus during that session may meet this requirement by registering for independent study, research, or thesis according to the practice in the various departments. Doctoral candidates who have completed all work except the final examination may register for the postcomprehensive registration described in “Section XII.K” if such registration is appropriate. Master’s candidates who have completed all work except the final examination may register for 000:1 Master’s Final Registration at a fee equivalent to the “postcomprehensive registration” if such registration is appropriate. Registration in a correspondence course will not satisfy this requirement.

Students completing all requirements (including the final examination and thesis deposit) for a graduate degree while enrolled in the Independent Study Session may receive their degrees in the following semester without additional registration.

Section X. Master’s Degrees

A. KINDS OF DEGREES

Master’s programs requiring a minimum of 30 semester hours lead to the Master of Arts degree, Master of Science degree, Master of Arts in Teaching degree, Master of Physical Therapy degree, Master of Physician Assistant Studies degree, and such other master’s degrees as are approved by the graduate faculty.

B. PLAN OF STUDY

The applicant for a master’s degree must file a plan of study approved by the adviser and the departmental executive with the Graduate College within the session in which the degree is to be granted and by a date to be established by the Graduate College dean. 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. RESIDENCE REQUIREMENT

Of the minimum of 30 semester hours required for the degree, at least 24 semester hours must be completed under the auspices of The University of Iowa, after admission to a departmental program in the Graduate College. Various forms of extramural registration may qualify toward fulfillment of this 24-hour residence requirement (see “Section II.G. Extramural Registration”) in addition to regular on-campus registration. However, at least eight semester hours on campus are required, except for those departmental programs which ensure sufficient interaction between the students and the graduate faculty and have received approval from the Graduate Council and the dean of the Graduate College for reduction of this on-campus requirement.

E. REDUCTION OF OLD CREDITS

Credits for a master’s degree dating back more than ten years from the session in which the degree is to be conferred are not counted toward fulfillment of degree requirements. This rule may be waived by the dean in cases affected by military service.

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 adviser 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 semester hours of graduate credit.

H. MASTER’S DEGREE WITH THESIS
Not more than nine semester hours of credit for thesis research and writing shall be counted in satisfying the 30-semester-hour minimum requirement. The thesis may be a scholarly study or an artistic production.

One copy of the thesis, complete and in final typed form, must be presented to the Graduate College for a check of formal characteristics not later than four weeks before the graduation date on which the degree is to be conferred. (See the Graduate College Thesis Manual) After approval by the Graduate College and by the thesis committee, a final copy of the thesis must be deposited with the Graduate College not later than ten days before graduation.

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. (See “K. Examining Committee.”)

I. MASTER’S DEGREE WITHOUT THESIS
A master’s degree without thesis, consisting of at least 30 semester hours of graduate study, 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 all master’s degrees 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.

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. Upon recommendation of a department, the comprehensive examination for a doctoral degree may be substituted for the master’s examination.

K. EXAMINING COMMITTEE
The examining committee for the master’s degree consists of at least three members of the graduate faculty, appointed by the Graduate College dean upon recommendation of the major department or program, at least two of whom are from the major department. If the examination covers work in another department, one member of the committee must be from that department. Upon recommendation of the major department, the dean may appoint additional qualified persons (not necessarily members of the graduate faculty) to serve as voting members of the examining committee, and, at his or her discretion, the Graduate College dean may add a member to the committee.

Section XI. Two-Year Degrees

A. MASTER OF FINE ARTS DEGREE
This degree is awarded for creative work in the visual arts, dramatic art, music, dance, or literature. It is designed for students preparing themselves professionally in such fields as painting, design, mural decoration, sculpture, playwriting, acting, producing, stage design, musical performance, composition, instrumentation, choreography, poetry, fiction, translation, and film and video production. Central to the program, the thesis may consist of a novel, a painting, a play, a musical composition, a dance performance, a film or video, or any other approved artistic accomplishment.

The program for the Master of Fine Arts requires at least two years of residence credit in a graduate college. This requires a minimum of 48 semester hours of graduate credit, at least 24 of which must qualify for residence credit at this university. A Master of Arts degree may be earned while the student is working toward the Master of Fine Arts degree, but the student must meet all requirements for each degree separately, with a minimum combined total of 60 semester hours of graduate credit.

For other requirements, see “Section X.B. Plan of Study”; “C. Major and Related Fields”; “E. Reduction of Old Credits”; “H. Master’s Degree with Thesis”; “J. Final Examination”; and “K. Examining Committee.”

B. SPECIALIST IN EDUCATION DEGREE
This degree is granted upon completion of a prescribed two-year, postbaccalaureate program designed for students preparing themselves professionally in such fields as teaching, administration and supervision, and special services.

Of the minimum of 60 semester hours required for the degree, at least 24 semester hours must be completed in residence at this university, of which 15 semester hours must be earned while the student is on campus within one 12-month period or during two summer sessions. Twenty-eight of the 60 semester hours are prescribed in the area of specialization. The others are in cognate fields, supervised experience, and electives. Four semester hours of research culminate in a written report.

Courses successfully completed ten or more years prior to the final examination will be evaluated by the major department in order to determine the amount of credit that shall be allowed for such work. Evaluation of such old credits will be reported to the Graduate College by the departmental executive at the time of submission of the plan of study.

Other requirements and regulations applicable to the educational specialist degree are the same as prescribed for the one-year master’s degree in “Section X.B. Plan of Study”; “C. Major and Related Fields”; “F. Limit on Professional Courses”; “J. Final Examination”; and “K. Examining Committee.”

A master’s degree may be earned while in residence for the educational specialist degree provided the student meets all the requirements for the master’s degree in question.

C. MASTER OF SOCIAL WORK DEGREE
The M.S.W. degree is conferred by the University upon those students who give evidence of knowledge and competence in the professional practice of social work by meeting the following requirements:
1. A minimum of 24 semester hours in residence at The University of Iowa;
2. A minimum of 60 semester hours in graduate social work, including a research requirement;
3. A final comprehensive examination, written or oral or both, covering all work for the degree.

The requirement of 60 semester hours may be interpreted to mean that a student who can satisfy the faculty of the school that he or she has accomplished, in the junior or senior undergraduate years, the clear equivalent of part or parts of the graduate curriculum in social work may be permitted, upon recommendation of the faculty of the school, to qualify for the M.S.W. degree on less than 60 semester hours. In no case may a student qualify for the degree on less than 36 semester hours of graduate social work study.

The curriculum is organized into four general areas: social work practice, human growth and behavior, the social services, and research. During the two-year graduate program, class work is combined with field practice in various settings. Since class work and field practice are arranged sequentially, students can enter the School of Social Work only in August.

For other requirements, see “Section X.B. Plan of Study”; “E. Reduction of Old Credits”; “F. Limit on Professional Courses”; “H. Master’s Degree with Thesis”; and “K. Examining Committee.”

Section XII. Doctor’s Degrees

A. CHARACTER OF DEGREE
The Graduate College awards two doctorates, the Doctor of Philosophy and the Doctor of Musical Arts. The doctorate is the highest degree awarded by the university. The Doctor of Philosophy degree indicates marked excellence in research or other creative work, and superior comprehension in the discipline. The Doctor of Musical Arts degree indicates marked excellence in performance and pedagogy.

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 doctorate 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 semester hours of graduate work; this requirement can be met either by: (1) enrollment as a full-time student (nine semester hours minimum) in each of two semesters; or (2) enrollment for a minimum of six semester hours in each of three semesters during which the student holds at least a one-third-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 semester hours of graduate work.)

D. 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 her adviser. A formal plan of study must accompany the departmental request to the Graduate College. The plan for the comprehensive examination, under the joint initiative of the departments, is granted by the Graduate College office and may be changed upon the initiative of the department. Admission to the comprehensive examination is granted upon the recommendation of the major department, the filing of the plan of study, and the approval of the Graduate College dean, who may add members to the student's supervising committee from other closely related departmental faculties. The degree will be awarded in the interdisciplinary field stipulated in the approved program and, parenthetically, the name of the sponsoring department.

E. AD HOC INTERDISCIPLINARY PROGRAMS
A student may prepare a proposal for an interdisciplinary course of study, including the plan for the comprehensive examination, under the sponsorship of at least three faculty members and the department most directly concerned, which shall be designated as the sponsoring department. 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. The degree will be awarded in the interdisciplinary field stipulated in the approved program and, parenthetically, the name of the sponsoring department.

F. REDUCTION OF OLD CREDITS
Courses taken ten or more years prior to the comprehensive examination will be evaluated by the major department in order to determine the amount of credit that shall be allowed for such work. Evaluation of such old credits will be reported to the Graduate College by the departmental executive at the time of submission of the plan of study.

G. 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 adviser and the major department. The examination is repeated only once, at the option of the department.

H. JOINT PROGRAM FOR MASTER'S AND DOCTORAL DEGREES
Those students who expect to continue their training through the doctoral degree may file 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.

I. REQUIREMENT IN FOREIGN LANGUAGES
There is no general Graduate College requirement in foreign languages. Those departments that do require competence in one or more foreign languages establish standards as to the extent and level of competence, as well as methods of testing. Specific requirements will be found in the departmental statements of standards and procedures (see "Section IV.D."). Departmental executive officers are responsible for reporting completion of requirements to the registrar for entering on the student's record. Specifications of departmental requirements in foreign languages are filed in the Graduate College office and may be changed upon the initiative of the department.

J. COMPREHENSIVE EXAMINATION
The candidate must pass a comprehensive examination, consisting of written or oral parts or both at the discretion of the major department. Admission to the comprehensive examination is granted upon the recommendation of the major department, the filing of the plan of study, and the approval of the dean of the Graduate College. A student must be registered in the Graduate College at the time of the comprehensive examination, which must be taken not later than four weeks after the session prior to the session of graduation. This examination, administered on campus, is intended to be an inclusive evaluation of the candidate's mastery of the major and related fields of study, including the tools of research in which competence has been certified. The comprehensive examination is not a deferred qualifying examination. It is intended to evaluate the candidate's mastery of the subject or near the end of his or her formal preparation and prior to the completion of the dissertation. The comprehensive examination and the final examination, which is concerned chiefly with defense of the thesis and related subjects, are the two principal examinations for the doctoral degree.

The comprehensive examination will be evaluated by a convened meeting of the committee and reported as satisfactory, unsatisfactory, with reservations, or unsatisfactory to the Graduate College office within 14 days after the completion of the examination. Two "unsatisfactory" votes will make the committee report unsatisfactory.

In the event of a report with two or more votes of "satisfactory with reservations," the exact stipulations of the committee should be recorded with the report form. The statement must specify the time allowed for satisfying the stipulations and must be specific in defining the area if further examination in a particular area is required, or in describing any additional courses or other procedures that are required. The candidate will not be admitted to the final oral examination until such stipulations have been satisfied. The executive of the major department should promptly send a written report to the Graduate College giving the date of removal of "reservations."

In case of a report of unsatisfactory on a comprehensive examination, the committee may grant the candidate permission to present himself or herself for reexamination not sooner than four months after the first examination. The examination may be repeated only once, at the option of the department.

K. POSTCOMPREHENSIVE REGISTRATION
The student is required to register each semester after passing the comprehensive examination until the degree is awarded. If a student fails to register, the student may not be rereadmitted to candidacy until the student has submitted an application that has been approved by the student's adviser, the departmental executive, and the Graduate College dean.

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. The student should register for the courses, research, and thesis necessary to complete the plan of study. When the registrations required for the plan of study have been completed, the student may meet the continuing registration requirement by registering for 000:000 Ph.D. Postcomprehensive Registration and paying a special minimum fee for any semester in which the department (i.e., department chair or director of graduate studies) and the student's adviser determine that the student is neither making significant use of University facilities (except library privileges) nor partaking of consultation with the faculty. It is understood that no registration for a summer session is required when the student makes no use of University resources, unless the student is taking a degree at the end of that session or unless enrollment is required by the department.

L. DISSERTATION FOR THE DOCTORAL DEGREE
One copy of the dissertation, complete and in final form, must be presented at the office of the Graduate College before the final examination, and not later than four weeks
be deposited at the office at least ten days prior to the graduation date. 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.

Regulations regarding preparation of the dissertation copy shall be promulgated by the dean of the Graduate College. Dissertations will be microfilmed and thus made available on a permanent basis. An 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 adviser. The abstract is published in the journal of Dissertation Abstracts International. One copy of the dissertation is bound and indexed at the University’s Main Library.

If the dissertation is in some nonprint form (e.g., painting, statue, performance in music) the librarian will help the student and faculty adviser work out an appropriate method of preparing the work, if such help is needed. Once the accompanying manuscript is accepted, it is treated the same as any other thesis. Written dissertations shall be made available to all members of the examining committee not later than two weeks before the date of the examination.

M. DISSERTATION FEE
A nonrefundable dissertation fee is charged each candidate to cover the cost of processing the dissertation and abstract.

N. 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 passes the comprehensive examination nor until the thesis is accepted for first deposit by the Graduate College; however, a student must pass the final examination no later than five years after passing 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.J. 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.

Q. EXAMINING COMMITTEES
The comprehensive and final examinations are conducted by committees of no fewer than five members of the graduate faculty appointed by the Graduate College dean upon recommendation of the major department, except that departments 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. A member of the graduate faculty from outside 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 from outside the major department.

Upon recommendation of the major department, the Graduate College dean may appoint additional qualified persons (not necessarily members of the graduate faculty) to serve as voting members of the examining committees. 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.

Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Description</th>
<th>Credits</th>
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<tbody>
<tr>
<td>000:000</td>
<td>Ph.D. Postcomprehensive Registration</td>
<td>0 s.h.</td>
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<tr>
<td>000:001</td>
<td>Master’s Final Registration</td>
<td>0 s.h.</td>
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<tr>
<td>000:111</td>
<td>Journalism in London at City University arr.</td>
<td></td>
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<tr>
<td></td>
<td>Full load of courses; possible internships with London news media. Open only to advanced undergraduates and M.A. professional students. Offered spring semesters.</td>
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<tr>
<td>000:800</td>
<td>CIC scholar</td>
<td>arr.</td>
</tr>
<tr>
<td>000:999</td>
<td>Res/Fellow/Post-Doc</td>
<td>0 s.h.</td>
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College of Law

Dean: N. William Hines, Jr.
Associate deans: Arthur E. Bonfield, Jonathan C. Carlson, Burns H. Weston
Assistant deans: Lois K. Cox, Thomas C. Senneff
Associate professors: Barry D. Matsumoto
Clinical faculty: Patricia Acton, John S. Allen, Lois K. Cox, Reta Noblett-Feld, Leonard A. Sandier, Barbara A. Schwartz
Lecturers: Jo Curris, Nicholas Johnson, Philip A. Leff, Barry A. Lindahl, Maria Lukas, Linda A. McGuire, Lon D. Moeller
Degrees: J. D., LL.M.
The objective of formal legal education is to establish a solid foundation for a lifetime of professional growth. The educational elements necessary to build this foundation are varied. For example, thorough familiarity with the substance of legal principles and the operation of legal institutions are important components.

The University of Iowa College of Law confers process and creates regular opportunities for in society. These objectives are best achieved through an educational program that cultivates active student participation in the learning process and creates regular opportunities for individuals and small groups to confront challenging teachers who are genuinely interested in each student’s professional development.

The University of Iowa College of Law confers its graduates the degree of Juris Doctor (J.D.). Students may elect a joint degree program, simultaneously earning both a law degree and a master’s degree in the Graduate College. Persons who hold a J.D. may pursue the LL.M. in International and Comparative Law.

A law degree from Iowa is a highly respected credential in the job market; Iowa graduates hold prominent positions on the bench, in the bar, in government, in business, and in education throughout the country.

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 semester hours per semester. Students who believe they may be unable to attend full time should contact the dean’s office before registering for classes.

Entrance Dates

The college offers two starting dates to entering students: mid-May (at the beginning of the summer session) or late August (at the beginning of the fall semester). Most students elect to enter law school in the fall and expect to graduate in May of their third year of study; these students also may attend summer school at any point during their academic careers.

The May entering class may number up to 45. Students entering in May complete nearly a full semester of work in the first 11-week summer session, and if they remain on the accelerated track by attending summer school in each subsequent summer, they can graduate nine months earlier than would otherwise be possible. Thus, the accelerated student who began law school in May 1994 might graduate in August 1996. Students who begin school in the accelerated program, however, are not required to continue in an accelerated track, but may switch to the regular three-year sequence of study.

Both the accelerated and regular programs consist of 90 semester hours of 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 dean or the dean’s representative. No student may take more than 16 semester hours per semester or 13 semester hours in the summer session without permission of the dean or the dean’s representative.

Summer Session

The summer session consists of two periods of five and one-half weeks, during which six to eight upperclass and three to four first-year courses usually are offered. Nonaccelerated students may attend either or both periods. Accelerated students attend the entire 11-week session.

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 no more than 60 days after beginning law school. Details are available from the dean’s office or from the clerk of the Iowa Supreme Court.

Program of Study

To be eligible for a J.D. degree, a student must receive course credit for 90 semester hours; take and complete all required courses; satisfy the writing requirements; satisfy the residence requirements; and achieve a cumulative grade-point average of at least 65.00 (C).

Receiving credit in a course is dependent upon the 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

Development of professional skills begins in the first year with emphasis on careful reading, essential writing skills, legal research, and argumentation. Students concentrate on developing analytical skills (for example, reading and understanding judicial opinions) and gain a sense of the role of legal institutions in society.

First-year courses are as follows.

**Fall Semester**

91:102 Introduction to Legal Reasoning 1 s.h.
91:120 Contracts and Sales Transactions I 3-6 s.h.
91:124 Criminal Law 3-5 s.h.
91:132 Property I 3-4 s.h.
91:364 Torts 3-4 s.h.

Spring Semester

91:104 Civil Procedure 2-5 s.h.
91:116 Constitutional Law I 3-5 s.h.
91:121 Contracts and Sales Transactions II 3-6 s.h.
91:136 Property II Legal Bibliography 3-5 s.h.

Students who enter law school in May take all of the above over the summer session and two regular academic semesters, plus 91:210 Appellate Advocacy I and 6 to 12 semester hours of electives.

Entering first-year students are expected to take all first-year courses and may not register for different courses or fewer hours without permission of the dean or the dean’s representative.

FIRST-YEAR SMALL-SECTION PROGRAM

One of the distinctive benefits of legal education at The University of Iowa is the first-year small-section program, which integrates training in basic lawyer's skills into substantive courses taught by regular, full-time faculty. The program’s purposes include careful development of each student’s skills in legal analysis, argumentation, research, and writing.

In the fall semester (summer session for accelerated students), the entering class is divided into sections of approximately 30 students. In the spring (fall for accelerated students), each section includes approximately 20 students. The subject matter of the small-section courses varies from year to year but has included that of virtually every course in the first-year curriculum.

In the small-section course, students are given a series of challenging assignments, each with a different educational objective. Faculty members provide extensive critiques of student performance and discuss the assigned exercises both in class and in individual conferences.

First-year students receive one additional semester hour for their first-semester small section and two additional semester hours for their second-semester small section. A mandatory curve is applied to the grade distribution in all first-year courses.

Upperclass Curriculum

In the second and third years, students are exposed to 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 91:210 Appellate Advocacy I in the second year, and before graduating all must take 91:232 Constitutional Law II and 91:308 Professional Responsibility.

Writing Requirement

All students must earn five writing credits in order to graduate. They earn one of the credits with satisfactory completion of 91:210 Appellate Advocacy I. The remaining four may be earned through any combination of courses.
and activities that carry writing credit, including seminar papers, small-section drafting courses, independent research papers, 91:406-407

Specialization
Students may pursue their interest in a particular subject area by selecting appropriate course work and independent research projects. For example, in the corporate business area, students may take as many as 21-22 semester hours of course work: 91:241-242 Corporations 1 and 11 (6 semester hours), 91:216 Business Planning (4 semester hours), 91:217 Corporate Finance (3 semester hours), 91:348 Securities Regulations (3 semester hours), 91:243 Federal Income Tax II (3 semester hours), and 91:253 Employment Discrimination (2-3 semester hours).

Independent Research and Seminars
Students may register for 1-3 semester hours of independent research, splitting the hours between semesters as they choose. In selecting topics for independent research or seminars, students should keep in mind that papers they write may be eligible for entry in one of several competitions.

Most seminars may be taken for up to 5 semester hours, including writing units. The usual format is 2 semester hours of credit for the class portion (usually taken in the fall), and up to 3 semester hours for the writing portion of the seminar (usually done in the spring).

Clinical Programs, Internships, Clerkships
Students who have completed one-half of the work toward their J.D. degrees are eligible to apply their theoretical knowledge to real cases under the supervision of faculty members and other attorneys through participation in the College of Law’s clinical law programs.
Some students are placed in law offices in Iowa City or the surrounding area, where they act as staff attorneys, assisting in all phases of the legal process. Typical placements include Student Legal Services, Legal Services Corporation (Iowa City and Cedar Rapids), HELP Legal Services (Davenport), and U.S. Bankruptcy Court (Cedar Rapids). Also available is a clinical semester, in which students spend an entire semester in the Iowa Attorney General’s Office or the U.S. Attorney’s Office in Des Moines.

Other students participate in in-house programs where they may represent financially distressed families in bankruptcy proceedings, inmates at Iowa correctional institutions involved in habeas corpus and civil cases, clients in the AIDS project, and other clients in a wide range of civil and criminal cases.

Students may earn a total of up to 15 semester hours in the Clinical Law Programs, although those taking courses in other colleges of the University may receive no more than 20 semester hours of credit for those courses plus clinic activities.
The College of Law also participates 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. It also helps place interns in a variety of unpaid clerkships and internships that provide insight into the workings of the legal system.

Joint Law and Graduate Degree Program
The college has developed 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 semester hours earned for the graduate degree toward the 90 required for the J.D., providing the courses counted toward both degrees and the 12 semester hours are earned after admission to the joint degree program and after matriculation at the College of Law.
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.
Joint graduate degree programs have been initiated with the College of Business Administration; the Schools of Journalism and Mass Communication, Library and Information Science, Music, and Social Work; and the Departments of Accounting, American Studies, Anthropology, Computer Science, Counselor Education, Planning, Policy, and Leadership Studies, English, History, Hospital and Health Administration, Industrial Relations and Human Resources, Philosophy, Political Science, Religion, Sociology, Spanish, and Urban and Regional Planning.
Many departments have joint program advisers. For more information, consult the assistant dean of the College of Law and the individual graduate departments.

LL.M. in International and Comparative Law
In keeping with its educational mission of encouraging both broad social awareness and technical professional competence, the College of Law offers a strong program of study in the rapidly expanding fields of international, comparative, and foreign law.
It does so essentially for three reasons. First, virtually any lawyer in this era of accelerating global interdependence may be confronted by problems that require knowledge and understanding of international law and foreign legal systems. Second, as professionals and community leaders, lawyers often are called upon to influence, directly or indirectly, the theory and conduct of U.S. foreign policy. And third, by affording unique insight into the nature of law and legal process, the study of international and comparative law helps establish theoretical foundations vital to superior lawyering skills.
American and foreign students with a J.D. are eligible to work toward the Master of Laws (LL.M.) in International and Comparative Law. Candidates from the United States must have earned a baccalaureate degree from an approved college and must have graduated with high rank from a law school that is a member of the Association of American Law Schools or that is approved by the American Bar Association. Foreign applicants must have graduated with high rank from a law school or law faculty that maintains equivalent standards. Foreign applicants who hold degrees from institutions other than English-language universities must score at least 570 on the Test of English as a Foreign Language (TOEFL).
LL.M. candidates are encouraged to use the college’s resources to shape an individualized program of study. Each student works with a faculty adviser to coordinate course selection.
University of Iowa law students who seek the LL.M. must complete 114 semester hours over four years (including semester hours for the J.D. degree); 24 of the 114 must be in international and comparative law, and 4 of the 24 must be taken after successful completion of the minimum requirements for the preliminary J.D. degree.

Cocurricular Programs
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.
Client Counseling I (91:410), offered to 42 second-year students, consists of three sections. The first provides a theoretical basis and an introduction to the skills necessary for good interviewing and counseling, the second an opportunity to practice these skills in a supportive setting. In the third segment, students participate in simulated experiences to conduct two client interviews, a deposition, and a final counseling session, in which they advise their clients of legal alternatives.
Approximately 14 students are chosen by the Client Counseling I staff to participate in Client Counseling II. This program is similar to Client Counseling I but more intense. The in-school client counseling competition is held in the spring to determine the two-person team that will represent The University of Iowa College of Law in the regional client counseling competition.

Moot Court
The appellate advocacy program familiarizes students with writing appellate briefs and citation form, develops research skills, and strengthens persuasive ability in oral argument at the appellate level. Students in 91:210 Appellate Advocacy I (a second-year requirement) and 91:211 Appellate Advocacy II (an elective) receive the case record and testify from a lower court trial. They identify
and research the issues, write an appellate brief, and argue the case before a panel of four judges.

The Van Oosterhout Memorial Moot Court Competition, a competitive version of Appellate Advocacy II, involves students who have demonstrated superior ability in writing and arguing their Appellate Advocacy I problem. The competition culminates with the final round argued before a panel of judges.

The appellate advocacy program is administered by the Moot Court Board, which consists of 20 student editors and a council of six executive members.

Trial Advocacy

Trial Advocacy (91:370) is a student-run, faculty-supervised program in which students develop and refine skills used to prepare and try civil and criminal cases. Students are on their feet during most class sessions, practicing the arts of voir dire, 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 co-counsel before a visiting Iowa judge and a jury of laypersons.

The Stephenson Competition, a competitive version of the full trials completing the trial advocacy course, was added to the program in 1984. The 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 week-long 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 American Bar Association national mock trial competition.

Journals

IOWA LAW REVIEW

The Iowa Law Review is a nationally respected publication. Its articles, written by students and professors, present a wide variety of perspectives and analyses of recent developments in law.

Students who meet the writing and secondary hour requirements or who are selected to write for the Contemporary Studies Project are eligible for a position on the Review editorial board, one of the highest honors that can be accorded a law student. They receive additional writing and academic credits and a monetary stipend.

TRANSLATIONAL LAW AND CONTEMPORARY PROBLEMS

Translational Law and Contemporary Problems is produced twice a year by Iowa law students. Each issue of this international law journal presents a symposium addressing a contemporary issue of international concern; recent issues have treated such diverse topics as regional trade arrangements, global warming, and international arms control. Contributors include experts from around the globe in a variety of disciplines, including law, economics, anthropology, sociology, and ecology. The journal also publishes articles written by Iowa law students and sponsors an internationally advertised student writing contest each year.

Law students who have completed at least two semesters may earn up to 3 semester hours of credit by writing for Translational Law and Contemporary Problems. 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 and a monetary stipend.

JOURNAL OF CORPORATION LAW

The Journal of Corporation Law is a student-operated periodical that publishes articles relevant to modern business enterprise. The journal’s scope includes antitrust, 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 published in each issue.

All students who have completed two semesters of class work are eligible to write for the journal. Those students who meet the writing and secondary hour requirements are eligible for selection to the journal’s editorial board.

Students who serve on the editorial board receive additional academic and writing credit and a monetary stipend.

Study Abroad

A consortium of eight American law schools, including The University of Iowa College of Law, has established a program in which students attend a semester at the University of London law school. There they study American and English law with faculty from the American schools and the University of London.

The College of Law also offers up to 6 semester hours of credit for intensive course work at Arachon, France, in conjunction with the University of Bordeaux. Courses are taught for five weeks in May and June by professors from Iowa and Bordeaux. Application deadline is March 1.

The International Law Society has information on other study-abroad programs.

Academic Honors

Graduation with Distinction

In recognition of superior scholarship, the J.D. degree may be granted with special honors, as follows. (Averages are figured on final grade-point average.)

- With highest distinction-cumulative grade-point average of 85 or more
- With high distinction-cumulative grade-point average of 80 to 84
- With distinction-cumulative grade-point average of 75 to 79

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 senior class. Initiates are selected by the faculty after graduation.

Prizes and Awards

Each year, in conjunction with graduation, the faculty recognizes outstanding contributions by third-year students.

The Client Representation Award recognizes outstanding service in the clinical law programs.

The Faculty Recognition Award is presented to the student who has made an especially distinctive contribution to the College of Law as an educational and community enterprise.

The Faculty Scholarship Award is presented to the student who has made an especially distinctive contribution to the development of written legal scholarship.

Hancher-Finkbine Medallions are awarded each year by the University to outstanding graduates; honorees are chosen from nominations made by University departments and colleges.

The Antonia D. Miller Award recognizes outstanding contributions by a student to the advancement of human rights in the law school community.

The Iowa Academy of Trial Lawyers Award is based on academic record, general contribution to the life of the law school, and special achievement in trial or appellate advocacy.

The International Academy of Trial Lawyers Plaque is presented to a student who has distinguished him- or herself, particularly in advocacy skills.

The Iowa State Bar Association Prize recognizes scholastic achievement and general contribution to the life of the college.

The John F. Murray Prize recognizes outstanding scholastic achievement.

The National Association of Women Lawyers Award is made to an outstanding third-year law student in consultation with the Organization for Women Law Students and staff.

The Robert S. Hunt Legal History Award is presented to a student who has made an outstanding contribution in the area of legal history.

Various publishers of law-related materials, including West Publishing Company, Bureau of National Affairs, Inc., and The Lawyers’ Cooperative Publishing Company, award books and periodicals to students each year in recognition of academic achievement.
Special Resources

Law Library

The centerpiece of the Boyd Law Building is the 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 eighth in the number of volumes and volume equivalents and the sixth in the number of titles among all U.S. law school libraries. It contains 727,000 volumes and volume equivalents 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 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, and other users.

WESTLAW/Dialogue and LEXIS/NEXIS, computerized information retrieval systems, are available for training and research activities. WilsonDisk, a computerized CD-ROM and online data retrieval system, and PAIS Index are available on a workstation open to the public.

The entire collection of the law library is on the OASIS (Online Access System for Information Sources) database, including the collection of U.S. government documents. The OASIS system also features an automated circulation system for checking materials out of the library.

The library uses RLIN, the Research Libraries Information Network, for online cataloging, catalog card production, and interlibrary loans. RLIN’s law library program includes 38 of the major law collections in the country in addition to Iowa’s, and the RLIN online database permits researchers to search the collections of these institutions extensively.

Law students have access to a Local Area Network (LAN) that includes 32 IBM-type PCs, through which students can access E-mail. A small Macintosh computer lab houses four LC-3s and an Image Writer printer. The library also provides HP laser printers and photocopy machines with Copiercard mechanisms for public use.

Writing Resource Center

The Writing Resource Center serves as an extension of the classroom and as a supplement to the college’s small-section writing program. The center provides help with a broad range of writing, such as letters of application, writing samples, and resumes; class assignments and seminar papers; and articles for law journal publication and symposium presentations. The center’s staff helps students improve their writing in general and offers strategies for addressing problems such as overcoming writer’s block, adapting material for various audiences, and using appropriate grammar and style.

Law Placement Office

The College of Law Placement Office provides career planning and job search assistance to law students. Each year the placement office sponsors a comprehensive series of programs on career options and job search skills. It also maintains a library of placement 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, representatives of 200 employers visit Iowa City to conduct job interviews, and many more firms use the college’s placement 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 90 percent are employed within a few months of graduation. The placement staff is happy to talk with prospective students regarding the college’s programs and the success of its graduates.

Financial Aid

The College of Law administers an extensive financial aid program to help students finance their law school education through scholarships, fellowships, and loans. Scholarships, fellowships, the federal Perkins Loan, and the Iowa Law Foundation Loan are awarded by the College of Law’s Office of Admissions and Financial Aid, 276 Boyd Law Building. Other loan programs are administered by the Office of Student Financial Aid, 208 Calvin Hall.

Financial aid awards are made to admitted students as their financial aid files become complete. Students are encouraged to file the Free Application for Federal Student Aid (FAFSA) as soon as possible after January 1 for the upcoming academic year. In addition, students are asked to send a copy of their tax return to 208 Calvin Hall and to complete The University of Iowa’s Verification Form.

Scholarships are available for a limited number of students. Merit scholarships, based on the LSAT score and academic record, are awarded shortly after a student is admitted. Need-based scholarships are awarded on the basis of information provided on the FAFSA and the student’s financial aid file.

The Law Opportunity Fellowship program funds a limited number of tuition grants and research assistant positions for minority students who demonstrate financial need and a likelihood of academic success in law school.

Selected Scholarships

Adams-Cobb Law Scholarship Fund: for second- or third-year law students, preferably from the metropolitan Des Moines area

F. Arnold Daum: awarded on the basis of merit and need

D.J. Fairgrave: for students who display a strong academic record, personal achievement, and the potential to contribute significantly to the legal profession

J.P. Lagomarcino: awarded to Iowa residents with financial need who plan to practice in Iowa

E.A. McDermott International: for third-year students specializing in international law

O.K. Patton Memorial: for students who have read The Bramble Bush by Karl Llewellyn

Victor Pomerantz: for students from Des Moines who show high scholastic achievement

Lucile and Walter Stewart Fund: for needy and deserving students in the College of Law

Jack R. Vollandt: for students who were born in or who completed grades 1-8 in Iowa and who earned a bachelor’s degree from The University of Iowa or who earned an Iowa high school diploma, with priority given to persons in the seventh judicial district

Assistantships

Many faculty members at the college hire research assistants at a modest hourly salary. Out-of-state students receive in-state tuition status for completing ten hours per week of assistants ship work.

Employment

Law students may obtain part-time positions at the law school in a number of different programs. Law professors frequently advertise for research assistants. The ISBA employs students part-time in both the coffee shop and bookstore. In addition, the library employs law students, and several student organizations elect officers who receive a modest stipend for their services. Further information on part-time student employment is available from the dean’s office.

Admission

Applicants for admission must have earned a baccalaureate degree from an approved college or university prior to commencing work in The University of Iowa College of Law. The services that College of Law graduates may be 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 advisers, each student should develop an undergraduate program that explores and develops that student’s particular intellectual interests.

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 greater understanding of human institutions and values; 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 objective.

Out-of-state students receive in-state tuition status for completing ten hours per week of assistantship work.

Assistantships

Many faculty members at the college hire research assistants at a modest hourly salary. Out-of-state students receive in-state tuition status for completing ten hours per week of assistantship work.
important than education directed too pointedly toward later professional training and practice. Students are urged not to sacrifice the broader perspective for detailed specialization.

**Application Procedures and Materials**

All application materials must be received by The University of Iowa Director of Admissions by March 1 preceding the summer session or fall semester in which the applicant wants to enroll. (See “Law School Application Matching Form,” below, for additional information about time considerations.) Applications submitted after the March 1 deadline are considered only if accompanied by a cover letter explaining why the application is late.

An evaluation fee of $20 must accompany each application. The University of Iowa. Application materials, including the materials of Iowa. This fee is nonrefundable. Students from disadvantaged backgrounds who cannot afford the fee should apply for its waiver.

Application materials, including the LSAT/LSDAS registration packet, may be obtained by writing to the Director of Admissions, The University of Iowa.

**LAW SCHOOL APPLICATION MATCHING FORM**

The LSAT/LSDAS registration packet includes Law School Application Matching Forms, without which the University cannot request the applicant’s LSDAS report from Law Services. To avoid processing delays, applicants should enclose the matching form with their application materials.

Since it takes approximately three weeks from the time the University requests the LSDAS report until it arrives, applicants should send matching forms and accompanying materials well in advance of the March 1 deadline.

**TRANSCRIPTS**

Applicants are responsible for submitting an official transcript from each college or university they have attended to Law Services, Box 2000, Newtown, PA 18940-0998. Before classes begin, every applicant who accepts admission to the College of Law must file official transcripts showing conferal of degree with the University’s Office of Admissions. This is in addition to the LSDAS report.

**LAW SCHOOL ADMISSION TEST**

Applicants for admission must take the Law School Admission Test (LSAT) administered by Law Services. The test is given several times each year and may be taken at numerous locations in the United States and abroad.

Applicants are urged to take the test during the fall preceding the fall semester or summer session for which they are applying.

The February test date is the last one that the University of Iowa will accept for admission. Students who take the LSAT/LSDAS registration packet, may be arranged for the fall or spring semester. All students who participate in externships must write a research paper. Externship credit counts toward the maximum allowable clinic credit.

Recent externships have been arranged with the U.S. Department of Justice, a U.S. district court judge in Illinois, a bankruptcy judge in California, and the Asian Law Alliance in San Francisco.

**Grading Policy**

A numerical grade is assigned to each student for each course and is recorded in the University’s permanent record.

The highest grade awarded at the College of Law usually is 90, the lowest 55. No academic credit is given for grades below 60.00 or for grades of “fail.”

Numerical grades may be translated into letter grades as follows.

- 92-85 = A
- 84-80 = B+
- 79-75 = B
- 74-70 = B-
- 69-65 = C
- 64-60 = D
- 59-55 = 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 65 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 does not apply a mandatory grade curve beyond the first year, but grades in second- and third-year courses are expected to approximate the curve used in large-section first-year courses.

Pass/Fail Grades
For students taking courses pass/fail, the faculty supervisor or instructor is required to assign a numerical grade (i.e., between 59 and 55) for reasons acceptable to the instructor, and if the second- and third-year courses are expected to student will be assigned.

Miscellaneous Grading Marks
Marks other than “pass,” “fail,” and numerical grades are as follows.

“W” means withdrawn. It carries no course or residency 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 grade 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 ten percent in each class may be informed of their exact rank; grade-point averages at the 87.5 percentile are posted.

Students are ranked following the fall semester, spring semester, and summer session each year. Final class standing is based on the September ranking and 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.

Students and the registrar’s office receive only the final grades.

Students who have more than one examination scheduled for the same day, two exams within 24 hours, 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 exam one only with permission of the instructor.

Students usually reschedule exams on the Saturday morning immediately following the regularly scheduled exam. Whenever possible, the dean sets aside four days as an upperclass study period between the end of regular classes and the first regularly scheduled upperclass exam.

Exam Policy for Students Who Need Extra Time
Students at a substantial disadvantage in taking timed exams should receive additional time to complete the exam, commensurate with the extent of their disadvantage. Disadvantages include not having English as a primary language at the time of the exam, or having a physical or other recognized medical disability. Judgments concerning eligibility and the amount of additional time to be provided are made by the instructor of the course in which the exam is to be taken, in consultation with the assistant dean. Students seeking additional time must make a request in the assistant dean’s office at least two weeks before the end of classes.

~ A d d M “ w

Students may add or drop a regularly scheduled course or seminar during the first two weeks it meets. After the first two weeks, students must have consent of the instructor to add or drop a course.

Students may not drop a course once the final examination in the course has been distributed. Individual instructors may set a policy of not permitting drops past a certain time limit, except in hardship cases; they are encouraged to distribute written notices of their policies during the first week of class.

A student who, after two weeks, drops an elective course for reasons not related to hardship may not re-enroll in the course in a later semester without the instructor’s permission.

Students who wish to drop Appellate Advocacy II without showing cause may do so prior to the distribution of the problem and the finalization of participants in their rounds. After the problem has been distributed, only the faculty adviser may authorize a drop and then only upon show of cause.

Withdrawal
First-year students who withdraw during the academic year or who fail to re-enroll 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 prior to withdrawal or failure to re-enroll 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 re-enroll. (Students are considered first-year if they have fewer than 27 semester hours of credit at the time of withdrawal or failure to enroll.)

The assistant 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.

Audit
Students may audit a class with the instructor’s permission, provided the class is not filled within the preregistration period.

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.

Academic Advising
Associate Dean for Academic Affairs: The associate dean for academic affairs and admissions works on academic programs and problems of the law school and coordinates the activities of the admissions office.

Assistant Dean for Student Affairs: The assistant dean for student affairs helps students solve problems related to course enrollment and scheduling that the registrar cannot solve. Besides providing academic advice, the assistant dean also counsels and makes referrals concerning personal, family, and professional problems that interfere with students’ law school careers.

Associate Director of Admissions: The associate director of admissions provides counseling regarding financial aid for current students and the needs and concerns of minority students. The associate director also counsels students on academic and personal matters when the assistant dean for student affairs is not available.

Faculty Advisers: Each faculty member advises five or six students on curriculum and, when necessary, other concerns.

Small Section Instructors: Small section instructors advise students enrolled in their
small sections, during students’ first year of study.

Ombudsperson: Each year one or two tenured faculty members are selected by the Iowa Student Bar Association to serve as law school ombudspersons. Students who have a problem or grievance should seek an ombudsperson’s help. All complaints are handled in strict confidence.

Registrar: The law school registrar is in charge of student record keeping and should be students’ first recourse for information about course enrollment, scheduling, residence requirements, joint program status, student certification for various loan agencies and state bar applications, and progress toward graduation.

Student Advising Committee: The advising committee is charged with oversight, coordination, and periodic review of the college’s methods for providing academic and curricular counseling to students. The committee also serves as a listening post on matters of faculty/student collegiality.

Facilities

The Willard L. Boyd Law Building, completed in the spring of 1986, 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 moms, the clinic suite, and faculty lounge, and faculty offices are located on the same floor, encouraging interaction between students and faculty members.

Student Services

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, including pens, notebook paper, computer paper and disks, and so forth. Photocopied handouts and teaching materials assigned by course instructors are available through the bookstore. Students are billed for assigned materials automatically unless they notify the law registrar that they do not want the materials.

Computers and Word Processing

The College of Law encourages its students to become proficient with computers and has installed 32 IBM-compatible computers and 4 Macintosh computers for general law student use. The college also encourages students to purchase computers, if possible, and to use them in connection with their law school work. Both of the major online computer research databases, West Publishing Company’s WESTLAW and Mead Data’s LEXIS, provide some free access for law students who own both their own computers and modems.

The College of Law supports two word processing and computer formats: IBM-DOS or MS-DOS using WordPerfect 5.0 and Macintosh using Microsoft Word and Macintosh OS using Microsoft Word. The IBM computers available for student use are dual disk drive machines that use 5.25-inch 360K floppy disks and 3.5-inch 720K floppy disks. The Macintosh machines can accommodate only one 3.5-inch disk. The college does provide limited facilities to convert DOS 3.5-inch disks, access to high-quality laser printing for both DOS and Macintosh, and other peripheral equipment.

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 from the library’s circulation desk.

For better quality and/or high-volume copying, there is a University-operated copy service on the first floor of the law building. Prices are comparable with those at commercial concerns, and students may charge copying to their University bills.

Student Activities and Organizations

AALSA (Asian American Law Students Association): Instills greater awareness among law students of the needs of the Asian American community and encourages greater commitment toward meeting those needs.

ABA/LSD (Law Student Division of the American Bar Association): Fosters a comprehensive understanding of the law and of attorney’s roles in American society.

BLSA (Black Law Students Association): Promotes the needs and goals of black law students, focuses on the relationship of the black attorney to the American legal structure, instills awareness of the black community’s needs and encourages greater commitment to meeting those needs, and fosters an attitude of professional competence.

CHALE (Chicano Association of Legal Education): Promotes viable changes within existing legal institutions in order to develop constructive legal and community programs, produce competent and effective Chicano attorneys, and utilize available resources.

Christian Law Students: Provides support, encouragement, and fellowship for law students who share a faith in Jesus Christ.

The Conservative Society: Promotes open and informed debate among members of the law school community, providing a voice for conservative students and faculty while welcoming opposing points of view.

Equal Justice Foundation: Supports public interest law concerns, with emphasis on promoting equal access to and adequate representation in the courts and other forums for citizens and citizens’ groups.

Environmental Law Society: Provides an educational forum and legal research and counseling services for attorneys, organizations, and citizens who have questions concerning environmental law.

The Federalist Society: Promotes the defense and preservation of individual liberties against encroachment by the state.

Iowa Society of International Law and Affairs: Increases student and faculty awareness of international law and affairs.

ISBA (Iowa Student Bar Association): Acts as the student government at the law school and is both a collective voice for the student body and a source of organization and funding for a variety of collegewide activities and programs.

Law Student Division of the Association of Trial Lawyers of Iowa: Helps train law students in all fields and phases of advocacy, improves the adversary system and the institution of trial by jury, broadens the career opportunities of graduating students.

NALSA (Native American Law Students Association): Promotes the needs and goals of American Indian law students.

NLGLA (Iowa Chapter of the National Lesbian and Gay Law Association): Facilitates discussions of local and national lesbian gay issues, acts as advocate on behalf of victims of harassment and discrimination, fosters professional growth of lesbians and gays.

National Lawyers Guild: Advocates use of the law to promote progressive social change.

OWLSS (Organization for Women Law Students and Staff): Addresses the changing needs and problems of women in the legal profession; develops, recommends, and implements new programs with emphasis on the needs of women at the College of Law.

Phi Alpha Delta: Promotes unity among all members of the legal profession; bars restrictions on membership by reason of race, sex, color, creed, national origin, and grade-point average.

Phi Delta Phi: Provides an opportunity to balance legal education with social interaction among students, faculty, and members of the legal profession.

Society of Disability Law: Promotes the study of disability law, recruitment of disabled persons to the law school, increased accessibility to law school facilities, postgraduate placement of disabled law students, postgraduate job placement of law students interested in careers in disability law, and disability awareness in general; advises the law school administration on matters involving disability issues.
Special Activities

Parents and Partners Weekend
Each fall, the parents, spouses, and friends of all students are invited to the campus for activities sponsored by the Iowa Student Bar Association. Past activities have included a simulated class, a brunch, a musical, 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; in the evening, 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 Advocate
The Iowa Advocate is the law school’s alumni magazine. Published twice a year, it features articles and news about the college, its students, faculty, and alumni.

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 and other projects that benefit the college.

Foundation funding benefits student scholarships, loans, and research assistantships; guest speakers; student orientation activities; the clinical law programs; Moot Court, Trial Advocacy, and Client Counseling programs; the Journal of Corporation Law, the Iowa Law Review, and the Iowa Advocate.

In order to support these programs and activities, the Law School Foundation actively solicits contributions from the college’s more than 6,000 alumni.

Legal Aid
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.

Courses

First Year

91:04 civil Procedure 2-5 s.h.
Subject matter jurisdiction, jurisdiction over the person, venue, pleadings, motion practice, summary judgment, simple joinder of parties and claims, pretrial discovery procedures, the trial, claim and issue preclusion.

91:116 Constitutional Law I 3-5 s.h.
Constitutional allocation of governmental powers; role of the courts in constitutional cases, powers of and relationships among branches of national government relationship between state and national governments.

91:120 Contracts and Sales Transactions I 1-6 s.h.
Purpose, scope, development of protection accorded to contractual agreements; judicially developed rules; statutes governing formation, performance, interpretation of contracts; remedies for breach of contract.

91:121 Contracts and Sales Transactions II 3-4 s.h.
Continuation of 120, emphasis on U.C.C. Article 2.

91:124 criminal Law 3-5 s.h.
General justifications of punishment and fundamental common law; statutory principles of Anglo-American substantive criminal law, including mens rea, actus reus, mistake, strict liability, homicide gradations, attempt, complicity, intoxication, insanity.

91:132 Property I 3-4 s.h.
Concept of private property as one of the legal system’s basic foundations; historical development of Anglo-American property law in conjunction with changing currents of economic, political thought; emphasis on understanding decision making by courts in the common law tradition.

91:136 Property II 3-5 s.h.
Continuation of 132, limitations imposed on use of property by private agreement, common law doctrine, public regulation; relationships between law and other disciplines, particularly economics; constitutional protection of private property rights from governmental influence.

91:364 Torts 3-4 s.h.
Historical development of tort liability theories, including fault-based liability for commission of negligent, reckless, or intentional acts; as well as strict liability; emphasis on civil responsibility for harms to personal and property interests; roles of judges, juries, legislatures in development of tort law.

Second and Third Year

91:000 Cooperative Education Internship 0 s.h.
Administered by the Office of Cooperative Education and filled on a competitive basis by eligible students. Faculty approval, satisfactory completion of eligibility requirements required.

91:125 Criminal Procedure 3-5 s.h.
Constitutional law; focus on Fourth, Fifth, and Sixth Amendment regulation of police investigatory practices, including searches and seizure, interrogation, undercover surveillance by informants, identification lineups; exclusionary rules.

91:193 Human Rights in the World Community: Problems of Law and Policy 3 s.h.
Human rights, their moral and legal basis, their promotion and protection through governments and international organizations; comparative and international analysis of equality and nondiscrimination. Junior, senior, or graduate standing required. Same as 47:193.

91:195 Introduction to Public International Law 3 s.h.
Principles of law that determine rights and duties of nations in their dealings with each other; contemporary international problems, controversies. same as 47:195.

91:201 Antitrust: Legal and Economic Analysis 3 s.h.
Survey and economic analysis of American antitrust laws; focus on law of monopolization, cartels, mergers, predatory pricing. Same as 66:171.

91:202 Advanced civil Procedure 3 s.h.
Complex civil lawsuits, especially multiple-party litigation; discovery, intervention, mandatory injunction, interpleaded, class actions; appellate procedure, alternatives to litigation.

91:203 Administration of Estates and Trusts 2-3 s.h.
Income taxation and administration of estates and trusts.
Prerequisites: 91:272 and 91:378.

91:204 Administrative Law 3 s.h.
Formal and informal procedures, processes, functions of state and federal administrative agencies; legislative, executive, and judicial control of their actions.

91:205 Admiralty Law 1-2 s.h.
Admiralty jurisdiction; admiralty law of creditor’s rights and personal injuries; laws pertaining to collisions and the law of salvage.

91:206 Advanced Criminal Procedure 3-4 s.h.
Constitutional and statutory rules applicable to formal criminal processes; discovery and disclosure, bail, double jeopardy, speedy and public real, and press and public access, right to counsel, jury trial.

91:207 Arbitration-Labor 2-3 s.h.

91:208 Antitrust Law 3 s.h.
Law, history, economics of federal regulation of competitive behavior, primarily under the Sherman and Clayton Acts; multilateral collaboration, monopolies, mergers, resale price maintenance, customer and territorial restraints, related issues.

91:210 Appellate Advocacy I 0-1 s.h.
Students are assigned a fictitious case and must write an appellate brief asserting their client’s position and argue the case before a panel of students, faculty, community attorneys.

91:211 Appellate Advocacy II 1 s.h.
Continuation of 21:210; increased complexity; for second-year student who want more experience in appellate advocacy.

91:212 National Moot Court Competition 1 s.h.
Students participate as law school’s representatives in the Regional Moot Court Competition in fall of their third year, and judge intramural Moot Court Competitions in the spring semester.

91:213 Jessup International Moot Court Competition 1 s.h.
Second and third-year students compete in intramural regional, and national-level moot court competition in international law; intensive criticism in appellate brief writing and oral argument.

91:214 Bankruptcy Reorganizations 2-3 s.h.
Means of rehabilitating financial affairs of businesses and individuals available in proceedings under Bankruptcy Code Chapters 11, 12, and 13. Prerequisite: 91:244.

The law of child custody and proceedings, termination of parental rights and adoption, child abuse and neglect, legal rights and responsibilities of parents and children.

91:216 Business Planning 3-4 s.h.
Problems involving common business transactions in the context of business planning and counseling; emphasis on problems of closely held corporations. Perquisites: 91:241 and 91:272.

91:217 Corporate Finance 3 s.h.
Applications of modern financial theory to modern corporate law topics including use of valuation techniques, portfolio theory, diversification strategy, financial statement analysis. Prerequisite: 91:241.

91:218 Federal Courts II 2-3 s.h.
Constitutional tort litigation, focus on causes of action brought under 42 U.S.C., statute 1983; prima facie case of liability; remedies available in constitutional tort litigation, including damages and structural injunctive relief; defenses to statute 1983 actions, including sovereign immunity; public official immunity. Prerequisite: 91:275 or consent of instructor.

91:219 Advanced Torts 3 s.h.
Challenges to continuation of tort liability; evaluation of social effects of tort rules; alternatives to tort liability as means of compensating personal injury by accident, other forms of incapacity. Prerequisite: basic knowledge of principles, practice of law of torts.

91:220 comparative International Organizations 2 s.h.

91:222 Commercial Transactions 3-4 s.h.
Commercial and consumer transactions involving negotiable instruments and personal property security interests; emphasis on relevant provisions of the Uniform Commercial Code and of the Bankruptcy Code and consumer protection legislation.

91:223 Comparative Corporate Law 1 arr.

91:224 Comparative Law 2-3 s.h.
Comparative study of the world’s main national systems, emphasis on origins, development, characteristic features of civil law tradition, which includes most modern legal systems.

91:225 Community Property 1 s.h.
Community property law in nine states- Louisiana, Texas, New Mexico, Arizona, California, Nevada, Idaho, Washington, Wisconsin; common-law property systems.

91:226 The Federal Regulation of Banking 3 s.h.
Existing and ideal role of regulation in facilitating economic growth and ensuring sound banking practices; main federal laws addressing market entry-expansion, bank and holding company supervision, deposit insurance-bank failure.
91:227 Comparative Constitutional Law 2-3 s.h.
Comparative analysis of rules, roles, and substantive results arising from different constitutional systems of common law nations.

91:228 Conflict of Laws 2-3 s.h.
Problems created when a transaction or relationship has associations with more than one jurisdiction; emphasis on selection of law; application of jurisdiction-selecting rules; recognition of other states' judgments; current evolution in theoretical approaches to these problems.

91:231 Comparative Administrative Law 2-3 s.h.
The United States, Great Britain, Germany, France; focus on: executive agencies, administrative and judicial review; administrative law enforcement; relation of politics to administration; administrative procedure.

91:232 Constitutional Law II 3.5 s.h.
Limits on governmental power imposed by the national constitution for protection of individuals; due process and equal protection; freedom of expression and association; religious freedom and the guarantee against establishment of religion.

91:233 Basic Land Transactions 1-3 s.h.
Legal rules governing real estate transactions, mainly simple sale of farm, lot, or single family home; brokerage agreement, mortgage notes, deed of trust, liens, rights of redemption, sale in satisfaction of debt, and sale contract; consideration, enforcement, and remedies.

91:234 Corporations I 3 s.h.
Structure, characteristics of business and closely held corporations; distribution of powers among management, directors, shareholders, fiduciary duties that limit those powers.

91:235 Corporations II 2-3 s.h.
Corporation law: emphasis on shareholders' derivative actions, appraisal remedies, insider trading. Prerequisite: 91:234.

91:239 Corporate Governance and Control 1 s.h.
Principal issues in creation of appropriate governance and control systems for large publicly-held corporations. Recommended: 91:241.

91:241 Corporations I 3 s.h.
Characteristics of both publicly and closely held corporations; distribution of powers among management, directors, shareholders, fiduciary duties that limit those powers.

91:242 Corporations II 2-3 s.h.
Corporation law: emphasis on shareholders' derivative actions, appraisal remedies, insider trading. Prerequisite: 91:241.

91:243 Federal Income Tax 1 3 s.h.
Income tax treatment of corporations and shareholders; emphasis on closely held corporations and their shareholders; for general practitioners, tax or corporate law specialists.

91:244 Debitor Creditor Law 3-4 s.h.
Relationship between debtor and creditor, and rights of parties among creditors; mechanics of judgments, execution, levy, sale, redemption, attachment, garnishment, and exemptions; bankruptcy. Corequisite: 91:245.

91:245 Domestic Violence 3 s.h.

91:247 Anti-Discrimination Law 3 s.h.
Oppression; the anti-discrimination principle as it has emerged in cases involving discrimination on the basis of race, sex, and sexual orientation; focus on constitutional concepts of equality; liberty, freedom, and due process; Chapter 7: liquidations.

91:249 Elder Law 2-3 s.h.
Topics in planning for long term care of elderly persons; federal and state rules and limited case law for Medicare; Veteran's benefits; Medicaid programs including nursing home, medically needy, qualified Medicare beneficiary benefits; medical supplement and long-term care insurance; federal tax provisions that provide assistance for elderly care; professional ethics.

91:250 Employment Relations Law 3 s.h.
Rights of employers, employees in unorganized workplaces; legal issues that arise between employers and employees in nonunionized settings.

91:251 Employee Retirement Income Security Act 3 s.h.
Overview of the basic act and its detailed implementing regulations. Prerequisite: 91:272.

91:253 Employment Discrimination 2-3 s.h.
Legal prohibitions against discrimination in employment on the basis of race, sex, national origin; focus on Title VII of the Civil Rights Act of 1964; procedural and remedial problems, substantive issues.

91:254 Education Law 3 s.h.
Federal and state authority to govern public and private schools; rights of parents, teachers, students; powers of legislators, judges, educators; interaction of law and education policy. Corequisite: 91:252.

91:255 Environmental Law 2-3 s.h.
Role of the legal system in addressing problems of environmental disruption, with special emphasis on air, water, hazardous waste pollution.

91:256 Entertainment Law 1-2 s.h.
The entertainment industry, including production, distribution, retail sectors of its five branches: music, theater, movies, television, print publishing.

91:259 Enterprise Regulation 3 s.h.
Legal, economic, business aspects of regulatory policy in the United States; focus on federal and state regulation; regulation by local government; survey.

91:260 Estate Planning Problems 2-3 s.h.
Problems in creating and implementing plans for accumulation, conservation, disposition of private estates; focus on effecting accommodations among estate owners' objectives, property, law, taxation. Prerequisites: 91:272 and 91:350, and 91:378.

91:261 Health Law 2-3 s.h.
Conflict between desire to provide quality health care on equalitarian basis and ability to finance such a health care delivery service; current topics including surrogacy, parenthood, euthanasia, translation, AIDS.

91:262 European Community Law 3 s.h.
Law and legal institutions of this supra-national entity.

91:264 Foundations of Anglo-American Law 3 s.h.
Development of law in ancient institutions, especially land contract, and criminal justice, up to Blackstone's day (ca. 1770) and the transit across the Atlantic. Same as 160:114.

91:265 Evidence 3 s.h.
Rules of evidence developed in common-law courts and whom statutes; judicial notice; examination of witnesses; privilege; and relevance; hearsay; burden of proof and presumptions; rules of judge and jury.

91:267 Extortion 3 s.h.

91:268 Family Law 3 s.h.
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 should treat those problems as a matter of sound policy.

91:269 Feminist Legal Thought 3 s.h.
Contemporary feminist critiques of legal doctrine, analysis, method; redefinition of legal problems through application of diverse feminist approaches; interdisciplinary comparison of feminist legal thought and feminism in social sciences, humanities. Same as 131:269.

91:271 Foreign Relations and the Constitution 3 s.h.
Treaty power, recognition power, war power, appropriations power as a check on executive activism; other separation-of-powers issues generated by the intersection of international and constitutional law.

91:272 Federal Income Tax I 3-4 s.h.
Operation, policies, principles of federal income tax, including gross income, deductions, property transactions, tax accounting, income shifting.

91:273 Insurance, The Industry and Public Interest 3 s.h.
Public interests that bear on use of insurance to provide coverage for a variety of risks that affect Americans' lives.
Prerequisite: 91:284 or substantial experience in insurance business.

91:274 International Protection of Human Rights 3 s.h.

91:275 Federal Courts I 3 s.h.
History and structure of the federal judiciary; Congress' power to control federal judiciary; federal question, diversity, admiralty, appeal, appellate jurisdiction; federal venue, service, choice of law.

91:276 Federal Tax Practice and Procedures 3 s.h.
Research techniques and ethics questions.

91:280 Immigration 1-3 s.h.
Role of immigration, immigration, immigration law in American culture; history of U.S. immigration policy, with emphasis on role of race and economic motives; various perspectives or ideas about immigration, including attitudes toward immigrants (such as nativism during Progressive Era), role of women and family life in households, tensions between immigrant and other laborers in the workplace; source, limits of federal power over immigration; immigration quotas and preference; ground for exclusion and deportation; citizenship.

91:282 International Business Transactions 3 s.h.
Legal problems that arise when private business transactions cross national borders; focus on structuring of private international sales, investment, licensing contracts to minimize risk of conducting business on a global scale.

91:283 Intellectual Property 3 s.h.
Legal principles and doctrines applicable to intellectual property rights; method of enforcement of intellectual property rights; economic and policy aspects.

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91:285 Intellectual Property 3 s.h.
Legal principles and doctrines applicable to intellectual property rights; method of enforcement of intellectual property rights; economic and policy aspects.

91:286 International Organizations 3 s.h.
International organizations and their role in multilateral dealings among states in the world community; emphasis on the United Nations and related agencies as forums for dispute resolution and the development of international legislation.

91:287 International Economic Relations 3 s.h.
Legal regulation of international economic relations; GATT and IMF; focus on legal problems concerning tariffs, export-import quotas, foreign exchange restrictions, international debt.

91:288 International Law 3 s.h.
Selected legal philosophies, with emphasis on legal positivism and natural law; nature of jurisprudence, relationship between law and morality, authority, normativity, institutional nature of law, political obligation. Same as 144:20.

91:289 Issues in Law and Mental Illness 3 s.h.
Legal issues involving the mentally disabled.

91:290 Juvenile Justice 1-3 s.h.
Problem of defining delinquent behavior, various causal theories, measurement and extent of delinquency; juvenile court system as a method of delinquency control; failure of the juvenile court system to achieve its aims; alternative methods of delinquency control. Pre or corequisite: 91:125.

91:291 International Law and the Global Environment 3 s.h.
Adoption of the rule of public international law for dealing with emerging global environmental problems; doctrines of customary international law, their extension to environmental issues; international law relating to the making of treaties, conventions; effect that rules of public international law have on capacity to meet global environmental challenge.

91:292 Labor Law 3 s.h.
Federal law and its enforcement by judicial, administrative, and arbitration tribunals relating to unionized employees and private firms; rights of employees to organize and engage in concerted activities and collective bargaining.

91:293 Law in American History I 3 s.h.
American legal and social problems from early New England colonization until about 1880; interdisciplinary study. Same as 160:110.

91:294 Law in American History II 3 s.h.
American legal and social problems from around 1880 to the 1950s; interdisciplinary study. Same as 160:111.

91:295 Law and Economics 3 s.h.
Law examined through analytic tools of macroeconomics; impact of legal rules on resource allocation, risk bearing, distribution of economic well-being; introduction to the field. Prerequisite: 6E:103 or consent of instructor. Same as 6E:172.

91:296 Law in Radically Different Cultures 3 s.h.
Crime, constitutionalism, population planning in cultures that are radically different from one another: western (California); eastern; (China); religious (Egypt) and Palestine; traditional (Botswana and Nambia). Junior, senior, or graduate standing required.

91:297 Law and Accounting 2-3 s.h.

91:298 Law, Litigation and Science 3 s.h.
Basic concepts, skills for evaluating influences and effects of scientific evidence, advocating or attacking such evidence, and understanding the law that governs use of scientific information in court, legislatures, regulatory agencies.

91:299 Law in Radically Different Cultures 3 s.h.
Crime, constitutionalism, population planning in cultures that are radically different from one another: western (California); eastern; (China); religious (Egypt) and Palestine; traditional (Botswana and Nambia). Junior, senior, or graduate standing required.

91:301 Law and Political Process 3 s.h.
Federal constitutional and statutory law governing reapportionment, voting rights, ballot access, regulation of political parties, campaign financing, political activity by civil servants.
Law 395

91:504 Tutorial 1-4 s.h.
Work under faculty supervision; may revolve substantive area of the law of jurisprudential ideas as they appear in various intellectual spheres.

Recent developments in contract law; with emphasis on writing and legal research; preliminary to researching and writing a substantial paper; yearlong seminar.

91:603 Capital Punishment Seminar arr.
Death penalty in America.

91:604 Adolescent Power to Make Health Decisions arr.

91:605 Legal Aspects Of AIDS Education, employment, testing, housing, right to medical treatment, insurance, confidentiality; legal problems of institutions-schools, hospitals, military, prisons; problems of special groups—lesbians and gays, minorities, intravenous drug users.

91:606 Advanced Problems in International Business and Economic Relations arr.
Legal aspects of contemporary problems in transnational business and economic relations; year-long seminar. Prerequisite: 91:282 or 91:287.

91:607 Ethical and Economic Realities of Legal Practice arr.
Studies of lawyering in diverse work settings; lawyers’ power over clients; practical judgment and intellectual process; their importance to professional effectiveness; ethics rules and practitioners’ perceptions of economic realities; professional styles, self-understanding and thinking of lawyers; the nature of women and its effect on adversarialism versus the “feminine ethic of care.”

91:611 Citizen Enforcement of Environmental Law arr.
Implementation of the citizen suit—a novel, experimental feature of modern environmental statutes; simulated initiation, defense of fictitious citizen suits, involving student participation on two-attorney teams. Prerequisite: 91:255.

91:612 Selected Problems in Comparative Law Research; topics vary.

91:613 The Courts in the Twentieth Century arr.
The role of courts in American culture.

91:614 Civil Rights Movement and Civil Rights Law arr.
Civil rights movement in the 1950s and 1960s; relationship between the movement and developments in civil rights law. Corequisite: 91:232 or consent of instructor.

91:619 Comparative Environmental Law arr.
Environmental laws of England and the Common Market countries compared to American environmental law; legislation and court decisions.

91:620 Law and Technology Seminar arr.
Topics will vary.

Causes, effects, nature of conflict in various contexts, at various levels, from the intrapsychic and interpersonal to intergroup and international; management or resolution of conflict through novel or familiar interventions including negotiation, mediation, adjudication, threat deterrence, escape from social traps, graduated reciprocal reduction in tensions.

91:625 Comparative Responses to Social Welfare Problems in the United States and Great Britain arr.
Problems of poor persons in United States and Great Britain: health care, housing and homelessness, civil legal assistance, income support: readings of cases, statutes, secondary materials.

91:627 Courts and Social Integration Seminar arr.
History and capacity of judicial efforts to promote social integration through redistribution of rights and restructuring of public institutions.

91:630 Feminist Legal Harm Seminar: History and Theory
Same as 16:281.

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 analyses.

91:635 Indigenous Peoples in the International Legal System arr.
Historical and contemporary development of international law and institutions as related to indigenous peoples, culturally distinctive groups living in lands now dominated by nonindigenous populations.

Choice of arbitration, limits on arbitrability of disputes, choice of applicable law, arbitration process, enforceability of awards through national legal systems.

Philosophical foundations: self-governance, pursuit of truth, self realization, distrust of government; importance of these foundations in selected areas-national security, violence, commercial speech, obscenity, political spending abortion counseling, government sub judicis; academic freedom.

91:645 Advanced Problems in International Law and Policy arr.
Current problems of international law and affairs; individual conference and group study bases; emphasis on policy oriented research and writing.

91:656 Labor-Protective Legislation for Law-Paid Workers arr.
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.

91:659 Law and Lawyers in Literature 1-3 s.h.
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, Schafter, Thaylildes. Same as 8:259.

91:662 Legal Theory Workshop arr.
Writing projects related to topics covered in 91:316; natural rights, legal formalism, legal realism, legal process school, law and economics, legal positivism/analytic tradition, rhetoric, and the social construction of reality, literary theory and the law, critical legal theory. Prerequisite: 91:316 or consent of instructor.

91:665 Disability Law Seminar arr.
Disability law and policies in relation to mental retardation, mental health. Consent of instructor required.

91:666 Selected Topics in International Banking Law arr.
Transnational banking issues; focus on U.S. laws that affect international operations, development of EEC financial law.

91:667 Modern Constitutional History arr.
Civil rights and civil liberties issues in American legal and cultural history from World War II to 1960. Pre or corequisite: 91:232 or consent of instructor. Same as 144:207.

91:668 Roman Law Seminar arr.
Laws, legal institutions of ancient Rome as they developed during the Republic, the Principate, the Dominate.

91:671 Mass Toxic Disasters Seminar arr.
Modern mass toxic disasters, including asbestos, DES, Agent Orange; sociology of how such disasters occur; legal issues presented by toxic substances litigation.

91:672 Proxy Contests Seminar arr.
Fundamental issues of state and federal law relating to proxy contests for corporate control, shareholder proposals, proxy solicitations, shareholder meetings, corporate elections, tender offers, judicial remedies for violations of state and federal laws.

91:673 The Roots of Evidence Law Seminar arr.
Psychological and sociological roots of evidence law; why we have the rules we have, assumptions rule makers (common law judges and then code drafters) hold about how people give and receive information, errors in assumption by rule makers and their effect(s) on ensuing rules. Pre or corequisite: 91:265.

91:676 Self-Determination in International Law arr.
Principle of self determination, from emergence to political philosophy of the Enlightenment through incorporation into modem international law.

Litigation process from initial incidence of actionable events through appeals process; research on what works in areas such as case selection and prediction, negotiation, jury selection, persuasion.

91:680 Race Theory Seminar arr.
Literature examining impact and intersection of race and law; ethnocentrism, political correctness, constitutional expression, race and class.

91:685 Lying by Lawyers and Their Clients Seminar arr.
Legal, ethical, professional constraints on concealment, deception, equivocation, misrepresentation, inaccurate statements by attorneys or their clients.

91:690 Women and the Criminal Justice System arr.
Battered women and their right to self defense; development of evidentiary law on battered women syndrome; women as aids and abettors of their male partner’s crimes; criminalization of pregnancy involving addicted mother-to-be; how laws of sentencing and corrections affect women.

91:695 Theories of Tort Law arr.
Economics, philosophic, empirical scholarship on tort law; emphasis on arguments attempting to justify current tort law or to improve it by prescribing alternatives.
College of Medicine

Anatomy ........................................... 403
Anesthesiology .................................. 404
Division of Associated Medical Sciences ........ 405
Medical Technology ............................ 405
Nuclear Medicine Technology .................. 406
Physical Therapy ............................... 407
Physician Assistant Program ................. 410
Biochemistry .................................. 411
Dermatology .................................. 413
Dietetic Internship ............................. 414
Family Practice ................................ 414
Genetics ....................................... 415
Hospital and Health Administration ........ 415
Human Nutrition ................................ 417
Immunology .................................... 418
Internal Medicine .............................. 419
Medical Scientist Training Program ........ 420
Microbiology .................................. 421
Molecular Biology .............................. 423
Neurology ...................................... 424
Neuroscience .................................. 424
Obstetrics and Gynecology ..................... 425
Ophthalmology ................................. 425
Orthopedic Surgery ............................ 426
Otolaryngology- Head and Neck Surgery ... 426
Pathology ...................................... 427
Pediatrics ..................................... 428
Pharmacology .................................. 430
Physiology and Biophysics ..................... 431
Preventive Medicine and Environmental Health .... 432
Psychiatry ...................................... 437
Radiation Biology .............................. 438
Radiology ...................................... 438
Surgery ......................................... 439
Urology ........................................ 440

Dean: Robert P. Kelch
Associate dean, academic affairs: Rex Montgomery
Associate dean: Richard P. Nelson
Acting associate dean, medical student affairs and curriculum: Peter Densen
Associate dean, Veterans Affairs: John E. Kasik
Acting associate dean: Susan R. Johnson
Assistant dean: William L. Lillibridge
Consultant to the dean: Woodrow W. Morris
Assistants to the dean: Richard K. Schmidt, Roger D. Tracy
Degrees: B, S., M.A., M.D., M.P.A.S., M.P.T., M.S., Ph.D.
The College of Medicine, as an integral part of the University, contributes to the educational programs of several thousand students, not only those in the Colleges of Dentistry, Medicine, Nursing, and Pharmacy but also in the life sciences areas of the College of Liberal Arts and the health-related programs of other colleges. Additionally, it serves health professionals from throughout the Midwest who take part in a year-round program of continuing medical education, in which several thousand practicing physicians update their knowledge and skills through refreshers, short courses, clinics, and conferences each year. It also expands and maintains educational opportunities in outreach health centers of the state, and it provides a statewide educational health care resource.

Beyond its academic responsibilities as the only college in Iowa that offers work toward the M.D. degree, the College of Medicine is concerned with broad public issues of distribution and organization of health care services. Its faculty members advise and serve on state and regional health planning councils, health boards, and various health agencies; some faculty also take part in the University’s Center for Health Services Research.

The College of Medicine is responsible for the associated medical sciences programs of education for physician assistants, medical technologists (with tracks in cytogenetics and biotechnology), physical therapists, and nuclear medicine technologists.

Medical and associated medical science students have several opportunities to gain firsthand experience in physicians’ offices and community hospitals. For medical graduates, the college offers seven family practice-affiliated residency programs in six cities throughout the state. The college promotes and sponsors experimental programs that demonstrate methods of organizing health services at the local level.

Accredited by the Liaison Committee on Medical Education of the American Medical Association and the Association of American Medical Colleges, The University of Iowa College of Medicine meets the requirements of all state licensing boards. Its 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 of Medicine are accredited by their respective accrediting bodies.

Faculty

Nearly all College of Medicine faculty members are full-time, their work in practice and research being part of—not apart from—their work in teaching. Many have earned national and international honors.

Graduate Programs

The college offers programs leading to graduate degrees through the Doctor of Philosophy in anatomy, biochemistry, microbiology, hospital and health administration, pharmacology, physiology and biophysics, preventive medicine and environmental health, and radiation biology. In addition, graduate degree programs leading to a master’s degree are offered in pathology, physician assistant, and physical therapy.

Medical Scientist Training Program

An interdisciplinary M.D.-Ph.D. program offered jointly by the College of Medicine and the Graduate College, the Medical Scientist Training Program provides preparation for careers in medical science and academic medicine with emphasis on research and teaching. With support from the National Institutes of Health, the program integrates the requirements for doctoral training in sciences basic to medicine with the full clinical requirements of the medical curriculum. The program entails approximately seven years of study. Further details are given in the program description.

Combined M.D.-Master’s Degree Programs

Students who want to pursue the M.D. degree in combination with a master’s degree program must gain admission to both the College of Medicine and the Graduate College and must make detailed arrangements with the graduate department chair and the associate dean for medical student affairs of the College of Medicine.

Interdisciplinary Programs and Centers

Interdisciplinary programs and centers have been developed that draw strength from the faculty of the college and the facilities available to them, without regard to their departmental units or to the separation of graduate and postgraduate training. Further information is available from the associate dean for academic affairs.

The following centers are subdivisions of the College of Medicine.

Center for Health Services Research

The Center for Health Services Research (CHSR) has been the research division of the Graduate Program in Hospital and Health Administration since 1981. It is the University-wide focal point for a broad-based program of health services research.

With the coordination and support of the CHSR, faculty and staff from colleges and departments throughout the University investigate the organization, delivery, efficacy, and financing of health care services.

CHSR interests embrace a broad spectrum of perspectives and disciplines, including economics, geography, organizational behavior, psychology, operations research, sociology, preventive medicine and environmental health, preventive and community dentistry, nursing, and clinical medicine. Through its research activities, the center promotes links among health organizations throughout the Midwest. CHSR also fosters frequent exchanges with other universities, state government, professional and provider associations, policy and planning groups, insurance organizations, health delivery institutions, and other members of the health services research community.

Clinical Research Center

The Clinical Research Center is the focal point at The University of Iowa for interdisciplinary programs in clinical investigation. It provides a physical and intellectual environment in which clinical investigation can be conducted with maximum regard for patient welfare and safety. The center, which has been funded continuously for 33 years by the National Institutes of Health, is a discrete unit with research nurses and dietitians, biostatistical support, and a computer facility.

Mental Health Clinical Research Center (MHCRC)

The major emphasis of the MHCRC is the study of schizophrenia. The center provides the facilities for research linking the clinical picture of the illness with its underlying neurobiology. The seven research units of the MHCRC conduct the necessary integrative and interdisciplinary research to advance the knowledge of the disease.

Cardiovascular Research Center

The Cardiovascular Research Center coordinates research and training programs related to cardiovascular diseases. It encompasses several federally and non-federally funded programs: Program Project Grant on Integrative Functions in Neurovascular Control, Program Project Grant Fatty Acids, Lipoproteins and Lipid Oxidation, 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.

Diabetes and Endocrinology Research Center

The Diabetes and Endocrinology Research Center coordinates basic research programs related to diabetes and endocrinologic diseases. It was established in 1979 with support from the Institute of Arthritis, Metabolism, and Digestive Diseases.
Cancer Center
A Cancer Center was established in 1980 to coordinate the efforts of University of Iowa faculty and staff in research, education, and demonstration programs related to all aspects of cancer.

Alzheimer's Disease Research Center
This 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.

Educational and Patient Care Facilities
First- and second-year classes are taught in the Bowen Science Building and the Medical Laboratories.

The Hardin Library for the Health Sciences is a vital resource centrally located on the medical campus. Students acquire clinical experience in the 891-bed University of Iowa Hospitals and Clinics complex, in the adjacent 198-bed Veterans Affairs Medical Center, and in a score of affiliated hospitals and ambulatory care centers throughout the state. Faculty members of the Colleges of Medicine and Dentistry make up the 586-member clinical staff at The University of Iowa Hospitals and Clinics, whose 16 clinical services are directed by the heads of the corresponding academic departments in those colleges. These faculty members also provide instruction for the 492 resident physicians and dentists who make up the house staff of the hospitals and clinics, where facilities are provided for teaching all major medical specialties, for residencies in all such specialties, and for fellowships in a number of subspecialties. The University of Iowa Hospitals and Clinics serves as a tertiary care center for the state of Iowa and portions of adjoining states, with most patients being referred for care and treatment not readily available in their home communities. For details about The University of Iowa Hospitals and Clinics, Veterans Affairs Medical Center, and related academic and health service units, see "The University of Iowa Health Center" in the Special Resources at Iowa section of the Catalog.

Research Facilities
The Eckstein Medical Research Building, opened for occupancy in early 1989, was designed to provide flexible research space that rapidly adapts to the changing needs of interdisciplinaty research activities. The facility serves interdisciplinary groups of faculty scientists, each of whom is researching a human biology problem at the advancing edge of science, and enables them to conduct research in close proximity to other select researchers. In order to accomplish this, the facility's laboratories have been designed to accommodate a wide range of research. The spaces, mechanical systems, and available support services offer the greatest flexibility and adaptability for current and future research.

Research facilities for the College of Medicine have been extended by approximately thirty thousand square feet of space, including new space at the University Research Park.

A number of facilities that support the research and teaching endeavors of College of Medicine faculty are administered through the dean's office. University of Iowa research facilities housed in the College of Medicine include the Electron Microscopy Facility and a Computer-Assisted Image Analysis Facility. The animal care unit, which arranges for the purchase, housing and veterinary care of a wide variety of animals, also is responsible for investigator training in the use of research animals and for compliance with all laws relating to animal research. (See "Research Activities" in the Special Resources at Iowa section of the Catalog.)

The bioengineering facility provides specialized electronic design, construction, and repair services. The medical instrument facility designs and fabricates scientific equipment and provides precision machine services and custom signage. The medical graphics, photography, and television sections offer consultation, design, and production services in these various art forms. The spectrum of composition is greatly expanded by Genigraphics, a computer-generated graphics system.

The P3 facility meets federal guidelines for recombinant DNA research requiring P3 containment. It also can be used for research on other biohazardous human or animal pathogens. The Radiation Facility is located in the Radiation Research Laboratory. Radiation sources available include two orthovoltage X-ray machines and a 12,000 Curie cesium-137 gamma ray source. These units make it possible to irradiate a wide variety of specimens, animate and inanimate, with low to very high doses.

The Electron Spin Resonance Facility allows investigators to directly detect free radicals as well as to study paramagnetic transition metal complexes.

The Protein Structure Facility provides services such as amino acid analysis, protein sequencing, peptide synthesis, and HPLC separations. In addition, instrumentation for the spectral characterization of macromolecules, the purification of proteins and peptides, and the measurement of kinetic parameters is made available to investigators for use in their research.

The Tissue Culture Hybridoma Facility provides cell fusions to form hybridomas from which monoclonal antibodies are isolated.

The Flow Cytometry Facility provides facilities, technical personnel, and consultation services to investigators studying diverse problems in cell biology, immunology, endocrinology, hematology, cell physiology, and cell kinetics. The flow cytometer will measure any optically detectable cellular property.

The Transgenic Animal Facility provides small animals that have specific genomic modifications.

The Iowa University Affiliated Facility, a unit of the Division of Developmental Disabilities Department of Pediatrics, provides interdisciplinary training, exemplary services, technical assistance, and information dissemination and participates in research to enhance the quality of life for persons with developmental disabilities. Professionals from many disciplines (e.g., audiology, dentistry, education, family practice, pediatrics, nursing, nutrition, occupational therapy, physical therapy, psychology, leisure studies, social work, speech-language pathology, and rehabilitative engineering) work together as teams to provide short-term tertiary evaluation and treatment in support of community services for persons with developmental disabilities.

The Office of Consultation and Research in Medical Education is made up of education specialists in a broad range of areas who serve the faculty, staff, and administration of all College of Medicine programs. The office provides educational consultation, initiates and cooperates in educational research endeavors, and conducts faculty development activities.

Doctor of Medicine
The University of Iowa College of Medicine accepts 175 freshman students each year into its four-year course of study leading to the Doctor of Medicine (M.D.) degree.

The curriculum in medicine at the University is based on a strong tradition of excellence. It is evaluated and renewed continually to reflect the changing needs of the new physician and of society.
Basic Medical Sciences (First Three Semesters)

The first three semesters present a core of sciences basic to the study of medicine.

First Semester
- 99:163 Biochemistry for Medical Students presents concepts concerning structures of biological macromolecules, cellular metabolism, 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 pathologic conditions.
- 60:103 Gross Human Anatomy for Medical Students includes clinically relevant areas of anatomical radiology and surface anatomy with clinical correlations. A complete dissection of the human body is undertaken, and the relationship to the living system is stressed.
- 60:104 Medical Embryology offers lectures on human embryology, with emphasis on the clinical aspect of development. Registration is limited to medical students; graduate students are referred to 60:217. The course is offered fall semester.
- 60:105 General Histology for Medical Students provides a course of study for the core information concerning cellular and tissue structure and function needed for the work to be accomplished in physiology and pathology.
- 115:102 Human Dimensions in Medicine is designed to introduce medical students to the importance of communication in the practice of medicine and to increase awareness of personal and social values. The course provides students with small-group experience through which they learn about and improve their ability to communicate sensitively with patients and colleagues.
- 63:110 Biostatistics provides guidelines for the application of statistical principles to the biological and medical sciences. Emphasis is given to the interpretation of studies published in medical journals.

Second Semester
- 72:212 Medical Physiology offers students an understanding of responses that an organism gives to external stimuli and provides a basis for understanding the integrated function of organ systems. Much of the material in these two courses is presented from a clinical point of view. In small discussion groups, which have essentially replaced laboratory exercises, students present their evaluations of the physiologic mechanisms at work in the clinical material. Some demonstrations are used.
- 61:103 Medical Microbiology includes immunology and presents a core of information on the classification and mode of action of infectious agents, as well as certain aspects of body response to these agents. Laboratory work plays an important role in this course.
- 50:234 Medical Neuroscience is an integrated course dealing with basic principles of neurophysiology and neuroanatomy, with emphasis on the human central nervous system.

Introduction to Clinical Medicine (Fourth Semester)

A major interdisciplinary course, 50:111 Introduction to Clinical Medicine, fills the fourth semester. It includes participation by a large proportion of the faculty and is vital in providing students with the tools for a lifetime of patient care.

The first series of mornings is devoted to introducing the patient as a person and giving guidance in interviewing, counseling, and history taking. Following this is an intensive review of clinical medicine on an organ system basis, presented by teams of clinicians and basic scientists. The final group of mornings is spent in areas of medicine that do not fall naturally into organ systems, and on reemphasis of some key subjects.

Throughout the 16 weeks of the course, students spend afternoons acquiring and practicing the clinician’s skills in history taking and physical examination. Habits of care, concern, and compassion needed by all physicians are established in this semester. Toward the end of the semester, each student is evaluated individually several times to determine the level of skill achieved. If further work is needed, guidance and assistance are provided.

Clinical Clerkships (Third Year)

The third year includes the required clinical clerkships and presents students with opportunities to work with physicians of almost all disciplines as they care for their patients. Students spend nine weeks in internal medicine; six weeks each in surgery, pediatrics, psychiatry, and obstetrics and gynecology; three weeks in family practice; and two weeks each in anesthesia, dermatology, neurology, otolaryngology—head and neck surgery, orthopedic surgery, and urology. Students spend most of this time in Iowa City except during the family practice clerkship, which exposes students to primary care in a physician’s private practice somewhere in Iowa.

The clinical clerkship year is the most critical period of time in medical education, for it is when students take on the posture of physicians to learn firsthand the complexity of medical science when viewed at the bedside and to understand the physician’s responsibility for human life.

Period of Selective Study (Fourth Year)

Following the clerkships, the fourth year provides a period of selective study, giving students many options. The broad, comprehensive orientation to the different medical disciplines and the level of clinical sophistication achieved during the clerkship year qualify students to participate in a variety of medical experiences, ranging from advanced courses in specialty areas to community-based clerkships in primary care. All students must complete a required course in clinical pharmacology and therapeutics.

Financial Aid

The College of Medicine’s philosophy is that no student should be denied a medical education due to a lack of funds. Therefore, the College of Medicine staff actively seeks adequate financial aid sources to enable every student interested in a medical education to finance that education.

Financial assistance is provided by the College of Medicine on the basis of demonstrated financial need. Although limited grants are available for the most economically disadvantaged students, most aid is in the form of loans. Examples of available federal loan programs are the Health Professions Student Loan (HPSL), the Primary Care Loan (PCL), the Subsidized Stafford Student Loan, the Unsubsidized Stafford Student Loan, the Perkins Loan program, and the Health Education Assistance Loan program (HEAL).

In addition, the College of Medicine has a number of funds that support collegiate loan programs through permanent endowments and/or contributions from alumni and friends of the College of Medicine. The three largest of these funds are the Kellogg/Medical Education Assistance Program, the Carroll Brown Medical
Student Loan Fund, and the Sled Foundation Loan Fund. The Dr. George Scanlon Medical Student Loan (offered through the Iowa Medical Education Fund of the Iowa Medical Society) also is available to M3 and M4 students who are residents of the state of Iowa.

The College of Medicine also manages a number of small funds that support short-term emergency loans for students with immediate financial needs. Information and advice concerning financial aid can be obtained through the College of Medicine Office of Student Affairs.

Educational Opportunities Program

The Educational Opportunities Program provides financial and academic assistance to disadvantaged students from groups that are underrepresented in American medicine: African-Americans, Mexican-Americans, American Indians, and Mainland Puerto Ricans.

Admission to the M.D. Program

The 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. Preliminary applications are processed by AMCAS beginning June 15 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 closing date is November 15.

Final application will be forwarded to applicants whose AMCAS applications pass a review conducted by the College of Medicine. A $20 fee must accompany the final application from applicants who have not completed work in residence at The University of Iowa.

Admitted applicants also must file with the University Office of Admissions an official transcript from each college attended.

Requirements

Applicants for admission to the College of Medicine must have received the baccalaureate degree, or have completed three years of a curriculum qualifying them to receive the baccalaureate degree after completing the first year in medicine, or have completed three years of a baccalaureate program meeting the general graduation requirements of the college they are attending.

Prospective students must have earned at least 94 semester hours of credit, or the equivalent, including the following:

Physics: a complete introductory course.

Mathematics: college algebra and trigonometry, or advanced college mathematics for applicants who completed college algebra and trigonometry in high school.

Chemistry: at the minimum, a complete introductory course in organic chemistry, ordinarily following a complete introductory course in modern general chemical principles.

Biological sciences: a complete introductory course in the principles of animal biology, or zoology and botany (not botany alone), and an advanced biology course.

All the foregoing must be taken with appropriate laboratories.

Applicants for admission to the College of Medicine must possess the capability to complete the entire medical curriculum and achieve the degree, Doctor of Medicine. The medical curriculum requires demonstrated proficiency in a variety of cognitive, problem-solving, manipulative, communicative, and interpersonal skills. Therefore, the following abilities and expectations must be met by all students admitted to the College of Medicine.

● Candidates must be able to observe demonstrations and experiments in the basic sciences.

● Candidates must be able to learn to analyze, synthesize, solve problems, and reach diagnostic and therapeutic judgments.

● Candidates must have sufficient use of the senses of vision and hearing and the somatic sensation necessary to perform a physical examination. Candidates must be able to perform palpation, auscultation, and percussion.

● Candidates must be able to relate reasonably to patients and establish sensitive, professional relationships with patients.

● Candidates are expected to be able to communicate the results of the examination to patients and to their colleagues with accuracy, clarity, and efficiency.

● Candidates are expected to be able to learn and perform routine laboratory tests and diagnostic procedures.

● Candidates are expected to be able to display good judgment in the assessment and treatment of patients.

● Candidates must be able to learn to respond with precise, quick, and appropriate action in emergency situations.

● Candidates are expected to be able to accept criticism and respond by appropriate modification of behavior.

● Candidates are expected to possess the perseverance, diligence, and consistency to complete the medical school curriculum and enter the independent practice of medicine.

Applicants who may not meet these standards are encouraged to contact the College of Medicine director of admissions.

Fulfillment of the specific requirements for admission does not ensure admission to the College of Medicine. From applicants meeting the requirements, the admissions committee of the College of Medicine selects those who appear to be best qualified for the study and practice of medicine.

Applicants who have completed the baccalaureate degree and required courses five or more years before seeking admission to the College of Medicine are considered by the admissions committee only under exceptional conditions.

To be considered for admission, applicants must have attained at least a 2.50 grade-point average for all college work undertaken. Where courses are available on a graded or pass/fail basis, it is expected that applicants will have taken the required science courses for a grade.

Preference is given to applicants with high scholastic standing who are residents of Iowa. Consideration also is given to outstanding nonresidents.

Applicants are required to take the Medical College Admission Test administered by the Association of American Medical Colleges no later than the summer of the year preceding that for which they are seeking admission. Students may arrange to apply for this examination through the University’s Evaluation and Examination Service.

Personal interviews are not usually conducted but are occasionally requested by the admissions committee. Applicants who feel that an interview is necessary may request that one be arranged by contacting the College of Medicine director of admissions. Requests for interviews normally should be made before January 1. The specific purpose of the interview should be clearly stated.

Applicants accepted on or prior to February 15 must submit a $50 advance payment by March 1. Applicants accepted after February 15 must submit this payment within two weeks after they receive notification of acceptance. The advance payment is credited toward tuition and fees.

All students entering the College of Medicine are required to comply with the pre-entrance and periodic health screening program developed by the Student Health Service in cooperation with The University of Iowa Hospitals and Clinics.

Promotion Policies and Procedures

Promotion

The College of Medicine has established promotion policies and procedures to ensure that each person who graduates from The University of Iowa College of Medicine 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 six faculty members and one student member, 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 in any case in which a student’s skills, knowledge, judgment, or ethical behavior is in any way considered consistently marginal or unsatisfactory. Possible recommendations by the committee include immediate dismissal of the student from the college; requiring the student to repeat all or any part of the curriculum on academic probation; and allowing the student to continue with a full or partial course load on academic probation. These recommendations are then forwarded for action to the medical
council and executive committee, meeting in joint session to represent the faculty.

Medical students have the right to appeal a promotion decision. Students desiring to do so must submit the appeal in writing to the dean of the College of Medicine within two weeks after the date of written receipt of the decision. Appeals are considered by the medical council and executive committee, meeting in joint session. Students may request an opportunity to appear personally before the joint session to make a statement and to answer questions.

More specific information about student promotion policies and procedures is available at the Medical Student Affairs Office and is published annually in the Medical Student Handbook for new students.

Leaves of Absence, Withdrawal, and Reinstatement

The 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 Medical Student Affairs Office and is published annually in the Medical Student Handbook for new students.

Informal Procedures

Student complaints concerning actions of faculty members or departments are pursued first through informal mechanisms established in the College of Medicine. These informal procedures allow the greatest flexibility for all concerned in resolving a conflict. They are intended for any situation a student may encounter including 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 “Policy on Sexual Harassment”) in the Student Life at Iowa section of the Catalog.

Information concerning the established informal mechanisms is available in the Medical Student Affairs Office and is published annually in the Medical Student Handbook for new students.

Division of Associated Medical Sciences

The division offers a B.S. degree in medicine. (The M.P.T. and M.A. degrees offered by the Physical Therapy Program, the Ph.D. offered in cooperation with the Department of Exercise Science, M. P.A.S. offered by the Physician Assistant Program, and the M.S. physician assistant tracks in preventive medicine and environmental health or exercise science are offered through the Graduate College and are subject to its policies.)

General Policies

Advising

When students declare their intended major to be one of the programs in the Division of Associated Medical Sciences, they are assigned to that program for academic advising.

Admission

Students are admitted to the College of Medicine at the time of formal admission to one of its programs. Admission policies and procedures vary from program to program. The Physician Assistant Program has an early admission process.

Students should consult the individual program descriptions and/or program offices for details of the admission processes. Students may be admitted as degree or nondegree candidates (special students). Nondegree candidates are subject to College of Medicine rules for academic probation and dismissal.

To be considered for admission, applicants must have earned a cumulative grade-point average on all college work attempted as appropriate to each program: medical technology, 2.50; nuclear medicine technology, 2.50; and physician assistant, 2.70. Admission committees give special attention to grades in the sciences, particularly those prerequisite science courses required by the individual programs. The cumulative or science grade-point average for the last 60 semester hours may be used to satisfy the minimum grade-point average requirement, at the discretion of the program admission committee.

Student Health

Students admitted to division programs must show proof that they have had a recent physical examination including routine laboratory procedures and immunizations for their own and their patients’ protection before they enter the program. These records are maintained through Student Health Service, which should be consulted for further information.

Financial Aid

Students in the Division of Associated Medical Sciences undergraduate programs 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 and are awarded on the basis of demonstrated need. Part-time work in related areas is sometimes available.

Graduation Requirements for Baccalaureate Degrees

General Requirements

Students must earn a minimum of 124 semester hours of credit. The number required after admission to a specific program varies from program to program. Students should consult the program description and/or program director for more specific information.

The general requirements for graduation include quality as well as quantity of work completed. Candidates must earn a 2.00 minimum grade-point average in all college work attempted, all work undertaken at The University of Iowa, and all graded work attempted after admission to the 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.

The residence requirement may be met by earning the final 30 consecutive semester hours in residence, or 45 of the last 60 semester hours in residence, or an overall total of 90 semester hours in residence.

Nonresident instruction includes course work at other colleges and universities, course work in other undergraduate colleges at The University of Iowa, and all work by correspondence, including University of Iowa Guided Correspondence Study courses.

General Education Requirements vary from program to program. Students must check the requirements of the specific program or degree objective. Specific requirements for the major are listed in each program description.

Double Majors

Students may earn more than one major in the College of Medicine by meeting the requirements for each major.

Two Baccalaureate Degrees

Students who want to earn two baccalaureate degrees, each from a different college, must do so under a combined degree program and must have their combined course of study approved by the dean of the College of Medicine and the dean of the other college.

Second Baccalaureate Degree

Students who already possess a baccalaureate degree and who want to earn an additional bachelor’s degree must complete at least 30 consecutive semester hours in the College of Medicine. Students who hold a B.A. or B.S. degree will be considered to have satisfied all General Education Requirements for graduation except the foreign language requirement. Holders of other degrees must meet college and program degree requirements. Students with B.A. or B.S. degrees must satisfy the residence requirement for a bachelor’s degree at Iowa. Candidates for a second bachelor’s degree must apply for the degree through the Office of Admissions.

The combined Baccalaureate Degree Program

Students may earn two University of Iowa baccalaureate degrees in a combined curriculum program in the Colleges of Medicine and Liberal Arts. Although students begin their academic program in the College of Liberal Arts, they must be eligible for admission to College of Medicine baccalaureate programs in medical technology or nuclear medicine technology.

Students who select this program must meet requirements specified by both colleges.
Candidates in the combined program usually are able to meet the baccalaureate 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 combined degree program are assigned two faculty advisers, one in the major department of the College of Medicine and the other in the major department of the College of Liberal Arts.

Candidates in the combined degree program must satisfy all requirements for both degrees. They must complete an overall total of 154 semester hours of credit, including at least 30 semester hours of courses offered by the College of Medicine and at least 30 semester hours of courses offered by the College of Liberal Arts.

Students interested in the combined degree program should see the director of the baccalaureate program of their choice in the College of Medicine.

Minors
Students graduating from the 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. In general, a minimum of 15 semester hours must be taken in the minor.

Applications 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.

Duplication*
Duplication occurs when students take the same course more than once or when they take a course that duplicates the content of a satisfactorily completed course. Regression occurs when students take a more elementary course after having satisfactorily completed a more advanced or higher level course in the same subject. Duplication and regression are assessed by the registrar at the time of graduation analysis. Hours earned by duplication or regression do not count toward the number of hours needed for graduation.

Graduation Honors
Approximately ten percent of the division’s graduating students may be recognized for their scholastic achievement upon recommendation by the program and with the dean’s approval. Minimum criteria have been established for the following designations: distinction, high distinction, and highest distinction.

Registration and Grading
Students are not allowed to register after the third week of the semester or the first one and one-half weeks of the summer session. The maximum permitted registration is 20 semester hours in a regular semester and 10 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 adviser 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 head of the division 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 adviser, and the head of the division at any time prior to the end of the first two-thirds of the course. Other changes in registration (such as to audit for O 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 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 prior to 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.

Graduating Procedures
Marking procedures vary from program to program. Students should consult individual program policy statements for information.

Auditing Courses
Students may register as auditors 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 special form obtained from the program office. The properly signed form must be presented to the registrar’s office before the end of the first one-fifth of the course. Both grades will remain on the permanent record, but only the second one is used to calculate grade-point average and hours 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.

Credit by Examination
The procedure for the acceptance of and the granting of credit by examination varies from program to program. The program director should be consulted for further information.

Reports to Students
Instructors contact any student whose work falls below the minimum acceptable level when the problem is recognized. Grades are reported on the student’s transcript, following University protocol. No formal midterm reports are given.

Academic Progress, Program probation, and Dismissal
Students are expected to maintain satisfactory academic and professional standards and to demonstrate reasonable progress toward the degree and certificate. Students who fail to maintain satisfactory academic progress or professional standards of behavior as determined by the program are placed on probation. Probation serves as a warning that students will not graduate unless their 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 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 the executive committee of
the division, at least four months prior to the requested date of readmission.

Students placed on probation or dismissed from a program are notified in writing of these actions by the program director; a copy is placed in their file.

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 summarily dealt with by the director. Repeated or exceptional instances are reported to the dean.

The instructor reports in writing any disciplinary action taken against a student 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 College of Medicine are reported to the dean with a statement of relevant facts. The program director and the instructor concerned may submit recommendations for appropriate disciplinary action.

The individual instructor may reduce 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 may warrant: disciplinary probation, assessment 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 submit an appeal in writing to the dean within two weeks after the date of receipt of the decision in writing.

Unclassified Students
Students who do not want to be admitted to the College of Medicine but who want to register for certain courses will be permitted to do so only if the course is an essential component of a planned program of study and the student complies with all requirements for registration for the course, or by action of the program's faculty upon recommendation of the course director.

Nondepartmental courses

50:00 Medical Student Research Fellowships
  0 s.h.
  Full time, on or off campus; interdisciplinary.

50:01 Medicine Elective Fourth Year
  arr.

50:02 Medicine Clinical Third Year
  arr.

50:03 Nutrition
  2 s.h.

50:04 Medicine in the Humanities
  2 S.h.

50:06 Interpersonal Skills for the Medical Professional
  1 s.h.
  Introduction to a model of helping others through verbal communication; indicates both the stages through which this helping process generally moves and the skills the helper should exercise at each stage.

50:20 Introduction to Selected Health Professions
  1 s.h.
  History, organization, education, and role of health providers in medical technology, nuclear medicine technology, physical therapy, physician assistant professions; current health care issues affecting these professions.

50:105 Law and Medicine for Physician Assistant Students
  1 s.h.
  Fundamental principles of law bearing on professional activities; basic vocabulary necessary to understand legal concepts.

50:106 Introduction to Behavioral Medicine
  1 s.h.

50:111 Introduction to Clinical Medicine
  arr.
  Provides the bridge between basic sciences and required clinical clerkships; basic skills of interviewing, history taking, and performing physical exams; lectures cover all clinical medical specialties; prerequisite includes specialized faculty teaching sessions and teaching associated simulated patients.

50:121 Introduction to Clinical Medicine for physician Assistant Students
  arr.

50:150 Molecular Modeling Techniques I
  2 s.h.
  Theoretical and practical aspects of computer-assisted molecular modeling utilizing supercomputing graphics workstations; building computer graphics models of molecules and performing molecular mechanics calculations with computers. Consent of instructor required. Same as 46:155.

50:151 Molecular Modeling Techniques II
  2 s.h.
  Theoretical and practical aspects of computer-assisted molecular modeling using supercomputing graphics workstations; advanced concepts such as Q SAR, macro development, advanced optimization techniques, loop searches. Prerequisite: 50:150 or consent of instructor. Same as 46:156.

50:152 Introduction to 3-D Modeling and Animation
  3 s.h.
  Theoretical and practical aspects of computer-assisted three dimensional modeling and animation, using super. computing graphics workstation; rendering scenes, sharing, key frame animation. Consent of instructor required.

50:153 Advanced 3-D Modeling and Animation
  arr.
  Independent study. Prerequisite: 50.152.

50:161 Designing and Developing Instructional Materials
  3 s.h.
  Design, development, use of Selfaced materials. Same as 7W:121.

50:165 Biomedical Ethics
  2 s.h.
  Ethical concepts, principles, problems in medicine; discussion group analysis of ethical aspects of individual cases. Open only to sophomore medical students.

50:166 History of Medicine in Western Society
  2 S.h.
  Open only to sophomore medical students.

50:167 Readings in Biomedical Ethics
  arr.
  Intended for medical, nursing, law, and graduate students. Consent of instructor required. Same as 32:268.

50:198 Advanced Biomedical Studies
  2 s.h.

50:199 Advanced Biomedical Studies
  2 s.h.

50:201 Dietetics Seminar
  1 s.h.
  Current research findings in normal nutrition, clinical dietetics, food service management, nutrition education; emphasis on development of skills in critical reading, concise oral presentation, abstracting of current literature.

50:202 Dietetic Seminar
  1 s.h.
  Selection of a current topic in nutrition; in-depth review of current literature for critical analysis presentation; emphasis on defense of methods, presentation of conclusions.

50:203 Critical Care Dietetics
  14 s.h.
  Nutritional aspects of health and disease, with emphasis on therapeutic use of food; student participation.

50:204 Clinical Dietetics
  1-4 s.h.
  Application of 50:203 through clinical case presentations.

50:205 Projects in Dietetics
  arr.
  Administrative, therapeutic, epidemiologic, food science, and metabolic studies; introduction to research.

50:206 Projects in Dietetics
  Application of 50:205.

50:207 Dietetic Research
  arr.
  Dietetic research topics; emphasis on methods, application of food science to research diets, calculation and preparation of liquid diets, metabolic balance studies, nutritional assessment, compliance with dietary protocols.

50:208 Dietetic Research
  Applications and discussion of 50-205 through selection, execution of independent projects and/or applied clinical studies research.

50:209 Hospital Dietary Administration
  1-4 s.h.
  Administrative problem solving techniques, methods for management, purchasing, cost control, data processing, food system.

50:210 Hospital Dietary Administration
  1-4 s.h.
  Application of 50:209 through independent projects, management case presentations, development of a department policy and procedure.

50:211 MSTP Summer Research
  Summer research experience for students in the Medical Scientist Training Program.

50:212 MSTP Clinical Conference
  1 s.h.
  Introduction to clinical research, with patient presentations and discussion of clinically oriented research topics; for students in the graduate studies component of the Medical Scientist Training Program.

50:216 Analysis of Food Service Systems
  arr.
  Review and evaluation of methods and equipment of various food service operations.

50:234 Medical Neuroscience
  4 s.h.

50:262 Facilitating Learning in Health Sciences Professions
  3 s.h.
  Clinical teaching models; factors involved in developing a comprehensive clinical evaluation system.

50:263 Multidisciplinary Ambulatory Care
  12 s.h.
  Rotation for fourth-year medical students; four 3 week blocks in family practice, internal medicine, obstetrics and gynecology, pediatrics ambulatory care clinics.

50:995 Individual Projects: History of Medicine
  arr.

ANATOMY

Interim head: John P. Long
Associate professors: Martin D. Cassell, Masataka Kawai, Nicholas J. Pantazis
Graduate degrees: M.S., Ph.D. in Anatomy

The department performs three major functions: teaching anatomy of the human body to students preparing for careers in the health care professions; providing advanced courses, teaching experience, and research training to graduate students preparing for careers in academic research and related scientific fields; and conducting original research into biological structure and function-relationship.

Preclinical Study for the Health Care Professions

The department contributes to the preclinical education of health care professionals by providing major courses in gross anatomy, histology, and neuroscience. The department
Facilities
The department occupies over 35,000 square feet in the Bowen Science Building on the health sciences campus. These quarters house modern teaching facilities and well-equipped research laboratories. The most modern instrumentation is available, including facilities and equipment for electron microscopy, microscopic digital imaging, autoradiographic studies, polymerase chain reaction, and other molecular biological techniques; spectrophotometers, cryostats, tissue culture and protein chemistry, and automated gamma/beta counting systems. Through collaborative programs with the Cancer Center, Cardiovascular Research Center, Diabetes and Endocrinology Research Center, and the Alzheimer’s Disease Research Center, faculty and students also have access to outstanding research facilities throughout The University of Iowa Medical Center.

Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>60:1</td>
<td>Principles of Human Anatomy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>60:2</td>
<td>Humans Histology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>60:10</td>
<td>Demonstration Laboratory in Human Anatomy</td>
<td>1 s.h.</td>
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<tr>
<td>60:101</td>
<td>Human Gross Anatomy for Dental Students</td>
<td>6 s.h.</td>
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<tr>
<td>60:105</td>
<td>Gross Gross Anatomy for Medical Students</td>
<td>7 s.h.</td>
</tr>
<tr>
<td>60:104</td>
<td>Medical Embryology</td>
<td>1 s.h.</td>
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<tr>
<td>60:105</td>
<td>General Histology for Medical Students</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>60:106</td>
<td>Human Anatomy</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>60:111</td>
<td>Gross Human Anatomy for Physician Assistant</td>
<td>6 S.H.</td>
</tr>
<tr>
<td>60:112</td>
<td>General Histology for Dental Students</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>60:114</td>
<td>Oral Histology and Embryology</td>
<td>1 S.H.</td>
</tr>
<tr>
<td>60:122</td>
<td>Independent Study in Anatomy</td>
<td>arr.</td>
</tr>
<tr>
<td>60:156</td>
<td>Scanning EM and X-ray Microanalysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>60:202</td>
<td>Anatomy Research</td>
<td>arr.</td>
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<tr>
<td>60:203</td>
<td>Gross Human Anatomy for Graduate Students</td>
<td>7 s.h.</td>
</tr>
<tr>
<td>60:216</td>
<td>Cell Biology I</td>
<td>3 s.h.</td>
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<tr>
<td>60:224</td>
<td>Graduate Student Seminar</td>
<td>0-1 s.h.</td>
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<tr>
<td>60:223</td>
<td>Advanced Human Anatomy</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>60:231</td>
<td>Advanced Histology</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>60:232</td>
<td>Medical Neuroscience</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>60:235</td>
<td>Advanced Neuromonomy</td>
<td>arr.</td>
</tr>
<tr>
<td>60:236</td>
<td>Secondary Human Anatomy</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>60:245</td>
<td>Developmental Neuroscience</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>60:265</td>
<td>Neuroscience seminar</td>
<td>0-1 s.h.</td>
</tr>
<tr>
<td>60:272</td>
<td>Seminar in Cellular and Molecular Biology</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

Head: John H. Tinker
Professors: Won W. Choi, Robert B. Forbes, Samir Gergis, Mohamed Ghoneim, Peter Jebson, John R. Moyen, David J. Murray, Martin Sokoll, Michael M. Todd

Associate professor emeritus: James G. Carter
Assistant professors: Javier H. Campos, Mark Dehring, Robert From, Bradley J. Hindman, Kent Lillehaug, Mazen Maktabi, Timothy Maves, Tanya Oyos, Donald Penning, Alan Ross, Robert Vincent
Visiting assistant professor: Winston Barcellos
Visiting professor: V. John Dhanaraj
Fellow associate: Johnny E. Brian

The department introduces the second-year medical student to anesthesia as a specialty; helps to develop in the third-year student some concepts and technical skills related to resuscitation, airway management, and the care of the comatose patient; and offers the fourth-year student intensive study in any and all phases of the specialty. Diverse clinical experiences, seminars and teaching conferences, and ongoing research activities help the postgraduate student or resident develop the knowledge and skills required of a specialist in anesthesia.

Courses

116:6 Clinical Anesthesia 2 s.h.
Clinical parent care in operating, recovery rooms; seminars, clinical case conferences, small group discussion sessions.

116:10 Clinical Anesthesia Senior 4 s.h.
Instruction and practical experience in various forms of anesthesia for surgical procedures; basic techniques of general, spinal, epidural, peripheral nerve block anesthesia; endotracheal intubation, other airway maintenance skills; management of comatose patient, cardiopulmonary resuscitation; pharmacology of general and regional anesthetics, their impact on respiratory and cardiovascular function, methods of treatment; clinical anesthesia seminars, morbidity and mortality conference.

116:11 Intensive Care 4 s.h.
Evaluation, treatment of seriously ill patients in intensive care, artificial ventilation, evaluation of pulmonary function, monitoring of cardiovascular status, fluid balance and acid base problems, advance monitoring techniques; emphasis on postcardiac surgery patients and those who need prolonged ventilator assistance. Prerequisite: 4 semester hours of 116:10.

116:100 Scientific Foundations and Frontiers in Anesthesiology 1 s.h.
Basic scientific principles in clinical anesthesia; current discoveries related to anesthesia, literature critique.

116:998 Special Studies on Campus 4 s.h.
Well-defined research project relating to anesthesia; arranged by student with approval of department head.

116:999 Special Study off Campus.

Although each program in the division has its own admission requirements, the first two years of undergraduate study are similar. Each program requires a foundation in biology, chemistry, and mathematics; physics, computer science, general statistics, and psychology are required by some programs and are highly recommended for others. Students should plan their study programs carefully so that conflicts in specifically required courses do not occur. It is imperative that students consult with the appropriate program adviser to assure the proper sequencing of courses.

The following is a typical curriculum for undergraduate students, with options being exercised after consultation with program advisers. Programs are abbreviated as follows: MT–Medical Technology (MT-CG–cytogenetics track, MT-P–perfusion track, MT-BT–biotechnology track); NMT–Nuclear Medicine Technology; PA–Physician Assistant; PT–Physical Therapy.

FRESHMAN YEAR
First Semester (Total of 16 semester hours)
14:13 Principles of Chemistry 1 3 s.h.
10:1 Rhetoric I 4 s.h.
22:M:15 Mathematics for the Biological Sciences 4 s.h.
General Education Requirement courses 5 s.h.

Second Semester (Total of 16-18 semester hours)
10:2 Principles of Biology I (MT–all tracks) 4 s.h.
2:1 Principles of Biology 11 (MT–all tracks) 4 s.h.
4:14 Principles of Chemistry 11 3 s.h.
4:16 Principles of Chemistry Lab I 2 s.h.
10:2 Rhetoric II 4 s.h.
General Education Requirement courses 3-9 s.h.

Sophomore Year
First Semester (Total of 14-15 semester hours)
2:10 Principles of Biology I (MT–all tracks, PA) 4 s.h.
2:1 Principles of Biology II (MT–all tracks, PA) 4 s.h.
4:121 Organic Chemistry 1 (MT–all tracks, PA) 3 s.h.
29:11 College Physics (NMT) 4 s.h.
61:157 General Microbiology (MT–all tracks) 5 s.h.
General Education Requirement courses 2-12 s.h.

Second Semester (Total of 14-18 semester hours)
2:11 Principles of Biology II (PA) 4 s.h.
29:12 College Physics (NMT) 4 s.h.
31:3 General Psychology (PT) 4 s.h.
8:W:112 Writing for the Sciences (MT-BT) 3 s.h.
99:10 Biochemistry (MT–all tracks, PA) 3 s.h.
100-level zoology course (PA) 3 s.h.
General Education Requirement courses 4-15 s.h.

Students who have satisfactorily completed the above prerequisites have satisfied the minimum academic requirements for early admission to the Medical Technology (all tracks) and Nuclear Medicine Technology Programs. Others complete the additional requirements below.

Junior Year
First Semester (Total of 14-18 semester hours)
2:112 Cell, Tissue, and Organ Biology (MT-CG) 5 s.h.
29:11 College Physics (PT, PA) 4 s.h.
63:158 Principles of Epidemiology (MT-BT) 3 s.h.
31:11 Introduction to Clinical Psychology (PT, MT-P) 3 s.h.
60:1 Principles of Human Anatomy (MT-P) 3 s.h.
72:130 Systemic Physiology (NMT, PT) 3 s.h.
Computer science (MT–all tracks) 3-4 s.h.
General Education Requirement, foreign language, or elective courses 4-15 s.h.

Second Semester (Total of 14-18 semester hours)
2:128 Fundamental Genetics (PT, MT-CG) 4 s.h.
2:155 Cell Physiology 4 s.h.
29:12 College Physics (PT, PA) 4 s.h.
60:1 Principles of Human Anatomy (NMT) 3 s.h.
69:119 Instrumentation in Clinical Laboratory Science (MT–all tracks) 3 s.h.
69:136 Independent Study in Immunology (MT–all tracks) 1 s.h.
72:150 Intermediate Physiology (MT–all tracks, PA) 4 s.h.
22:S:101 Biostatistics (NMT, MT–all tracks, PA, PT) 3 s.h.
or
22:S:102 Introduction to Statistical Methods (NMT, MT–all tracks, PA, PT) 3 s.h.
General Education Requirement, foreign language, or elective courses 0-8 s.h.

Senior Year
General Education Requirement, elective, or advanced courses in the Departments of Biochemistry, Microbiology, Chemistry, Biology, or others specified for specific degree requirements.

Director: Marian Schwabauer
Associate professor: Robert D. Tucker
Lecturers: Ruthanne Hyduke, Marian Schwabauer
Adjunct lecturer: John Abad
Associates: James O’Connor, Gail S. Williams
Adjunct associates: Beverly Pennell, Thomas Persson
Assistants-in-teaching: Kathleen Kelly, Lucy Wall
Adjunct assistants-in-teaching: Martha Bale, Mike Brezina, Delores Cordle, Charlotte Elbert, Dennis D. Gaunt, Jan Gavin, Jerry Hudson, Patricia Knebel, Mike Last, Julie Leahy, Marlene Loonan, Sandra Matthey, Barbara Moore, Maynard Murch, Michael Newell, Julie Paulson, Darren Peterson, Lisa Parmet, Kathy Ryerson, Gloria Scharnowski, Barbara Stewart, Janice Vaughn, Cindy Wamecke, Susan Woratschka
Undergraduate degree: B.S. in Medical Technology
Medical technologists/clinical laboratory scientists perform the laboratory tests on which physicians rely 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. Medical technologists/clinical laboratory scientists 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.

The Medical Technology Program is sponsored cooperatively by the College of Medicine, the College of Liberal Arts, The University of Iowa Hospitals and Clinics, and the Veterans Affairs Medical Center. Satisfactory completion of the program qualifies students to take all medical technologist/clinical laboratory scientist certification examinations. The program is accredited by the Council on Medical Education of the American Medical Association and by the National Accrediting Agency for Clinical Laboratory Sciences. Assuming that students have completed the required courses indicated above in the freshman, sophomore, and junior years, the remaining curriculum may be as follows.

### SENIOR YEAR

The clinical program consists of a minimum of 12 months of didactic and practical instruction. The first summer session and semester of all tracks are devoted to lectures, laboratory experience, demonstrations, and seminars covering theory and technique in clinical laboratory science. During the last semester, students have the opportunity to rotate through the clinical laboratory facilities of The University of Iowa Hospitals and Clinics, the Veterans Affairs Medical Center, and other hospitals in Cedar Rapids, Des Moines, and Waterloo. They attend additional seminars and may begin a specialized track, if they wish.

The program is made up of the following courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>69: 119</td>
<td>Instrumentation in Clinical Laboratory Science</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>69: 121</td>
<td>Immunology for Medical Technologists</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>69: 122</td>
<td>Clinical Chemistry for Medical Technologists</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>69: 123</td>
<td>Immunohematology for Medical Technologists</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>69: 124</td>
<td>Clinical Hematology for Medical Technologists</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>69: 125</td>
<td>Microbiology for Medical Technologists</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>69: 126</td>
<td>Clinical Chemistry for Medical Technologists</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>69: 127</td>
<td>Clinical Immunohematology for Medical Technologists</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>69: 128</td>
<td>Clinical Microbiology for Medical Technologists</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>69: 129</td>
<td>Clinical Hematology for Medical Technologists</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>69: 131</td>
<td>Clinical Laboratory Science Seminar</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>69: 132</td>
<td>Parasitology for Medical Technologists</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

### Biotechnology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>69: 134</td>
<td>Clinical Research for Medical Technologists</td>
<td>arr.</td>
</tr>
<tr>
<td>69: 175</td>
<td>Selected Biomedical Research Techniques</td>
<td>arr.</td>
</tr>
</tbody>
</table>

### Cytogenetics

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>69: 150</td>
<td>Medical Cytogenetics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>69: 151</td>
<td>Medical Cytogenetics Laboratory</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>69: 152</td>
<td>Medical Cytogenetics Seminar</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>69: 155</td>
<td>Clinical Medical Cytogenetics</td>
<td>arr.</td>
</tr>
</tbody>
</table>

### Required pre-entry courses include 2: 112 and 2: 128.

### Admission

The medical technology clinical laboratory science professional program is limited to 32 students, who begin the program in late May. Applications close October 15. Sixteen students continue during the fall and spring semesters and complete the program in May. The other 16 have the opportunity to complete unfinished prerequisite course work during the fall semester and then return to the program for the spring and fall semesters of the following year, graduating in December. Additional students who wish to complete alternate tracks (cytogenetics or biotechnology) must observe the same admissions process and complete the first two sessions of the program year. The amount of additional time required varies by track.

To apply for admission to the professional program, students must be able to complete all of the following prerequisites and University graduation requirements by the end of the professional (clinical) year:

- fourteen semester hours of chemistry, including qualitative analysis, organic chemistry, and biochemistry;
- three semester hours of mathematics;
- fourteen semester hours of biology, including general zoology, microbiology, and human physiology.

Admission is on a competitive basis. Cumulative grade-point averages of 2.50 overall and 2.50 in science generally are required. Applicants who enter the program as undergraduate students must meet the general admission requirements of the College of Liberal Arts and should consult with a Medical Technology Program adviser as early as possible to plan preclinical studies that meet all requirements.

### Expenses

Medical technology students in the professional-year curriculum are responsible for textbooks, University tuition, and student fees. Laboratory coats and equipment such as microscopes are provided by the program.

### NUCLEAR MEDICINE TECHNOLOGY

Director Anthony W. Knight
Medical director: Peter T. Kirchner
Technical director: John A. Bricker
Professors: Steve M. Collins, Peter T. Kirchner
Professor emeritus: Frank H. Cheng
Associate professors: Richard Hichwa, Kamm Rezai, James E. Seabold
Clinical associate professor: James A. Ponte (College of Pharmacy)
Assistant professor Mark T. Madsen
Associates: Daniel Kahn, G. Leonard Watkins
Visiting associate: Karen Beetham
Adjunct lecturer: Anthony W. Knight
Undergraduate degree: B.S. in Nuclear Medicine Technology

Nuclear medicine technology is a medical specialty that uses radioactive tracers for diagnostic, therapeutic, and research purposes. It is a vigorous, dynamic field that has grown rapidly over the past three decades and is still expanding and growing in complexity. This continued expansion of the specialty has fostered an increasing demand for highly skilled and motivated nuclear medicine technologists.

Nuclear medicine technologists generally work in hospitals and clinics. At the heart of nuclear medicine technology is the use of sophisticated detectors and computers to trace the movement and localization of radioactive tracers in the human body.

Other basic job responsibilities may include radiation safety; quality control; radiopharmaceutical preparation and administration; and collection and preparation of biological specimens to measure levels of hormones, drugs, or other body components. In all these functions, the nuclear medicine technologist works hand-in-hand with nuclear medicine physicians, health physicists, radiopharmacists, and radiochemists as an integral part of a highly trained specialty team.

The Nuclear Medicine Technology Program at The University of Iowa is fully accredited by the Committee on Allied Health Education and Accreditation and the Council on Medical Education of the American Medical Association. Fulfillment of the requirements established by the AMA Accreditation Board involves three years of preclinical work in the College of Liberal Arts and the College of Medicine, and a minimum of 12 months of professional clinical experience, available at The University of Iowa Hospitals and Clinics and the Veterans Affairs Medical Center.

Upon satisfactory completion of the four-year program, students receive the Bachelor of Science from the College of Medicine and a certificate of training. Graduates are then eligible for national certification as nuclear medicine technologists.

The required courses in the freshman 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 NMT program can complete a degree in their chosen area.

**JUNIOR YEAR**
The following are recommended courses.

- 60:1 Principles of Human Anatomy 3 s.h.
- 72:130 Systemic Physiology 3 s.h.
- 22C:1 Survey of Computing or
- 22C:7 Introduction to Computing with FORTRAN 3 s.h.
- 22C:16 Introduction to Programming with Pascal 4 s.h.
- 22S:25 Elementary Statistics and Inference 3 s.h.
- 22S:101 Biostatistics or
- 63:161 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 this clinical year is organized in accordance with the “Essentials of an Accredited Educational Program in Nuclear Medicine Technology.” Courses are taught in the following areas: radiopharmacy, radiobiology, radiomunnoimmunoassay laboratory procedures, radiation protection, patient care, medical terminology, anatomic and physiologic bases of nuclear medicine procedures, physics and instrumentation, administration and management, mathematics and statistics of nuclear medicine, and computer applications in nuclear medicine. Clinical rotations focus on nuclear imaging, clinical radiopharmacy, computer applications, and quantification of radioactivity in vivo and in vitro, including kinetic studies. Rotations also are established in radiomunnoassay, diagnostic X-ray, computed tomography, magnetic resonance imaging, echocardiography, cardiac catheterization, and ultrasound.

The clinical year consists of these courses.

- 74:101 Principles of Nuclear Medicine I 6 s.h.
- 74:102 Introductory Clinical Nuclear Medicine 6 s.h.
- 74:103 Principles of Nuclear Medicine II 3 s.h.
- 74:104 Intermediate Clinical Nuclear Medicine 9 s.h.
- 74:105 Advanced Clinical Nuclear Medicine 6 s.h.

For course descriptions, see “Radiology” in this section of the Catalog.

**Admission**
Prerequisites for admission to the Nuclear Medicine Technology Program include the following:

- a minimum of 94 semester hours in all course work, with a 2.50 minimum cumulative grade-point average;
- fulfillment of the College of Liberal Arts General Education Requirements in rhetoric, foreign language, physical education, humanities, historical perspectives, foreign civilization and culture, and social sciences (sociology and psychology are recommended);
- a minimum of 20 semester hours in three science areas, including a complete introductory course with laboratory in chemistry, physics, and zoology; and
- a minimum of 3 semester hours in mathematics, including at least intermediate algebra.

Fulfillment of these basic admission requirements does not ensure acceptance into the Nuclear Medicine Technology Program.

A new class begins in late August each year. Application materials must be received by March 1. Personal interviews are scheduled in March and the class is selected by April 15. At present, class size is limited to ten students. Prospective students are encouraged to consult with the program office to plan an appropriate preprofessional program.

**Physical Therapy**

**Director:** David H. Nielsen

**Professors:** David Nielsen, Gary Smidt

**Associate professor:** Thomas Cook

**Assistant professor:** Richard Shields

**Adjunct assistant professor:** William Dostal

**Lecturer:** Byron Bork

**Adjunct lecturer:** Donald Shurr

**Associate:** Jerry Gillon, Katherine Lampe, Karla Laubenthal, Joseph Leone, Mary Lohse

**Adjunct associates:** Rhonda Barr, David Johnson, Keyron Laubenthal, Ken Lee, Bruce Miller, John Wadsworth

**Graduate degree:** M. P.T.; M.A. in Physical Therapy

Physical therapists participate in evaluation of the capabilities and disabilities of patients. They provide treatment to alleviate pain; prevent, correct, or minimize deformity; and improve the general health status of the individual. They administer physical therapy facilities, supervise support personnel, do clinical research and teaching, and consult with other health professionals.

A wide variety of opportunities exist for professional practice in general or specialized hospitals, in programs for children with disabilities, and in physical therapy clinics, extended care facilities, nursing homes, community and governmental agencies, rehabilitation centers, the armed forces, foreign service, and athletic departments. Additional career opportunities are available for teaching in educational programs of physical therapy and related professions.

Education in the program is available at three different levels: the basic professional (Master of Physical Therapy), Master of Arts, and more advanced training obtained by completing the Ph.D. in the Department of Exercise Science (College of Liberal Arts) with special emphasis on therapeutics. There are 72 (36 in each class) students in the basic professional program and approximately 25 full- and part-time students in advanced degree programs.

The facilities are well-equipped for classroom and laboratory instruction. The Physical Therapy Program is located in the College of Medicine on the health center campus, which includes The University of Iowa Hospitals and Clinics, the nation’s largest university-owned teaching hospital. This location makes several resources readily accessible to the Physical Therapy Program: basic science and medical faculty, basic science courses, and intangible benefits associated with a college of medicine environment.

**Preprofessional Program**

**Master of Physical Therapy**

The professional program is fully accredited by the American Physical Therapy Association. Satisfactory completion of the professional program qualifies candidates for the Assessment Systems Inc. (A. S. I.) exam for licensure in Iowa and other states.

The two-year Master of Physical Therapy Program consists of the following courses.

**First Semester**

- 60:108 Human Anatomy 4 s.h.
- 69:133 Introduction to Human Pathology 3 s.h.
- 101:141 Principles of Physical Therapy I 4 s.h.
- 101:210 Kinesiology and Pathomechanics 4 s.h.

**Second Semester**

- 60:234 Medical Neuroscience 4 s.h.
- 101:131 Therapeutic Physical Agents I 4 s.h.
- 101:185 Musculoskeletal Therapeutics 2 s.h.
- 101:191 Clinical Education I 1 s.h.

**Third Semester**

- 101:222 Psychosocial Aspects of Patient Care 1 s.h.
- 101:192 Clinical Education II 1 s.h.
- 101:201 Applied Clinical Medicine 2 s.h.
- 101:203 Advanced Seminar in Orthopedic Physical Therapy 2 s.h.
- 101:205 Cardiopulmonary Therapeutics I 2 s.h.
- 101:224 Principles of Motor Control and Applied Neuroscience 3 s.h.
- 101:249 Research Practicum I 2 s.h.

**Fourth Semester**

- 101:321 Physical Therapy Management and Administration 2 s.h.
- 101:170 Prosthetics and Orthotics 2 s.h.
- 101:193 Clinical Education I 111 0-1 s.h.
- 101:206 Cardiopulmonary Therapeutics II 2 s.h.
- 101:225 Neuromuscular Therapeutics II 2 s.h.
- 101:250 Research Practicum II 2 s.h.
- Elective 3 s.h.

**Summer Session**

- 101:194 Clinical Internship (May-August) 6 s.h.
Admission

A new class is admitted to the Master of Physical Therapy Program each fall. To qualify for admission to the program, applicants must have completed or planned to complete before enrollment a baccalaureate degree from a regionally accredited institution in the United States. The following course prerequisites must be included in the baccalaureate degree program:

- 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 semester hours
- Physics: a complete introductory course equivalent to 8 semester hours
- Chemistry: a complete introductory course equivalent to 8 semester hours
- Physiology: a systemic human physiology course equivalent to 3 semester hours
- Psychology: courses equivalent to 6 semester hours
- Mathematics: a college-level mathematics course, at the level of trigonometry or higher; equivalent to 5 semester hours
- Statistics: a college-level statistics course equivalent to 3 semester hours
- All science courses must include the appropriate laboratory instruction. The prerequisite courses must be taken for a letter grade.

A 2.70 overall grade-point average (on a 4.00 scale) is the minimum for consideration for admission. In addition, a 3.00 grade-point average in all prerequisite course work, and course syllabi.

Applications for assessment and treatment of physical therapy education is a prerequisite. Clinical practicum experiences are offered to complement these specialties. The master’s degree requires a minimum of 30 semester hours of graduate course work. Completion of basic professional physical therapy education is a prerequisite. Clinical experience is recommended.

Physical therapy research laboratories are available. These laboratories are well-equipped with electromechanical systems and computers for measurement and analysis of cardiopulmonary responses (heart rate, blood pressure, energy cost, and ventilation), musculoskeletal function (muscle strength and endurance, gait, posture, kinetics, and kinematics impairment evaluation), and neuromuscular activity (electromyography, spinal reflexes, CNS control mechanisms). Use of extradepartmental laboratories also may be arranged.

Collaborative studies are encouraged with other departments, such as neurology, internal medicine, pediatrics, orthopedic surgery, physiology and biophysics, anatomy, engineering, and pharmacology, and with personnel in the physical therapy clinics. Students successfully completing the M.A. program in physical therapy will:

- have knowledge of the physical therapy theoretical and research literature related to a specific topic; and
- be skilled in the application of basic concepts in the areas of cardiopulmonary, musculoskeletal, and neuromuscular physical therapy.

The following courses are required:

- 63:162 Design and Analysis of Experiments in the Biomedical Sciences 3 s.h.
- 101:212 Biomedical Instrumentation 3 s.h.
- 101:301 Thesis: Physical Therapy (may be taken pass/fail) 4 s.h.
- 101:326 Analysis of Scientific Literature 2 s.h.

One of the following specialty courses:

- 101:260 Health Promotion and Cardiopulmonary Therapeutics arr.
- 101:270 Occupational Biomechanics arr.

The following courses are recommended.

- 27:141 Exercise Physiology 3 s.h.
- 27:153 Connective, Muscle, Nerve Tissue Anatomy 2 s.h.
- 69:133 Introduction to Human Pathology 3 s.h.
- 7W: 120 Introduction to Instructional Design and Technology 3 s.h.
- 71:120 Drugs: Their Nature, Action, and Use 2 s.h.
- 101:295 Electromyography in Kinesiology and Biomechanics 3 s.h.
- 101:327 Research in Therapeutics arr.
- 101:280, 282, or 284 Practicum (teaching, research, and/or clinical; maximum of 6 semester hours) 3 s.h.

Admission to the master’s degree program is based on the grade-point average for previous collegiate academic work; scores on the Graduate Record Examination (GRE) General Test; recommendation from three sources; and a personal interview. Applicants also must meet the requirements established by the Graduate College.

Applications are accepted beginning September 1 for the following year. Prospective students are urged to apply as early as possible. The closing date is February 1.

Expenses

In addition to general University expenses, students in the Master of Physical Therapy Program are responsible for purchasing uniforms, professional liability insurance, and course syllabi.

AU students are required to comply with the pre-entrance and periodic health screening program developed by the Student Health Service in cooperation with the University of Iowa Hospitals and Clinics. All costs of the screening program are the student’s responsibility. It also is highly recommended that students have hospitalization and health insurance.

Graduate Programs

Master of Arts

The Master of Arts in physical therapy emphasizes research and teaching in three areas of physical therapy: cardiopulmonary, musculoskeletal, and neuromuscular. The program focuses on theoretical and clinical applications for assessment and treatment of patient disorders in the three specialty areas. Clinical practicum experiences are offered to complement these specialties. The master’s degree requires a minimum of 30 semester hours of graduate course work. Completion of basic professional physical therapy education is a prerequisite. Clinical experience is recommended.

The physical therapy research laboratories are available. These laboratories are well-equipped with electromechanical systems and computers for measurement and analysis of cardiopulmonary responses (heart rate, blood pressure, energy cost, and ventilation), musculoskeletal function (muscle strength and endurance, gait, posture, kinetics, and kinematics impairment evaluation), and neuromuscular activity (electromyography, spinal reflexes, CNS control mechanisms). Use of extradepartmental laboratories also may be arranged.

Collaborative studies are encouraged with other departments, such as neurology, internal medicine, pediatrics, orthopedic surgery, physiology and biophysics, anatomy, engineering, and pharmacology, and with personnel in the physical therapy clinics. Students successfully completing the M.A. program in physical therapy will:

- be able to engage in teaching at the undergraduate and postbaccalaureate basic professional level of physical therapy training and show promise of teaching at the advanced master’s level;
- be able to engage in original scholarship and research directed toward the discovery of new knowledge and the development of theoretical principles that will advance the understanding of physical therapy clinical practices;
- take the Graduate Record Examination (GRE) General Test. Students should arrange to take the test early in order to ensure receipt of the results of the examination by the application deadline (February 1).
Ph.D. in Physical Education

(Therapeutics)

Doctoral training related to physical therapy is received in a program in exercise science (Division of Physical Education), with special emphasis on therapeutics. The program is described in detail under “Exercise Science and Physical Education” in the College of Liberal Arts section of the Catalog.

Students successfully completing the Ph.D. program in physical education with the specialty in therapeutics will:

● be able to teach at the basic professional and master’s degree levels of physical therapy education and show promise of teaching at the doctoral level;
● be able to perform original scholarship and research directed toward the discovery of new knowledge and the development of theoretical principles that will advance the understanding of physical therapy clinical practices;
● have comprehensive knowledge of theoretical and research literature in areas of specialization; and
● be skilled in the application of basic and advanced concepts in the areas of cardiopulmonary, musculoskeletal, and neuromuscular physical therapy.

Admission

Students are admitted to the study program leading to the Ph.D. on the basis of their grade-point average on work completed for the master’s degree and scores on the GRE General Test. To be considered for admission, students must have earned at least a 3.00 grade-point average on all graduate work undertaken. In addition, GRE scores must be on file at The University of Iowa.

Applicants must complete the Graduate College application. The Office of Admissions evaluates application materials to ensure that the minimum Graduate College standards are met. The application, including test scores and copies of transcripts, is then sent to the department for review.

Deadlines for the completed written applications are October 15 (notification by December 15); March 15 (notification by May 15); and May 15 (notification by July 15).

Financial Aid

A number of teaching and research assistantships are available; part-time clinical work also may be available.

Courses

101:121 Physical Therapy Management and Administration 2 s.h.
Principles of management in physical therapy practice; historical perspective, current health care reform.
10 1:2 12 Psychosocial Aspects of Patient Care 1 s.h.
Emotional reactions to disability, psychosocial aspects of disability as they relate to patient-physical therapist interaction.
101:131 Therapeutic Physical Agents I 4 s.h.
Physical and physiological bases for safe, effective use of various agents, including medical, heat and cold, hydrotherapy, ultraviolet light, laser, biofeedback, electricity, wound healing, electrophysiological evaluation; emphasis on the development of clinical rational, problem solving; treatments described in detail under “Exercise Science and Physical Education” in the College of Liberal Arts section of the Catalog.
10 1:141 principles of physical Therapy 4 s.h.
Patient treatment, discussion of profession (e.g., history, ethics, professional issues); team approach to patient care; teaching-learning theory; problem-oriented medical records; patient management skills; assessment of gait, joint motion, strength; lectures, laboratories.
101:170 prostheties and orthotics 2 s.h.
Principles, techniques in design and use of prosthetic, orthotic devices.
101:185 Musculoskeletal Therapeutics 2 s.h.
Principles, techniques of therapeutic exercise related to prevention, correction, alleviation of physical dysfunction; follows 101:141 with continued instruction in assessment, treatment of common musculoskeletal problems.
101:191 Clinical Education I 1 s.h.
Part-time experience in several different clinical facilities in patient care under supervision of clinical education Faculty.
101:192 Clinical Education II 1 s.h.
Continuation of 101:191; theory of physical therapy procedures correlated to practice; competence in basic skills;
101:193 Clinical Education III 0.5 s.h.
Continuation of part time clinical education interspersed with a short term, full-time block.
101:194 Clinical Internship arr.
Full time clinical education divided among three settings; students develop competence in independent assessment treatment of patients under supervision of clinical faculty; 21-week minimum.
101:201 Applied clinical Medicine 2 S.h.
Pathological disorders frequently encountered by physical therapists in clinical practice, addressed by physicians, health professionals who are not physical therapists; physical therapy management.
Pathology, assessment, management of orthopedic disorders; lectures, demonstrations, laboratories.
101:203 Advanced seminars in Orthopedic Physical Therapy 2 s.h.
Problem Solving sessions on evaluation, management of patients with musculoskeletal conditions; advanced and specialty approaches.
101:205 Cardiopulmonary Therapeutics I 2 s.h.
Overview of applied physiology and clinical perspective of physical therapy involvement in health promotion.
101:206 Cardiopulmonary Therapeutics II 3 s.h.
Cardiovascular anatomy, physiology; application of basic concepts, techniques in physical therapy; management of patients with acute and chronic cardiac, pulmonary disorders.
101:210 Kinesiology and Biomechanics 4 S.h.
Selected anatomical, structural, functional properties of human connective, muscular, nervous tissues and skeletal structures; emphasis on mechanical, neuroregulatory, musculature influences on normal, pathological motion.
101:212 Biomedical Instrumentation arr.
Basic principles of electronics, measurement; their application to physical therapy research, practice. Offered fall semesters.
101:213 Biomechanical Principles of Therapeutics arr.
Mechanical, physiological principles applied to study of human movement; emphasis on exercise, posture, locomotion; laboratories. Offered fall semesters of even years.
101:214 Advanced Seminar in Physical Therapy arr.
Current status of research for biological, mechanical, psychological components pertinent to cardiopulmonary, musculoskeletal, neuromuscular areas of physical therapy.
101:220 Seminar physical Therapy arr.
101:224 Principles of Motor Control and Applied Neuroscience 3 s.h.
Sensorimotor mechanisms involved with normal and abnormal neuromuscular systems function; skeletal muscle properties/plasticity, neural mechanisms of muscle strengthening spinal circuitry, simple and complex reflexes, spasticity, rigidity, posture control/balance, motor learning applied neurologically -merit of pathological conditions, such as stroke, SCI.
101:225 Neuromuscular Therapeutics II 2 s.h.
Techniques used in evaluation, treatment of persons with nervous system dysfunction; methods of identifying and scientific rationale for abnormal sensorimotor activity and movement: normal, abnormal motor development at children; techniques used to provide comprehensive institutional and home rehabilitation programs for conditions such as stroke, traumatic brain injury, multiple sclerosis, Parkinson’s disease, cerebral palsy, vestibular disorders, spinal cord injury. Prerequisite: 101:224.
101:249 Research Practicum I 2 s.h.
Topics relevant to research process, concepts of scientific method; identification and development of research questions, review of literature, research designs, introduction to statistical methods; manuscript preparation; preparation for development of research proposal.
101:250 Research Practicum II 2 s.h.
Continuation of 101:249; method, laboratory and clinical research; group research projects involving data collection, data analysis, preparation of final research paper, and presentation.
101:260 Health Promotion and Cardiopulmonary Therapeutics arr.
Anatomical, physiological principles applied to health care continuum, including wellness programs, cardiac and pulmonary rehabilitation; emphasis on composition and weight control, exercise and hypertension, diabetes and cardiopulmonary adaptations to training; laboratories. Offered fall semesters of odd years.
10:1:270 occupational Biomechanics arr.
Biomechanical factors that affect performance of occupational tasks; emphasis on prevention of musculoskeletal injuries; anatomical and physiological limits, workplace and tool design, traditional and newer methods of worker evaluation, workplace analysis. Offered spring semesters of odd years.
Neurophysiological mechanisms underlying posture, movement in normal, pathological conditions; systems approach to nervous system control of movement- evaluation of spinal cord, brain stem, higher center function in control of movement. Offered spring semesters of odd years.
101:280 Teaching Practicum arr.
Individual instruction, observation, experimentation in teaching techniques, analysis of evaluation processes in Physical Therapy Program.
10:1:282 Clinical Educational Practicum Application of newly acquired knowledge and skill in a clinical setting; specialty oriented.
101:284 Practicum in Research arr.
Laboratory experiences connected with investigative process; individual instruction, observation, experimentation in methodological development, data acquisition, data analysis aspects of research.
10 1 :295 Electromyography in Kinesiology and Biomechanics 3 s.h.
Electromyographic recording instruments, techniques commonly used in Kinesiologic and biomechanical studies; intramuscular and surface electrode techniques performed in laboratory; evaluation of variables such as muscle length, tension, type of contraction; use of electromyography in motor unit training biofeedback. Offered spring semesters of even years. Same as 27:295.
101:325 Independent Study arr.
Problem-solving experience in physical therapy; commensurate with student’s interest, ability.
Evaluation of experimental research; writing of proposal. Offered spring semesters.
101:327 Research in Therapeutics 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:** Denis R. Oliver  
**Medical Director:** George Xakellis, Jr.  
**Professor:** Denis Oliver  
**Assistant Directors:** David P. Asprey, Richard W. Dehn  
**Graduate Degree:** M. P.A.S. in the Physician Assistant Program

The physician assistant (PA) works in one of the newest and most exciting health care professions in the country. Physician assistants are qualified by specialized academic and clinical education to perform a wide range of medical activities under the supervision of a physician. In a typical office setting, the PA frequently is the first to see the patient, take a medical history, complete a physical examination, and order appropriate laboratory and/or X-ray studies. Working with the supervising physician, the PA participates in formulating and executing a treatment plan to meet the patient’s needs.

Depending on the practice setting, the PA conducts hospital rounds, house calls, and visits to the nursing home and helps the physician in the operating or emergency room.

The Physician Assistant Program at The University of Iowa is accredited by the American Medical Association’s Accreditation Review Committee on Education for the Physician Assistant. The program is a member of the Association of the Physician Assistant Programs and is approved by the Iowa Board of Medical Examiners and the Iowa Board of Physician Assistant Examiners. Completion of the program qualifies students for the Master of Physician Assistant Studies degree and for the opportunity to take the National Certifying Examination for Primary Care Physician Assistants. Successful completion of the national certifying examination is a prerequisite for registration as a physician assistant in Iowa.

The demand for physician assistants in all types of health care settings is growing as their role expands into a variety of health care situations. The educational program at The University of Iowa emphasizes primary care medicine, and in particular, family medicine. However, with the increasing employment opportunities for physician assistants in specialty areas of medicine, the program also offers elective clinical rotations in selected subspecialties of medicine.

### Professional Program

#### Master of Physician Assistant Studies

The Physician Assistant Program is an integral part of the College of Medicine. The first year of the program is taken at The University of Iowa Health Center. A major portion of the second-year clinical work occurs throughout the state in hospitals, clinics, and office practice settings.

The two-year educational program is divided into three broad phases.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>I</td>
<td>50:105 Law and Medicine for Physician Assistant Students</td>
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<td>60:11 Gross Human Anatomy for Physician Assistant Students</td>
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<td>61:12 Health Sciences Microbiology</td>
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<td>69:133 Introduction to Human Pathology</td>
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<td>71:125 Pharmacology for Health Sciences: Physician Assistant Students</td>
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<td>72:164 Human Physiology for Physician Assistant Students</td>
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<td>117:102 Introduction to the Medical and Physical Examination for Physician Assistant Students</td>
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<td>117:103 Introduction to Research Design and Methodology</td>
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<td>117:104 Interpretation of Medical Literature</td>
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<td>117:105 Preventive Medicine for Physician Assistant Students</td>
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<td>II</td>
<td>50:121 Introduction to Clinical Medicine for Physician Assistant Students</td>
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<tr>
<td>III</td>
<td>Phase</td>
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<td>66:100 Obstetrics and Gynecology for Physician Assistant Students</td>
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<td>70:555 Pediatrics for Physician Assistant Students</td>
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<td>73:100 Psychiatry for Physician Assistant Students</td>
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<td></td>
<td>75:555 General Surgery for Physician Assistant Students</td>
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<td>78:555 Internal Medicine for Physician Assistant Students</td>
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<td></td>
<td>115:555 Family Practice I for Physician Assistant Students</td>
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<td></td>
<td>117:201 Independent Study</td>
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<td>Elective clinical rotations are selected from the following.</td>
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<td>62:5 Dermatology Elective for Physician Assistant Students</td>
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<td>64:100 Neurology Elective for Physician Assistant Students</td>
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<tr>
<td></td>
<td>66:110 Obstetrics and Gynecology Elective for Physician Assistant Students</td>
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68: 108 Otolaryngology  Elective for
Physician Assistant Students
70: 102 Pediatrics Elective for
Physician Assistant Students
70: 104 Pediatrics Elective (Bone
Marrow Transplant) for Physician
Assistant Students
70: 106 Pediatrics Elective (Cardiology)
for Physician Assistant Students
73: 101 Psychiatry Elective for
Physician Assistant Students
74: 5 Radiology Elective for Physician
Assistant Students
75: 100 Emergency Room Elective for
Physician Assistant Students
75: 110 Surgery Elective for Physician
Assistant Students
75: 111 Surgery Elective (Burn Unit) for
Physician Assistant Students
76: 102 Orthopedics Elective for
Physician Assistant Students
78: 100 Internal Medicine Elective for
Physician Assistant Students
78: 110 Internal Medicine Elective (Cardiology) for Physician Assistant
Students
78: 130 Internal Medicine Elective (EKG) for Physician Assistant
Students
78: 140 Internal Medicine Elective (Geriatrics) for Physician Assistant
Students
78: 150 Internal Medicine Elective (Gastroenterology) for Physician
Assistant Students
78: 180 Internal Medicine Elective (Hospital Medicine) for Physician
Assistant Students
78: 198 Internal Medicine Elective (Infectious Disease) for Physician
Assistant Students
78: 605 Internal Medicine Elective (Pulmonary) for Physician Assistant
Students
115: 500 Family Practice Elective for
Physician Assistant Students
115: 556 Family Practice II for
Physician Assistant Students

Admission

In order to be considered for admission to the physician assistant professional program, applicants must meet the following requirements.

They must hold a baccalaureate degree from a regionally accredited institution in the United States. They must have a cumulative grade-point average of 3.00 (where A = 4.00) and must have taken the Graduate Record Examination (GRE) General Test within the last ten years. They must have at least six months health care and/or research experience.

In addition, they must have completed the following preparatory science courses: complete courses in inorganic and organic chemistry; a complete introductory course in animal biology or zoology; and general statistics or biostatistics. General college physics is highly recommended.

They also must have completed the following upper division science courses: human or animal physiology (lower division, combined anatomypathology course(s) do not satisfy this requirement); a minimum of two upper division level courses (highly recommended are endocrinology and histology; also recommended are cell biology, cell physiology, genetics, molecular biology, microbiology, neurobiology, and parasitology); general introductory biochemistry (a combined organic/biochemistry course does not satisfy this requirement).

Applicants must have achieved at least a 3.00 cumulative grade-point average on all course work completed at the college or university level. The admissions committee gives special attention to applicants’ performance in science courses. In the past, successful applicants have had a cumulative and science grade-point averages of 3.50; a total of 132 semester hours of college credit, of which 69 semester hours were in the sciences; and more than 3,700 hours of clinical and/or research experience.

Satisfaction of the basic admission requirements does not ensure acceptance into the Physician Assistant Program. The admissions committee selects the applicants it considers best qualified. Applicants with previous health care experience involving direct patient contact or scientific background receive preferential consideration. The committee requests interviews with the most qualified applicants.

Each new class begins the last week in May. Applications are accepted from September 1 to January 1. Each applicant must complete the Physician Assistant Program application and submit at least three letters of recommendation. All application materials, GRE scores, and prerequisite requirements must be completed by the January 1 application deadline.

Expenses

In addition to general university student expenses, students in the Physician Assistant Program are responsible for the purchase of their medical uniforms and diagnostic equipment, approximately $1,000. Microscopes are not required.

Combined Degree Programs

The Physician Assistant Program offers a three-year combined degree with either the Department of Exercise Science (College of Liberal Arts) or the Department of Preventive Medicine and Environmental Health (College of Medicine). Consult the Physician Assistant Program for information about the combined degree programs.

Courses

117:1 Physician Assistant Clinical Second Year
arr.
117:101 Seminar for Physician Assistant Students O-3 s.h.
arr.
117:102 Introduction to the Medical History and Physical Examination for Physician Assistant Students arr.
117:103 Development of Research Skills and Methodology 1 s.h.
arr.
117:104 Treatment of Medical Literature 1 s.h.
arr.
117:105 Preventive Medicine for Physician Assistant Students 1 s.h.
arr.
117:106 Epidemiology 1 s.h.
arr.
117:107 Independent Study 1 s.h.
arr.

Biochemistry

Head: Alan G. Goodridge

Associate professors: George Kalnitsky, Joseph I. Routh, Genevieve Stearns, Carl S. Vestling

Adjunct professor: Nancy C. Stellwagen

Associate professor Theodore A. Koerner, David H. Price, Larry S. Tobacman, Daniel L. Weeks

Associate professor emeritus: Gene F. Lata

Adjunct associate professor: Robert E. Cohen

Assistant professors: Robert J. Deschenes, Pamela Ceyer, Andrew D. Robertson, Madeline A. Shea, Marc S. Weld

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

Graduate degrees: M.S., Ph.D. in Biochemistry

Biochemistry is the study of the basic chemical processes that occur in all living systems. Currently one of the most active sciences, it also 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.
Undergraduate Programs

The College of Liberal Arts administers undergraduate programs and grants undergraduate degrees in biochemistry. See the College of Liberal Arts introductory section of the Catalog for general information about undergraduate study at the University. The Department offers both Bachelor of Science and Bachelor of Arts degrees; requirements are outlined below. Students choose the advanced science electives to supplement biochemical studies or as part of a minor or a double major (e.g., 2: 128 Fundamental Genetics or 22C:7 Introduction to Computing with Fortran). Science elective courses need not be numbered above 100 to be counted toward the degree.

Bachelor of Science

The B.S. degree program in biochemistry prepares students to work in positions that require a basic mastery of 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.

In addition to the College of Liberal Arts General Education Requirements, the B.S. degree in biochemistry requires 76-78 semester hours in courses, as follows.

- 22 M:25-26 Calculus I-II: 8 s.h.
- 22M:35-36 Engineering Calculus I-II: 8 s.h.
- 2:10-11 Principles of Biology I-II: 8 s.h.
- 4:13 Principles of Chemistry I: 3 s.h.
- 4:14 Principles of Chemistry II: 3 s.h.
- 4:16 Principles of Chemistry Lab I: 2 s.h.
- 4:121-122 Organic Chemistry I-II: 6 s.h.
- 4:131 Physical Chemistry I: 3 s.h.
- 4:132 Physical Chemistry II: 3 s.h.
- 29:1 1-12 College Physics: 8 s.h.
- 22M:15 Mathematics for the Biological Sciences: 4 s.h.
- 22M:16 Calculus for the Biological Sciences: 4 s.h.
- 99:1 Orientation and Introduction to Biochemistry: 1 s.h.
- 99:101 Technical Writing in Biochemistry: 1 s.h.
- 99:120 Biochemistry and Molecular Biology I: 4 s.h.
- 99:130 Biochemistry and Molecular Biology II: 4 s.h.
- 99:140 Experimental Biochemistry: 4 s.h.
- Advanced science electives (chosen in consultation with adviser): 6 s.h.

*Students who have completed 2:3 Principles of Animal Biology may use that class instead of 2:10-11 if they declare a biochemistry major by the first day of class fall 1996.

In addition, B.A. students intending to go on to advanced degrees in the biological or health sciences are advised to include 4 semester hours or more of 99:155 Research, Independent Study (senior research) in their programs.

Teacher Licensure

Biochemistry majors, especially those in the B.A. program, may qualify for teacher licensure by taking additional courses in teacher education. Students should consult with an adviser in the College of Education.

Honors

Qualified students may earn an honors degree in biochemistry. They must be enrolled in the College of Liberal Arts Honors Program and must do special work in 99:155 Research, Independent Study. Honors students 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.

Combined Programs

Students, especially those in the B.A. program, may include courses from other disciplines, such as business, prelaw, psychology, or journalism. This prepares them for one of the many vocations on which biochemistry has an impact.

Graduate Programs

The College of Medicine administers graduate programs in biochemistry; graduate degrees are granted through the Graduate College. See the College of Medicine introductory section and the Graduate College section of the Catalog for general information about study in medicine and graduate study at the University. The Department of Biochemistry offers programs of study leading to the M.S. and Ph.D. degrees. The department also offers opportunities for qualified and interested students to pursue combined programs leading to the M.S.-M.D. or Ph.D.-M.D. (medical scientist training) degrees.

The focus of the graduate program is on the individual student. In the first year, students’ educational needs are met with formal course work and tutorial research experiences that serve as the basis for selecting a thesis topic.

First-year students spend half of their time taking biochemistry courses-usually 99:241, 99:242, 99:282, and the interdisciplinary molecular biology courses 142:210 and 142:215 (for course descriptions, see “Molecular Biology” in this section of the Catalog). Students spend the other half of their time working in three different faculty laboratories (99:261 Research Techniques), learning research techniques in the context of ongoing projects.

After the first year, students choose research laboratories for Ph.D. thesis research, begin their thesis projects, and take courses that supplement and complement their interests and preparation. During this time, they must complete a minimum of 9 semester hours consisting of a seminar and two short courses (1 semester hour each) in biochemistry and 6 semester hours of elective science courses (100 or 200 level) in other departments.

The comprehensive examination is taken in May of the second year. After this examination, students are admitted formally to degree candidacy and concentrate on thesis research. The program culminates in the successful defense of the completed thesis work before an examining committee.

In addition to meeting these requirements and the general ones of the Graduate College, students are expected, as part of their training, to assist in teaching biochemistry for two or three semesters.

Throughout the program, students are associated with small research seminar groups and receive close personal attention from the biochemistry faculty members who serve as research advisers.

Admission

The graduate program in biochemistry is sufficiently flexible 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 course in biochemistry, but those with demonstrated ability may make up deficiencies after they enroll.

Minimum requirements for admission to the department include a 3.00 undergraduate grade-point average, acceptable scores on the verbal, quantitative, and analytical sections of the Graduate Record Examination (GRE) General Test. Candidates are more competitive if they also submit scores for the advanced examinations in chemistry, biology, or biochemistry, molecular and cell biology.
Financial Aid

Usually, all students admitted to the Ph.D. graduate program in biochemistry receive financial assistance.

Research

The department’s current research interests include the study of protein structure and function, complex carbohydrate structure and function, regulation of gene expression, mechanisms involved in transcription and replication, enzyme reaction mechanisms, intracellular signaling, differentiation, structure, membrane determinants of cell shape and motility, and mechanisms of hormone action.

Facilities

The Department of Biochemistry occupies modern research quarters in the Bowen Science Building, where the Departments of Anatomy, Microbiology, Pharmacology, and Physiology and Biophysics also are located. Most of its research and teaching facilities are located on a single floor. However, a few of the department’s research groups are located in adjacent buildings.

The University of Iowa maintains a number of central research support facilities and equipment that promote campuswide interactions between research groups. These include the Electron Microscopy Facility, Fermenter Facility, Image Analysis Facility, High Field NMR Facility, High Resolution Mass Spectrometry Facility, and Weeg Computing Center. Other facilities operated by the College of Medicine and available to biochemistry researchers include the Protein Structure Facility, Flow Cytometry Facility, DNA Synthesis Core Facility, Molecular Biology Core Facility, Hybridoma Facility, ESR Facility, Radiation Facility, and Cytogenetics Facility.

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 staff in instrument shops, animal quarters, photography and illustration service, and by office staff, stockroom supervisors, and a purchasing agent.

Together, the department and the central support facilities can provide virtually all of the equipment required for modern biochemical research. Examples of such equipment include analytical and preparative ultracentrifuges, computerized fluorescence, optical rotatory dispersion, high-field NMR, ultraviolet-visible and rapid kinetic instruments, infrared spectrometers, amino acid analyzers, protein sequenator, peptide synthesizer, gas chromatography, preparative high performance liquid chromatography, liquid scintillation counters, electrophoresis equipment, instrumentation for protein X-ray crystallography, computer terminals, a number of Cary spectrophotometers, an automatic DNA synthesizer, and an automatic DNA sequencer.

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 near the Bowen Science Building. Excellent resources also are provided by other departmental branches of the University Libraries system and by computer access to Bibliographic Retrieval Services.

Courses

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tr>
<td>99:000</td>
<td>Cooperative Education Internship</td>
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<tr>
<td>99:1</td>
<td>Orientation and Introduction to the Reid of Biochemistry</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>99:101</td>
<td>Technical Writing in Biochemistry</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>99:102</td>
<td>Undergraduate Seminar</td>
<td>1 s.h.</td>
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<tr>
<td>99:105</td>
<td>Biochemistry</td>
<td>3 s.h.</td>
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<tr>
<td>99:120</td>
<td>Biochemistry and Molecular Biology I</td>
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<td>99:130</td>
<td>Biochemistry and Molecular Biology II</td>
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<td>Experimental Biochemistry</td>
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<td>99:155</td>
<td>Research, Independent Study</td>
<td>2-6 s.h.</td>
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<td>99:160</td>
<td>Biochemistry Tutorial</td>
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<td>99:161</td>
<td>Biochemistry for Dental Students</td>
<td>4 s.h.</td>
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<td>99:162</td>
<td>Biochemistry for Pharmacy Students</td>
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<td>99:163</td>
<td>Biochemistry for Medical Students</td>
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<td>99:164</td>
<td>Biochemistry for Physician Assistant Students</td>
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<td>99:171</td>
<td>Genetics Seminar</td>
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<tr>
<td>99:224</td>
<td>Regulation Intermediary Metabolism</td>
<td>1-2 s.h.</td>
</tr>
<tr>
<td>99:237</td>
<td>Topics in Biochemistry</td>
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Dermatology

The Department of Dermatology instructs medical 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.

The University of Iowa program is one of the few in the country with a required rotation for medical students. Each third-year medical student spends two weeks in the clinic and attends about ten one-hour lectures. A good cross section of patients is available due to the mixture of primary and tertiary care patients, including a large number referred from Student Health Service. Additional patients are seen at the nearby Veterans Affairs Medical Center.

Various electives are available for fourth-year medical students, including further clinical experience, dermatologic research, and special studies.

Courses

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<td>Clinical Dermatology</td>
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<td>62:2</td>
<td>Dermatology Elective</td>
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<td>62:4</td>
<td>Research in Dermatology</td>
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<td>62:5</td>
<td>Dermatology Elective for Physician Assistant Students</td>
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<td>62:999</td>
<td>Special Studies off Campus</td>
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DIETETIC INTERNSHIP

Director: Suzanne Davis Koury
Assistant director: Marlys Dunphy

The University of Iowa Hospitals and Clinics offers a Dietetic Internship Program that is fully accredited by the Commission on Dietetic Registration of the American Dietetic Association (ADA) and that qualifies graduates to take the exam for qualification as a Registered Dietitian (RD). Clinical dietitians and food service system managers of The University of Iowa Hospitals and Clinics Dietary Department provide the clinical teaching for the program. Courses in the program are administered by The University of Iowa College of Medicine. The following courses are required.

50:201-202 Dietetics Seminar 2 s.h.
50:203-204 Clinical Dietetics 4-8 s.h.
50:205-206 Projects in Dietetics 2 s.h.
50:209-210 Hospital Dietary Administration 3-8 s.h.
69:104 Principles of Human Pathology 1 s.h.

The following are recommended electives.

50:207-208 Dietetic Research arr.
50:216 Analysis of Food Service Systems arr.

Students generally complete the program with 12 semester hours 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, most typically the master’s degree in preventive medicine, health education, or business administration.

The University of Iowa Hospitals and Clinics awards a certificate to program graduates.

To be admitted to the program, applicants must meet the requirements of The University of Iowa College of Medicine and must complete a didactic program in dietetics that has accreditation/approval of the ADA Council on Education’s division of education.

Students must enter the program in the fall semester. The postmark deadline for application is February 15.

The University of Iowa Hospitals and Clinics pays an internship stipend that partially covers educational and living expenses.

For descriptions of program courses, see “Nondepartmental Courses” in the College of Medicine section of the Catalog.

FAMILY PRACTICE

Head:
Professors: Charles E. Driscoll, Craig L. Gjerde, Glenys O. Williams
Professor emeritus: Reuben B. Widner
Clinical professor: John E. Sutherland
Associate professor: David M. Rosenthal
Clinical associate professors: Robert L. Friedman, Gerald D. Loos, Gerald J. McGowan, Jay Mixdorf, Monte L. Skaufle
Assistant professors: Cherie A. Bagley, George R. Bergus, Richard C. Dobryts, John W. Ely, Daniel S. Fick, Gerald J. Jogerst, David Keans, Barcey T. Levy

The Family Practice Program was initiated in response to the need for more primary care physicians in Iowa and throughout the nation. Appropriate course work in the department is included throughout the four-year M.D. program. The department’s 18 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 preceptorship with selected family physicians throughout the state. There also is opportunity for independent study during the senior year.

Residency Program

The department directs a three-year residency program whose graduates are eligible for certification by the American Board of Family Practice. This residency trains physicians to provide continuing and comprehensive care to the total family unit, using a concept that integrates the patient, health professionals, and the physician into an efficient and effective health care team.

The program is flexible, allowing residents freedom to tailor training to their interests and needs. It includes a broad spectrum of electives in internal medicine, pediatrics, obstetrics and gynecology, psychiatry, medical and surgical subspecialties, geriatrics, rural family practice, and community medicine. The program currently offers 72 individual rotations.

The hospital-based clinical experience is a unique combination of exposure to practice in The University of Iowa Hospitals and Clinics, where the patients have been referred by physicians from all over the state, and in various community hospitals, where inpatient care is of a nature more typical of family practice.

During the first year, a large portion of the program is based at Mercy Hospital in Iowa City, where residents have the opportunity for total participation in the practice—both inpatient and outpatient—of the private physician staff. Rotations are specifically designed to provide breadth of experience. In the second and third years, residents spend increasing time on rotation, at The University of Iowa Hospitals and Clinics. Residents may select model office experiences in the Family Practice Center or the Lone Tree rural office.

Facilities

The department office, located in the Steindler Building on the health center campus, is the center of department activities. It contains faculty offices and the Family Practice Model Office. It also has a rural satellite office located in Lone Tree, Iowa. Patient families are assigned to a resident with faculty supervision and are seen by appointment. Responsibility for the patient family remains with that resident for the period he or she is in the training program. Emphasis is placed on teaching the principles of practice management, including the organizational and administrative decision making, patient record and bookkeeping procedures, and chart auditing methodologies required to manage a private practice.

Courses

115:102 Human Dimensions in Medicine 1 s.h.
Small-group discussion in nonevaluative, structured format.
115:201 Principles of Family Medicine 2 s.h.
Theory, practice of family medicine, with emphasis on clinical problems commonly seen by family physicians; role of psychosocial factors and family function in health, disease; social, political, economic factors that affect practice of family medicine.
115:202 Facilitation of Human Dimensions in Medicine 1 s.h.
115:203 Practical Clinical Nutrition 2 s.h.
Core knowledge, attitudes, skills for fulfillment of nutritional needs of patients in hospital, outpatient settings; preventive, therapeutic aspects of nutrition.
115:300 Preceptorship in Family Practice 3 s.h.
One-on-one experience with a practicing physician in his or her office; exposure to illnesses, conditions often seen in primary care; results in background for evaluation of family medical as a career alternative.
115:401 Family Practice Clerkship, Broadlawns Hospital, Des Moines Family Health Center 4 s.h.
Clinical experience in both inpatient, outpatient care. Consent of department required.
115:402 Emergency Room Outpatient Clinic Broadlawns Hospital, Des Moines 4 s.h.
Professionalism in delivery of quality primary care, knowledge of normal human behavior in socioeconomic environment; effects on people’s behavior, diseases. Consent of department required.
115:404 Preceptorship in Family Practice 4 s.h.
Experience in community practice of family medicine. Consent of individual preceptor, Department of Family Practice required.
115:405 Family Practice Clerkship, Cedar Rapids 4 s.h.
115:407 Family Practice Clerkship Iowa Lutheran Open only to senior medical students.
115:408 U of I Family Practice Rotation 4 s.h.
Work with family practice residents, staff in day-to-day delivery of primary medical care in Family practice Model Office; experience in the Family Stress Clinic observing family-centered counseling; nursing home Visits work with departmental social worker.
115:409 Family Practice, Mason City 4 s.h.
Work with family physicians on staff at Mercy or other affiliated community hospitals; management of all patients admitted by these physicians, participation in care rendered by involved consultants; primary care experience in family practice office. Consent of department required.
115:410 Independent Studies 4 s.h.
Work with departmental researcher in investigation in family medicine, community medicine, health care delivery, health maintenance, similar areas. Consent of department required.
115:411 Rural Preceptorship Family Practice 4 s.h.
115:412 Central Nervous System Management and Rehabilitation Covenant Medical Center, Waterloo, Iowa 4 s.h.
Work with patients who have neurological problems such as quadriplegia, paraplegia, brain injury, stroke; understanding of multiple issues involved in brain injury rehabilitation.
115:413 Primary Care Sports Medicine 4 s.h.
Sports clinics, on-field experiences, training room coverage, interdisciplinary approach; introduction to use of exercise prescription, month-long course.
115:419 Family Practice Clerkship, Davenport 4 s.h.
Assignment to problems commonly seen commonly 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. Consent of department required.

115:420 Family Practice Clerkship, Sioux City 4 s.h.
Methods common in family practice medicine; participation in care of patients seen by family practice physicians, residents. Consent of department required.

115:421 Family Practice Clerkship, Oakdale 4 s.h.
Rotation at Blackburn Area Family Practice Center; work with patients from outpatient care though hospitalization; basic concepts of family practice, team concept in medical care.

115:424 senior Selective in Family Practice, Waterloo 4 s.h.
Primary responsibility for patients in hospital, well-elderly clinic), assessment of patients at home, Chemical Dependency Center Unit.

115:425 senior Selective in Emergency and Outpatient Care 4 s.h.
Participation in acute emergency care, management of acute illnesses, follow up care when possible; Covenant Medical Center, Waterloo.

115:426 Geriatric Medicine in Family Practice 4 s.h.
Learning modules of geriatric medicine, patient care in local community settings (family practice office, day center, nursing home, skilled facility), assessment of patients at home, working in a multidisciplinary team.

115:427 Clerkship, Alcoholism Treatment Unit 4 s.h.
Philosophy of substance abuse treatment program; community resources for treatment of substance abuse, treatment for medical conditions associated with chemical dependency; daily rounds, primary responsibility for patients; University of Iowa Chemical Dependency Center Unit.

115:430 Emergency Medicine: Marian Health Center, Sioux City 4 s.h.
Routine emergency problems in regional trauma center, functions of area resource hospital (St. Luke's Medical Center); option to accompany ambulance crews. Prerequisite: basic life support certification (can be arranged on arrival in Sioux City).

115:500 Family Practice Elective for Physician Assistant Students 6 s.h.
Delivery of ambulatory primary care, work under supervision of family practice residents, faculty, and/or private physicians; problems commonly encountered in ambulatory settings; study of selected patients, their families, skills, efficient use of allied health professionals.

115:555 Family Practice I for Physician Assistant Students 6 s.h.

115:556 Family Practice II for Physician Assistant Students 6 s.h.

115:999 Special Studies Off Campus Clerkships; may include community hospitals.

HOSPITAL AND HEALTH ADMINISTRATION

Director: James E. Rohrer
Professors: Samuel Levey, James L. Price
Professor emeritus: Gerhard Hartman
Associate professors: James E. Rohrer, Douglas S. Wakefield
Adjunct associate professors: Robert L. Ludke, William D. Petasnick
Assistant professors: Michael S. Hendryx, Peter E. Hilsenrath
Adjunct assistant professors: Richard F. Hansen, William W. Hesson, John H. Staley, Kenneth H. Yerinton
Associate: Elizabeth D. Schulman
Graduate degrees: M.A., Ph.D. in Hospital and Health Administration

For more than forty years, The University of Iowa’s Graduate Program in Hospital and Health Administration has educated health care executives to assume leadership roles in an increasingly complex and dynamic health care system. Consistently ranked among the foremost programs in the field, it has produced graduates who hold key positions in all areas of health management, both in the United States and abroad.

The program, which is accredited by the Accrediting Commission on Education for Health Services Administration, offers two graduate degrees—the Master of Arts (M.A.) and the Doctor of Philosophy (Ph.D.). The M.A. program meets the needs of those seeking managerial positions in health care or health-related organizations. The Ph.D. program prepares candidates for teaching or research careers, as well as senior-level executive and policy positions.

Programs

Master of Arts

The master’s degree in hospital and health administration requires four semesters of full-time study. The curriculum is designed to develop the knowledge, understanding, and skills that its graduates need to succeed in responsible managerial positions in hospitals, long-term care institutions, alternative delivery systems, ambulatory care facilities, planning agencies, consulting firms, and other health-related organizations.

First-year students examine the social, political, economic, and financial aspects of hospitals and health care organizations. At the same time, they are introduced to the concepts, tools, and techniques of effective managerial decision making, planning, and control. Second-year students are exposed to advanced management concepts and applications to health care.

Sixty semester hours of graduate work are required for the degree. Required courses, totaling 39 semester hours and representing a core of disciplines and fields of knowledge, are carefully sequenced to establish a unified approach to learning. The 60-semester-hour curriculum includes the following required courses.

80: 100 Executive Seminar Series 0 s.h.
80:200 Introduction to Health Care Organization 3 s.h.
80:201 Health Care Management 3 s.h.
80:204 Quantitative Management in Health Care 3 s.h.
80:205 Issues in Health Care Policy 3 s.h.
80:212 Health Economics I 3 s.h.
80:213 Health Economics II 3 s.h.
80:214 Financial Accounting for Health Care Organizations 3 s.h.
80:215 Managerial Finance 3 s.h.
80:216 Financial Management of Health Institutions 3 s.h.
80:237 Legal Aspects of Health and Medical Care 3 s.h.
63:158 Principles of Epidemiology 3 s.h.
63:161 Introduction to Biostatistics 3 s.h.
Electives* 24 s.h.

*At least 9 of these 24 semester hours must be taken in the hospital and health administration program.

A thesis is optional for the master’s degree but is recommended for students intending to pursue doctoral studies.

Health care Analytics

The need for data analysts and health care managers who are specialists in quality assurance (QA) and utilization review (UR), or planning is increasing as information systems improve and health care organizations search for ways to improve quality and constrain costs. Responding to the emerging job market for health care analysts, The University of Iowa offers elective courses in the health analytics area within its M.A. program. Health analytics differs from general management in that it includes more advanced coverage of epidemiology, statistics, QA/UR, and health planning. Students learn to apply research methods, including small area analysis, to a variety of health management activities.

H. H.A.-M.B.A. Program

The H. H.A.-M.B.A. dual degree program is designed for students who want to combine the traditional strengths of the Graduate Program in Hospital and Health Administration with greater exposure to advanced management techniques. A minimum of 72 semester hours must be earned for both degrees to be awarded. Of this number, 27 semester hours must be taken in the hospital and health administration program. This dual degree program can be completed in three years.
Five-Year Program

The University of Iowa was the first institution in the nation to offer a five-year program in hospital and health administration to nontraditional students. This option, which was launched with a grant from the W.K. Kellogg Foundation, enables qualified students to complete their baccalaureate and master’s degrees in five years rather than the usual six.

To be eligible for admission, students must complete all general requirements for a baccalaureate degree at their undergraduate institution by the end of the summer session of their junior year.

During the senior year, students are enrolled in the program in hospital and health administration as undergraduates. After completing the first year of study, the bachelor’s degree is conferred by the undergraduate institution. Students are then admitted formally to The University of Iowa Graduate College. The master’s degree is conferred after completion of the second year of study.

Joint Programs

Students who wish to pursue an integrated program combining a graduate degree in hospital and health administration with that of another field are encouraged to do so. In addition to the M.A.-M.B.A. dual degree program, joint programs currently are offered with the College of Law (J. D.) and the Program in Urban and Regional Planning (M.A.).

Other alternatives may be established on an individual basis. Students interested in a joint program should discuss their plans with both academic units and indicate their interest when submitting application materials.

Summer Internships, Fellowships, Residencies

The program facilitates placement of students in optional summer internships the summer between the first and second years of study. Most students choose to complement their academic training with an administrative postgraduate fellowship or residency. Such experiences afford a valuable means of observing, developing, and demonstrating practical management techniques and skills. The program takes an active role in assisting students to identify and secure fellowship and residency positions.

Doctor of Philosophy

The Ph.D. program, the nation’s first doctoral program in hospital and health administration, prepares students to assume positions in teaching and research as well as senior policy and executive assignments. Graduates of the program demonstrate advanced capabilities in research and management that enable them to work effectively in a wide variety of health-related organizations.

The Ph.D. requires completion of a minimum of 90 graduate semester hours, comprehensive examinations, and a dissertation. Doctoral candidates prepare dissertations based on original research that tests, extends, or applies concepts or principles to a problem in health care. The program requires all doctoral students to develop expertise in three areas of study. These areas and the required courses are as follows.

HEALTH SERVICES MANAGEMENT AND POLICY
- 80:299 The Politics of Health Policy 3 s.h.
- 80:251 Planning for Health Policy 3 s.h.
- 80:253 Seminar: Health Systems Management 3 s.h.
- Elective 3 s.h.

RESEARCH METHODOLOGY AND STATISTICS
- 80:261 Health Services Research I 3-4 s.h.
- 80:262 Health Services Research II 3-4 s.h.

ADVANCED STATISTICAL TECHNIQUES
- Doctoral students also are required to complete at least four courses (a minimum of 12 semester hours) from a statistics sequence. They may choose the general measurement/statistics sequence, as follows.
  - 7P:243 Intermediate Statistical Methods 3 s.h.
  - 7P:244 Correlation and Regression 4 s.h.
  - 80:265 Application of Multivariate Statistical Methods Elective
  - Or they may choose another statistical sequence depending on their choice of minor area.

MINOR

Students must complete at least 12 semester hours in a discipline such as regional planning, epidemiology, sociology, political science, social psychology, management science, or economics.

Alumni Association

An active alumni association supports the program in a number of ways, including scholarships, curriculum consultation, continuing education, research, and fund development. The association also functions as a network for persons entering the profession. Alumni serve as visiting faculty, consultants, and as preceptors for summer internships, residencies, and fellowships.

Each fall, the program sponsors the Executive Symposium, a two-day conference for health care executives, featuring presentations by leaders in the health care field. This event brings together alumni, students, educators, and leaders of the health care industry to address and discuss critical issues in health care. Recent symposia have addressed the changing role of the physician, the balance between business ethics and the healing mission, prospects for a new era in American health care, leadership in health care, and managerial applications of health services research.

Admission

Applicants to the master’s program are required to hold a baccalaureate degree (except for early admission program applicants). Applicants to the Ph.D. program generally are expected to hold master’s degrees in health-related fields, although other degrees are considered. A 3.00 grade-point average (on a 4.00 scale) is required for M.A. applicants. A 3.25 grade-point average (on a 4.00 scale) is required for Ph.D. applicants. Graduate Record Examination (GRE) General Test verbal and quantitative scores at the 50th percentile or Graduate Management Admission Test (CMAT) scores above 550 are preferred. Courses in finance, economics, and statistics are strongly recommended.

International students must have a TOEFL. All applicants are required to submit academic transcripts, GRE or CMAT scores, three letters of recommendation, and a Statement of Objectives form (available from the program).

Generally, admissions are made for the fall semester only. Campus visits are encouraged and personal interviews are required prior to admission. For those unable to interview on campus, arrangements are made to interview with a program alumni in the applicant’s home area.

Financial Aid

Approximately three-quarters of the students in the program receive some form of financial aid. Every effort is made to provide financial assistance to all students who demonstrate need.

In addition to various scholarship, grant, and loan programs administered by the University, the program provides qualified students with research assistantships that afford valuable experience in health services research and management projects. Research assistants work 10 to 20 hours per week and must apply for reappointment each semester. Appointment as a research assistant provides a stipend and entitles nonresident students to in-state tuition rates.

In addition to these student financial aid programs, opportunities exist for part-time employment both on and off campus. Further information and application forms for financial aid are available from the Office of Student Financial Aid.

Center for Health Services Research

The Center for Health Services Research (CHSR), the research division of the Graduate Program in Hospital and Health Administration since 1981, is the University-wide focal point for a broad-based program of health services research.

With the coordination and support of the CHSR, faculty and staff from colleges and departments throughout the University investigate the organization, delivery, efficacy, and financing of health care services. CHSR interests embrace a broad spectrum of perspectives and disciplines, including management science, health care organization, economics, geography, organizational behavior, psychology, operations research, sociology, preventive medicine and environmental health, preventive and community dentistry, nursing, and clinical medicine.

Through its research activities, the center promotes links among health organizations throughout the Midwest. CHSR also fosters
frequent exchanges with other universities, state government, professional and provider associations, policy and planning groups, insurance organizations, health delivery institutions, and other members of the health services research community.

Master’s and doctoral students from the program are encouraged to become involved in the center’s projects and activities.

Courses

80:100 Executive Seminar Series
- Issues, topics, governing 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. Consent of instructor required.

80:200 Introduction to Health Care Organization
- Basic arrangements of services in the United States; social, political, psychological, economic forces that shape health services; determinants of use, amounts and types of health resources available; methods of financing, government regulations, current issues. Same as 63:200.

80:201 Health Care Management
- Application of basic management principles such as leadership, goal setting, decision making, human resource management, to health care organizations. Consent of instructor required.

80:202 Hospital Organization and Management
- Openings, governance, medical staff organization, departmental operations. Prerequisite: 80:201.

80:203 Strategic Management and Marketing
- Management, marketing. Prerequisite: 80:201.

80:204 Quantitative Management in Health Care
- Quantitative decision making in health field; utility of model building approach in managerial decision making; formulation, solution, interpretation of management science models; application of models to health field. Consent of instructor required.

80:205 Issues in Health Management and Policy
- Integration and application of theories, concepts, principles, case studies. Consent of instructor required. Prerequisite: 80:201.

80:206 Management of Alternative Delivery Systems
- Organization, management of HMOs, PPOs, emphasis on managed care programs, utilization management techniques. Prerequisite: 80:201 or consent of instructor.

80:207 Group Practice and Ambulatory Care Administration
- Delivery of ambulatory health care services, for-profit and not-for-profit organizations; emphasis on manpower education and training, personnel administration, clinic scheduling, managerial accounting, other internal issues. Prerequisite: 80:201.

80:208 Long Term Care Administration
- Problems of health care delivery for elderly, those with functional disabilities; proposals for federal payment programs; issues in providing care for chronically ill. Prerequisite: 80:201 or consent of instructor.

80:210 Long Term Care Management
- Options, organization, delivery in the United States; needs of the long term care patient; emphasis on management of facilities, such as nursing homes, hospices, specialized care units. Offered through Saturday and Evening Class Program.

80:211 Health Behavior and Promotion
- Health behavior and attitudes, definitions in health and illness, clinician-patient interactions, sociobehavioral correlates of disease development, adherence/compliance behavior, health promotion/modification programs, strategic targeting and medical ethics; focus on social marketing strategies in public and private health sectors related to medical management, and outcome research. Graduate standing required. same as 63:250.

80:212 Health Economics I
- Intermediate level demand theory, production theory, industrial organization; analysis of health care markets, role of insurance. Consent of instructor required.

80:213 Health Economics II
- Continuation of 80:212. Health care markets; emphasis on analysis of cost-effectiveness, government policy. Prerequisite: 80:212 or consent of instructor.

80:214 Financial Accounting for Health Care Organizations
- Introduction to financial accounting practices in health care delivery organizations.

80:215 Managerial Finance
- Asset valuation, capital structure, capital budgeting under uncertainty, internal growth opportunities, mergers and acquisitions.

80:216 Financial Management of Health Institutions
- Issues in working capital management, capital financing analysis and rate setting, budgeting, reimbursement, internal control mechanisms, financial management information systems; emphasis on use of information from accounting, financial management systems. Consent of instructor required.

80:217 Topics in Health Insurance
- Financing of professional health care; theory of insurance, health insurance market, cost sharing, HMOs, PPOs, public and catastrophic health insurance, AIDS and insurance, care for uninsured poor; emphasis on public policy. Prerequisite: 80:212 or consent of instructor.

80:219 Managerial Decision Support Systems
- Development, application by health care managers; issues, methods development of databases; decision making under different environmental assumptions; role of managers in decision making; use of quantitative, qualitative decision-making aids. Consent of instructor required.

80:223 Managerial Ethics of Health Delivery
- Implications of ethical standards for health care management; administrative issues; organizational strategies for resolving conflicts. Consent of instructor required.

80:224 Human Resources Management
- Major issues, laws, management processes, procedures, psychological factors characteristic of human resources management in health care organizations. Consent of instructor required.

80:225 Topics in Health Care Information Systems
- Use of information technology in the health care system; computerized patient records, community health networks, patient data confidentiality requirements, software for medical centers, current issues facing information systems executives. Consent of instructor required.

80:234 Administrative Internship
- Practicum in public administration. Consent of instructor.

80:235 Administrative Residency/Fellowship
- Consent of instructor.

80:236 Quality Assurance and Utilization Review

80:237 Legal Aspects of Health and Medical Care
- Statutory, common law framework applicable to health care system; court decisions that illustrate applications of general legal doctrines in hospital, health settings. Consent of instructor required.

80:239 The Politics of Health Policy
- How public policy affecting health is generated, promoted, opposed, adopted, implemented; emphasis on political analysis of who gets what, how they get it. Consent of instructor required. Prerequisite: 80:200 or equivalent.

80:251 Planning for Health Policy
- Conceptual framework, empirical base for analyzing organization, delivery of medical care; literature, policy regarding accessibility, productivity, program benefits, quality, assessment of need and supply. Consent of instructor required. Prerequisite: 80:200 or equivalent.

80:253 Seminar in Health Systems Management
- Case studies highlighting management as the primary integrative force in health organizations; major areas of executive action in the development of policy, organization, planning information systems, control. Prerequisite: 80:251.

80:255 seminar in Contemporary Health Issues
- Review of international, methodological, substantive issues in health services research. Consent of instructor required.

80:261 Health Services Research I
- Fundamental of problem formulation, design, methodology; emphasis on evaluation of health services. Consent of instructor required.

80:262 Health Services Research II
- Continuation of 80:261, which is prerequisite: defense of research protocol.

80:265 Independent Research Project
- Continuation of 80:262, which is prerequisite: design, pursuit, completion of project.

80:265 Application of Multivariate Statistical Methods
- Prerequisite: 80:262.

80:280 Independent Study and Research
- Supervised tutorial. Consent of instructor required.

80:285 Ph.D. Dissertation
- Research for preparation dissertation; seminar presentations. Consent of instructor required.

HUMAN NUTRITION

Director: Ekhard E. Ziegler
Professors: Robert S. Bar (Internal Medicine), Edward F. Bell (Pediatrics), C. Patrick Burns (Internal Medicine), George D. Cain (Biology), Kevin P. Campbell (Physiology and Biophysics), Robert A. Clark (Internal Medicine), P. Michael Corm (Pharmacology), John E. Donelson (Biochemistry), Jeffrey Field (Internal Medicine), Alice B. Fulton (Biochemistry), Alan G. Goodridge (Biochemistry), James W. Hanson (Pediatrics), Lawrence G. Hanssicker (Internal Medicine), C. Thomas Kisker (Pediatrics), Ronald M. Lauer (Pediatrics), Victoria S. Lim (Internal Medicine), John P. Long (Pharmacology), Frank J. Longo (Anatomy), Rex Montgomery (Biochemistry), Arthur Nowak (Pediatric Dentistry/Pediatrics), John D. Olson (Pathology), Jeffrey E. Pessin (Physiology and Biophysics), William J. Rhead (Pediatrics), Peter A. Rubenstein (Biochemistry), Alexander Sandra (Anatomy), William I. Sivitz (Internal Medicine), Arthur A. Spector (Biochemistry/Internal Medicine), Lewis D. Stegink (Pediatrics/Biochemistry), John B. Stokes (Internal Medicine), Robert B. Wallace (Preventive Medicine/Health/Environmental Health/Internal Medicine), Eva Tsilkanian (Pediatrics)

Assistant Professors: William S. Moye-Rowley (Physiology and Biophysics), Gregory E. Tennyson (Internal Medicine), Marc S. Weld (Biochemistry)

Graduate degree: Ph.D. in Human Nutrition

The Ph.D. program in human nutrition is no longer accepting applications and will close when currently enrolled students graduate.

The goal of the doctoral program in human nutrition is to train individuals for careers in research and teaching. Most individuals who complete this training find employment as faculty members of medical centers, departments of nutrition in schools of public health, various governmental agencies, or industry. Students accepted into the program without previous graduate training devote approximately five years to acquiring the necessary breadth in biomedical education, laboratory methodology, and animal models for study of human problems, and experimental design for clinical investigation.

Course work is arranged to permit students to be involved in research throughout each semester. During the first 24 to 36 months of the training program, students rotate through three research laboratories. It is anticipated that students eventually will choose to perform
Admission

The doctoral program in human nutrition attracts students with a wide range of interests and training. Prerequisites for admission to the program include completion of acceptable courses in college-level biology, mathematics through calculus, organic chemistry, and physics; a 3.20 minimum undergraduate quantitative and analytical sections of the SAT or ACT. Students generally are expected to have a strong background in science and mathematics and an average in science and mathematics. Application procedures are available from the Director of the Program.

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. The didactic component of the training comprises a sequence of core courses in immunology and related disciplines. Students are involved directly in laboratory research from the first year of graduate study, usually at the end of the second year of graduate study, students advance to candidacy for the Ph.D. degree, devoting full time to thesis research and writing the dissertation. Upon successful completion of all requirements, including the dissertation and its oral defense in accord with the rules and regulations of the Graduate College, students are awarded the Ph.D. degree in immunology.

Financial Aid

Students in the Ph.D. program in immunology receive stipends and tuition support from a variety of sources. Available aid includes training grants from the National Institutes of Health and University of Iowa fellowships and graduate research assistantships.

Facilities

Students can participate in a wide range of nutrition research activities carried out in a number of departments, including anatomy, biochemistry, biology, internal medicine, pediatrics, pediatric dentistry, pharmacology, physiology and biophysics, and preventive medicine and environmental health.

COURSES

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<th>Credit Hours</th>
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<td>Nutrition Seminar</td>
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IMMUNOLOGY

Director: Robert A. Clark

Professors: Michael Apicella (Microbiology), Robert Ashman (Internal Medicine), Zuhair Ballas (Internal Medicine), Bradley Britigan (Internal Medicine), John Butler (Microbiology, Thomas Casale (Internal Medicine), Robert Clark (Internal Medicine), John Cowdery (Internal Medicine), Nancy Goeken (Internal Medicine), Charles Grose (Pediatrics), Michael Hart (Pathology), Louis Hoffmann (Microbiology), Gary Hunninghake (Internal Medicine), William Johnson (Microbiology), John Kemp (Pathology), David Lubaroff (Urology), Richard Lynch (Pathology), William Nauseef (Internal Medicine), Hal Richerson (Internal Medicine), John Weiler (Internal Medicine), Joel Weinstock (Internal Medicine)

Associate professors: Gail Bishop (Microbiology), Morris Dailey (Pathology), Elizabeth Field (Internal Medicine), Ted Koemer (Pathology), Gary Kozretzky (Internal Medicine), Charles Lutz (Pathology), Stanley Naides (Internal Medicine), Thomas Waldschmidt (Pathology), Mary Wilson (Internal Medicine)

Assistant professors: John Harty (Microbiology), Arthur Krieger (Internal Medicine), Larry Schlesinger (Internal Medicine), George Weiner (Internal Medicine)

Graduate degree: Ph.D. in Immunology

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. The didactic component of the training comprises a sequence of core courses in immunology and related disciplines. Students are involved directly in laboratory research from their first semester through their original thesis projects leading to the Ph.D.

Financial Aid

Students in the Ph.D. program in immunology receive stipends and tuition support from a variety of sources. Available aid includes training grants from the National Institutes of Health and University of Iowa fellowships and graduate research assistantships.

Facilities

Students can participate in a wide range of nutrition research activities carried out in a number of departments, including anatomy, biochemistry, biology, internal medicine, pediatrics, pediatric dentistry, pharmacology, physiology and biophysics, and preventive medicine and environmental health.

Financial Aid

Financial support is available to all students in the program.

The curriculum consists of a sequence of required and elective courses that provide didactic training in the conceptual and methodologic aspects of immunology. There is ample opportunity for study in a variety of fields that interface with immunology.

The following courses are required of all students:

142:210 Molecular Biology I 3 s.h.
142:215 Molecular Biology II 3 s.h.
148:201 Immunology I 3 s.h.
148:202 Immunology II 3 s.h.
148:211 Graduate Immunology Seminar (required each year for four years) 1 s.h.
148:221 Advanced Topics in Immunology 3 s.h.
148:231 Research in Immunology arr.
148:270 Ethics and Responsible Conduct in Research 1 s.h.

Although Molecular Biology I-II is required, students with experience in this area or special interests in alternative course areas may petition for substitution of other appropriate courses. In addition to the above requirements, students must take at least 6 semester hours of approved elective courses.

After successful completion of the comprehensive examination, usually at the end of the second year of graduate study, students advance to candidacy for the Ph.D. degree, devoting full time to thesis research and writing the dissertation. Upon successful completion of all requirements, including the dissertation and its oral defense in accord with the rules and regulations of the Graduate College, students are awarded the Ph.D. degree in immunology.
148:202 Immunology II 3 s.h.
Immunoglobulin molecular mechanisms, genetic regulation, generation of diversity, antigen-driven selection, cell signaling; immune effector mechanisms, including cytotoxic T cells, natural killer cells, macrophages, neutrophils, complement; classical diseases; cell migration and homing; emphasis on problem oriented experimental approaches.
Prerequisite: 148:201.

148:21 Graduate Immunology Seminar 1 s.h.
Graduate standing in Immunology Ph.D. program required.

148:221 Advanced Topics in Immunology 3 s.h.
In-depth analysis of selected areas. Prerequisites: 148:201 and 148:202.

148:231 Research in Immunology arr.
Laboratory research. Graduate standing in immunology required.

148:270 Ethics and Responsible Conduct in Research 1 s.h.
Conducting and reporting research, peer review, mentoring and laboratory supervision, human and animal subjects, misconduct, conflict of interest. Same as 127:270, 132:270, 142:270.

Graduate Program
The department offers straight internships and an approved residency program of high quality. In addition, most of the department’s specialty divisions offer clinical and research fellowships for periods of two to three years. These permit the development of special knowledge and skills relevant to the specialty. Candidates for internships are accepted from approved medical schools. Postdoctoral fellows who have received their doctorates also are accepted for programs in which the major focus is laboratory research.

Facilities
Teaching occurs in the medical services and in the laboratories of The University of Iowa Hospitals and Clinics in Iowa City, the Veterans Affairs Medical Centers in Iowa City and Des Moines, and Iowa Methodist Hospital in Des Moines.

Courses
78:010 Clinical Internal Medicine arr.
Open only to juniors.

78:101 Internal Medicine Elective for Physician Assistant Students arr.

78:130 Internal Medicine Elective (EKG) for Physician Assistant Students
Experience in reading electrocardiograms under supervision of cardiovascular division staff; interpretation of cardiac arrhythmias; performance, evaluation of EKG stress tests. Open only to seniors.

78:140 Internal Medicine Elective for Physician Assistant Students arr.
Development of diagnostic skills in clinical oncology; methods of staging common cancers; principles and practice of rational chemotherapy; therapy and outpatient management of patients with solid tumors, lymphomas, and hematologic leukemias. Open only to senior physician assistant students.

78:180 Internal Medicine Elective for Physician Assistant Students arr.
Broad spectrum of medical conditions relevant to elderly, health evaluation of patients 70 years of age or older in Internal Medicine Service, Geriatric Clinic; visits to nursing homes, evaluation of patients 70 years of age or older in Internal Medicine Service, Geriatric Clinic; visits to nursing homes, community service agencies, follow-up home visits to selected patients. Open only to seniors.

78:201 General Medicine Diagnostic Clinic arr.
Work on general diagnostic clinic; clinical evaluation of medical problems; emphasis on diagnosis, management of common medical problems presented in routine practice; management patient prescreening computerization in ambulatory health care.

78:202 Subinternship in Internal Medicine 4 s.h.

78:250 Clinical Allergy Immunology arr.
Experience in diagnosis, treatment of allergy and immunology problems; evaluation of outcomes, rapport, and preparation in interpreting special studies carried out in allergy laboratory; subsequent correlation with specific clinical problems.
78:251 Survey of Immunology 4 s.h.

78:253 Clinical Immunology and Immunopathology: Laboratory and Clinical Correlations 4 S.h. Same as 69:249.

78:290 Research in Allergy Immunology Work in faculty directed investigations. 4 s.h.

78:300 Clinical Cardiology Development of breadth, depth in diagnostic and therapeutic problems encountered in clinical cardiology; participation in evaluation, decisions regarding patients seen in coronary and intensive care units, in house consultations, Cardiovascular Clinic; techniques, regimens of managing acute myocardial infarction, p.m. and postoperative conditions, chronic states in postoperative patients during clinic follow-up visits. 78:304 Electrocardiography and vectorcardiography, exercise studies including submaximal treadmill testing, initial interpretation of current tracings, daily staff conferences, treadmill studies in cooperation with a cardiac fellow. 78:306 Cardiac Intensive Care Medicine Work as the chief staff member, responsibility for evaluation, management of patients; indepth clinical, didactic exposure to critical care medicine. 4 s.h.

78:310 Clinical Cardiology: VA Hospital, Des Moines Work on medical service under supervision of cardiac disease instructors; electrocardiography experience, consultations in cardiovascular disease; work in cardiac, pacemaker clinics of coronary care-units, care units. 78:320 Clinical Cardiology, Iowa Methodist Des Moines Experience, Iowa Methodist Des Moines arr.

78:325 Clinical Cardiology Coronary Care Experience, Iowa Methodist Des Moines arr.

78:380 Clinical Pharmacology and Therapeutics Lecture Series 2 S.h. Open only to seniors, or to juniors with consent of instructor. Same as 73:380.

78:375 Research in Clinical Pharmacology arr.

78:400 Clinical Endocrinology New patient evaluation, initial referral; returning patients in diabetes, endocrine clinics; complete patient evaluations, charts; Participation in clinical conferences. 4 s.h.

78:401 Clinical Diabetes arr.

78:440 Endocrine Research Participation in all organized educational division activities, suitable clinical activities; work in research laboratory of senior member, participation in ongoing project. Consent of Instructor required. 4 s.h.

78:445 Hospital Epidemiology 4 S.h.

78:450 Clinical Gastroenterology Work in consultation service at University Hospitals and Clinics or Veterans Affairs Medical Center; assistance in diagnostic procedures for patients examined as part of consultation service; participation in patient followup through weekly return clinic. 4 s.h.

78:490 Research in Gastroenterology Consent of instructor required. 4 s.h.

78:501 Oncology Diagnostic skills in clinical oncology; methods, value of clinical staging of lymphomas, solid tumors; principles, practice of rational chemotherapy; outpatient followup, management of patients with lymphomas, solid tumors. 4 s.h.

78:502 Clinical Hematology Diagnostic skills; practical approach to anemia, blood coagulation, leukemia; bone marrow preparations; principles, practice of rational therapy for hematological disorders. 4 s.h.

78:550 Clinical Infectious Disease arr.

78:553 Internal Medicine Elective (Hospital) for Physician Assistant Students arr.

78:554 Internal Medicine Elective (Infectious Disease) for Physician Assistant Students arr.

78:555 Internal Medicine for Physician Assistant Students arr.

78:590 Research in Infectious Disease arr.

78:600 Pulmonary Disease arr.

78:601 Research in Pulmonary Disease arr.

78:602 Medical Intensive Care Unit arr.

78:603 Pulmonary Disease Medical Intensive Care Unit VA 4 s.h.

78:604 Pulmonary Disease University Hospital Ward Rotation 4 s.h.

78:605 Internal Medicine Elective (Pulmonary) for Physician Assistant Students arr.

78:650 Research in Renal, Hypertension, and Electrolyte Disorders arr.

78:660 Medical and Pediatric Endocrinology Same as 70:662.

78:690 Research in Renal, Hypertension, and Electrolyte Disorders arr.

78:700 Clinical Rheumatology arr.

78:720 Clinical Rheumatology, Iowa Methodist Des Moines arr.

78:800 Internal Medicine Geriatrics arr.

78:832 Introduction to Medical Psychiatry 2 s.h.

78:835 Senior Clinical Clerkship in Medical Psychiatry 4 s.h.

78:902 General Medicine: Gunderson Clinic, La Crosse, Wisconsin arr.

78:903 General Internal Medicine, Keokuk Iowa 4 s.h.

78:910 Inpatient Ward Service: VA Hospital, Des Moines arr.

78:915 Inpatient Service, Iowa Methodist Des Moines arr.

78:997 Senior Honors Seminar in Medicine 1 s.h.

78:998 Special Study on Campus: Clinical Medicine arr.

78:999 Special Study off Campus: Clinical Medicine Consent of department required. arr.

MEDICAL SCIENTIST TRAINING PROGRAM

Director: Robert E. Fellows (Physiology and Biophysics)

Associate director: William Johnson (Microbiology)

The Iowa Medical Scientist Training Program is a combined M. D./Ph.D. program that prepares trainees for careers in academic medicine, with emphasis on preclinical and clinical research. To accomplish this, the program provides efficient integration of graduate education, doctoral research training, and all clinical studies necessary for the medical degree. Requirements for both the M.D. and Ph.D. degrees can be completed in approximately seven years of continuous study.

In the first two years of the program, trainees are associated primarily with the College of Medicine for the basic science and introductory clinical portions of its curriculum. The basic science core of the first three semesters consists of formal courses in biochemistry, histology, anatomy, embryology, biostatistics, biomedical ethics, physiology, microbiology, neuroscience, general and systemic pathology, pharmacology, and preventive medicine. These courses provide the language and organizing concepts of the preclinical sciences that are the foundation for subsequent training in both research and clinical medicine.

During the summer between the first and second years, trainees engage in research under the supervision of a member of the program faculty. Entering trainees also may choose to do research during the summer before their first year.

In the second semester of the second year, trainees enroll in an introduction to clinical medicine sequence that provides instruction and practice in medical history taking, physical diagnosis, and laboratory diagnosis, as well as...
in the summer of the second year, they engage in clinical clerkships involving primary patient care. This early clinical component integrates scientific and clinical aspects of the program and provides an overview of research needs in the health care system. Trainees maintain contact with clinical medicine during the graduate phase of the program through participation in weekly clinical conferences and voluntary clinical activities.

In years three through six, the graduate phase of the program, trainees enroll full-time in the departments they select in the middle of the second year. This graduate experience is designed to prepare trainees for careers as independent investigators. Graduate training is supervised by departmental faculty and is pursued with the rigor and standards applied to all doctoral students at The University of Iowa.

Third-year trainees take advanced courses while defining their selection of a thesis problem and adviser. After completion of required courses and qualifying examinations, trainees focus on original research, the essential requirement for the doctoral degree. While it is not possible at the outset to predict the amount of time this segment of the program will require, most trainees complete the Ph.D. research and thesis defense in approximately four years.

Immediately after completing graduate study, trainees reenter the medical curriculum to begin the final year of clinical clerkships. They return to the clinical environment with a wealth of information and sophistication in laboratory science that can be applied to problems of human disease, and as the final year progresses, they continue to develop the clinical skills they began to acquire in the second year of the program. After completing this clerkship year, trainees receive the M.D. and Ph.D. degrees.

Financial Aid
Trainees admitted to the first year of the program receive stipend and tuition awards provided by a Medical Scientist Training Program grant from the National Institutes of Health (NIH) to The University of Iowa. Support from this grant and/or institutional sources is continued through the completion of combined degree studies, provided the trainee’s progress remains satisfactory. Support for trainees admitted to advanced standing in the program is arranged on an individual basis.

Admission
Applicants must meet requirements for admission to the College of Medicine and the Graduate College at The University of Iowa. Trainees are expected to 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, applicants should demonstrate aptitude for and commitment to scientific research, usually through productive research experience as undergraduates.

Applications are accepted from students who request admission to the first year of the program. Consideration also is given to applications for admission to advanced standing from individuals currently enrolled in the College of Medicine at The University of Iowa.

Application Procedures
The University of Iowa College of Medicine participates in the American Medical College Application Service (AMCAS). Program applicants should instruct AMCAS to forward their credentials to the College of Medicine (IA131) as soon as possible after June 15. At the same time, applicants should request a separate Medical Scientist Training Program application from the program office. Applications to the Medical Scientist Training Program are reviewed by the program selection committee after AMCAS applications are received.

The deadline for receipt of applications is November 15. Applications should be submitted as early as possible to facilitate review by both the College of Medicine admissions committee and the program selection committee. Equal consideration is given to all applicants regardless of their state of residence.

COURSES
50:211 MSTP Summer Research 1 s.h. Summer research experience. Open only to students in the Medical Scientist Training Program.
50:212 MSTP Clinical Conference 1 s.h. Clinical research, with patient presentations. Open only to students in graduate phase of Medical Scientist Training Program.

See “Division of Associated Medical Sciences.”

Microbiology
Head: Michael A. Apicella
Professors: Michael A. Apicella, Robert F. Ashman (Internal Medicine), Steven Clegg, John E. Butler, John Cazin, Jr., Charles D. Cox, Lacy Daniels, Michael G. Feiss, Rudolph P. Galask (Obstetrics and Gynecology), David T. Gibson (Biocatalysis Professor), E. Peter Greenberg, Charles Grose (Pediatrics), Louis G. Hoffmann, William Johnson, John D. Kemp (Pathology), David M. Lubrloff (Urology), Richard G. Lynch (Pathology), Allen J. Markowitz, Stanley Perlman (Pediatrics), Erich W. Six, Donald P. Stahly, George V. Stauffer, Mark F. Stinski, C. Martin Steltzruss (Internal Medicine), Morris O. Dailey (Pathology), Caroline S. Harwood, Jose E. Rodriguez, Mary E. Wilson (Internal Medicine)
Associate professors: Gail A. Bishop (Internal Medicine), Morris O. Dailey (Pathology), Caroline S. Harwood, Jose E. Rodriguez, Mary E. Wilson (Internal Medicine)
Associate professors emeriti: Robert L. Richardson, Donald H. Walker, Jr.
Assistant professors: John T. Harry, Bradley D. Jones, Richard J. Roller
Undergraduate degree: B.S. in Microbiology; minor in Microbiology
Graduate degrees: M.S., Ph.D. in Microbiology

Microbiology is the branch of biological sciences that deals with the smallest living things: bacteria, 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 fraction of contemporary biochemical research employs microbiological and immunological methods.

Some research areas in which both practical and theoretical advances are occurring include the study of microbial species and viruses that infect animals, including man, plants, and other microbes; the use of recombinant DNA methods to analyze basic biological processes and to 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 selection and culture of hybrid cell lines able to produce antibodies of single type (monoclonal antibodies).

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. For the graduate with a bachelor’s degree in microbiology, positions are available in government, hospitals, public health laboratories, research laboratories, and industrial laboratories (food, dairy, chemical, pharmaceutica1, and genetic engineering companies).

Students who continue beyond the bachelor’s degree have more advanced career opportunities in these same areas as well as college and university teaching.

Undergraduate Program
The College of Liberal Arts administers undergraduate programs and grants undergraduate degrees in microbiology. See the College of Liberal Arts introductory section of the Catalog for general information about undergraduate study at the University.

Bachelor of Science
Undergraduate students majoring in microbiology at The University of Iowa must meet the General Education Requirements of the College of Liberal Arts. They must complete a minimum of 21 semester hours in microbiology to obtain a B.S. degree. No more than 2 semester hours of 61:161, 61:171, or 61:172, and 1 semester hour of 61:163 may be counted. Students may count 61:218 and 61:220 toward this requirement only once.

Students who want to apply for certification by the National Registry of Microbiologists are required to earn 30 semester hours of credit in biological sciences, 20 of which must be in microbiology. Certification is required for employment or advancement in some areas, primarily in diagnostic microbiology.

Students may take microbiology courses more advanced than 61:157 General Microbiology
only if they receive a grade of C or above in 61: 157. Mathematics and science courses required by the department for the B.S. degree must be taken for letter grades.

Microbiology Seminar (61:163) should be taken for credit only once during the senior year. Students are encouraged to take the course for Os semester hours credit during other semesters after they have taken 61: 157.

Microbiology majors must take the following courses in addition to required microbiology courses.

4:13 Principles of Chemistry I 3 s.h.
4:14 Principles of Chemistry II 3 s.h.
4:16 Principles of Chemistry Lab I 2 s.h.
4:121 Organic Chemistry I 3 s.h.
4:122 Organic Chemistry II 3 s.h.
4:141 Organic Chemistry Laboratory 3 s.h.
99:120 Biochemistry and Molecular Biology I 4 s.h.
99:130 Biochemistry and Molecular Biology II 4 s.h.
22M:16 Calculus for the Biological Sciences 4 s.h.
22M:25 Calculus I 4 s.h.
22M:35 Engineering Calculus I 4 s.h.
*2:10-11 Principles of Biology I-II 8 s.h.
29:11-12 College Physics 8 s.h.
*Students who completed 2:3 Principles of Animal Biology may use that class instead of 2:10-11 if they declare a microbiology major by the first day of class fall 1996.

Recommended courses include the following.
8W:100 Nonfiction Writing 3 s.h.
or
8W:112 Writing for the Sciences 3 s.h.
or
22C:7 Introduction to Computing with FORTRAN 3 s.h.
or
22C:16 Introduction to Programming with Pascal 4 s.h.
and
22C:17 Programming Techniques and Data Structures 3 s.h.

Honors

The honors program is open to juniors and seniors who have a grade-point average of at least 3.20 overall and 3.20 in microbiology courses. The program requires 25 semester hours of course work in microbiology, including 6 semester hours in 61:171-172 Honors Microbiology. These two courses constitute an introduction to experimental research. At the end of the research, students present a written report. Students who successfully complete these requirements receive the B.S. degree with honors.

Minor

An undergraduate minor in microbiology requires at least 15 semester hours of credit in microbiology courses with a minimum grade-point average of 2.00. Of these 15 semester hours, at least 12 must be taken at The University of Iowa in courses numbered 61: 103 and above.

Graduate Programs

The College of Medicine administers graduate programs in microbiology; graduate degrees are granted through the Graduate College. See the College of Medicine introductory section and the Graduate College section of the Catalog for general information about study in medicine and graduate study at the University.

The objectives of the graduate programs in microbiology are to help students become highly qualified in research and in teaching of microbiology.

Five areas are included in the program: pathogenic bacteriology, microbial genetics, immunology, microbial physiology, and animal virology. Several of these specialized areas involve interdisciplinary training both within and outside of the department, so students receive broad experience during their course of study. An interdisciplinary Ph.D. program in Immunology is also available.

Students working for the Ph.D. may obtain an M.S. during their graduate work or proceed directly toward the Ph.D.

All students admitted as candidates for advanced degrees are expected to assist in departmental teaching.

Incoming students choose a research supervisor who serves as chair of their advisory committee. This committee assists students in planning a program of study and, from time to time, reviews students’ progress.

The department cooperates with other departments in the various colleges on campus, affording ample opportunity for students to avail themselves of diverse course offerings, seminars, and research programs. For example, courses and seminars in clinical laboratory microbiology, immunology, genetics, cellular and molecular biology, biocatalysis/biotechnology, and electron microscopy are taught on an interdepartmental basis.

Master of Science

Candidates for the M.S. are required to take a minimum of 12 semester hours of microbiology courses in three of the five different subspecialties available in microbiology. Students may substitute a course taken previously (at The University of Iowa or elsewhere) for the course requirements, upon obtaining approval from the M.S. committee. Additional course requirements and selections 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.

Doctor of Philosophy

The minimum course requirements for the Ph.D. are one course in each of four subspecialties (of the five subspecialties available in microbiology) or 15 semester hours of course work in two different areas. Students may substitute a course taken previously (at The University of Iowa or elsewhere) for the course requirements, upon obtaining approval from the Ph.D. committee. Students also must pass a comprehensive examination and write a thesis based on their own research. The thesis must be defended satisfactorily in an oral examination.

Admission

Prospective graduate students should become familiar with the general admission requirements of the Graduate College.

Departmental requirements include a review and formal vote by the faculty before students are admitted. Before beginning graduate work, students must have completed courses in biological sciences, chemistry (inorganic and organic), mathematics including calculus, and physics. Students admitted without the above course work must take it during the first year of graduate school. Students should have at least a 2.70 grade-point average to be admitted to the graduate program in microbiology. Preference is given to students applying for the Ph.D. program.

Facilities

The department shares the Bowen Science Building with the Departments of Anatomy, Biochemistry, Pharmacology, and Physiology and Biophysics. Laboratory space and modern equipment are available for teaching and research.

Courses

61:000 Cooperate Education Internship O s.h.
61:105 Medical Microbiology arr. Principles, methods essential to study of micro-organisms, their isolation and identification, microorganisms involved in infectious diseases; current concepts of immunology. Open only to College of Medicine students or to others with consent of course director.
61:12 Health Sciences Microbiology 4 S.h.
Medical microbiology: bacteriology, immunology, pathogenic bacteriology, virology, mycology, parasitology. Open only to dental, physician assistant, and pharmacy students.
61:147 Survey of Immunology 4 S.h.
Fundamentals of cellular and molecular immunology, their application to clinical problems; participation by faculty from microbiology, internal medicine, pathology, anatomy. Prerequisite: 61:157 with a grade of C or higher or an introductory course in biochemistry. Same as 78:251.
61:157 General Microbiology 5 S.h.
Principles of microbial diversity, microbial genetics, physiology and metabolism, pathogenic microorganisms, virology, Immunology, industrial and environmental microbiology; laboratory emphasis on basic techniques. Prerequisites: 2:10 and 2:31. Corequisites: 4:121.
61:159 Pathogenic Bacteriology 5 s.h.
Pathogenic bacteria, with emphasis on mechanisms of pathogenicity, laboratory methods for isolation, identification; laboratory emphasis on advanced methods for study of pathogenic bacteria. Consent of instructor required. Prerequisite: 61:157 with a grade of C or higher.
61:160 Microbial Physiology 3 S.h.
Microbial cell structure and function, growth, energy metabolism, biosynthesis, control mechanisms; Laboratory supplement in 61:180. Prerequisites: 61:157 with a grade of C or higher and a biochemistry course.
61:161 Problems in Microbiology arr. Research under faculty supervision. Undergraduate major and consent of instructor required. Prerequisite: 61:157 with a grade of C or higher.
61:163 Seminar Microbiology 1 s.h.
61:164 Microbiology 4 s.h.
61:165 Clinical Laboratory Microbiology arr.
61:166 Clinical Laboratory Virology arr.
61:167 Advanced Immunology 3 s.h.
61:168 Introduction to Animal Viruses 4 s.h.
61:169 Medical Mycology Same as 2:137.
61:170 Microbial Genetics 3 s.h.
61:171 Honors Microbiology arr.
61:172 Honors Microbiology arr.
61:175 Microbiotex/Laboratory 2 s.h.
61:179 Bacterial Diversity 4 s.h.
61:180 Microbial Physiology Laboratory 2 s.h.
61:207 Advanced Topics in Immunology 2 s.h.
61:215 Genetics seminar 0-2 s.h.
61:217 Immunology Research Seminar 1 s.h.
61:218 Electron Microscopy Techniques 3 s.h.
61:250 Molecular Biology of Bacterial Pathogens 2 s.h.
61:261 Research: Microbiology arr.
61:263 Graduate Student Research Seminar 1 s.h.
61:268 Molecular Biology of Animal Viruses 3 s.h.
61:275 Perspectives in Biochemical 1 s.h.
61:279 Molecular Genetics 3 s.h.

**MOLECULAR BIOLOGY**

Chair: Mark F. Stinski
Professors Arthur Arnone (Biochemistry), Mario Ascoli (Pharmacology), Steven Clegg (Microbiology), John E. Donelson (Biochemistry), Michael Feiss (Microbiology), E. Peter Greenberg (Microbiology), Gary Gussin (Biological Sciences), John Jung-Ching Lin (Biological Sciences), Robert E. Malone (Biological Sciences), John R. Menninger (Biological Sciences), William M. Nausch (Internal Medicine), Stanley Perlman (Pediatrics), Jeffrey E. Pessin (Physiology and Biophysics), Bryce V. Plapp (Biochemistry), Peter A. Rubenstein (Biochemistry), Erich W. Six (Microbiology), David R. Soll (Biological Sciences), Michael Solomon (Biological Sciences), George V. Stauffer (Microbiology), Mark F. Stinski (Microbiology), C. Martin Stolfer (Microbiology), Joseph A. Walder (Biochemistry), Michael Welsh (Internal Medicine) Associate professors: Charles T. Lutz (Pathology), Deborah Segaloff (Physiology and Biophysics), Labornir P. Turk (Pathology), Daniel L. Weeks (Biochemistry) Assistant professors: Gail Bishop (Microbiology), Chi-Lien Cheng (Biological Sciences), Robert J. Deschenes (Biochemistry), Jan Fassler (Biological Sciences), Pamela Geyer (Biochemistry), Steven Green (Biological Sciences), Wayne A. Johnson (Physiology and Biophysics), Gary Koretzky (Internal Medicine), W. Scott Moye-Rowley (Physiology and Biophysics), Lan Chung (Biological Sciences), Raymond Noel (Biological Sciences), Rodolfo Price (Biochemistry), Andrew F. Russo (Physiology and Biophysics), Ming-Chie Shih (Biological Sciences), Curt D. Sigmund (Internal Medicine), Mark S. Wold (Biochemistry) Graduate degree: Ph.D. in Molecular Biology

**Graduate Program**

The Molecular Biology Ph.D. Program provides interdisciplinary training in the concepts and methodologies fundamental to the investigation of biological mechanisms at the molecular level. Faculty members are involved in a variety of research projects related to gene expression and regulation. The principal didactic component of the program is a sequence of core courses in prokaryotic and eukaryotic molecular biology. Students engage in laboratory research immediately upon enrollment and progress rapidly to original thesis projects that lead to the Ph.D. in molecular biology.

**Requirements**

The graduate 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.

**Curriculum**

The curriculum consists of a sequence of required and elective courses that provide didactic training in molecular biology and ensure a comprehensive exposure to the concepts and experimental methodologies of this field. Because of the diversity of biological research problems that can be pursued by employing molecular biological approaches, the program provides a variety of options for specialization in particular areas of interest.

The following courses are required of all students.

99:241 Biophysical Chemistry I 4 s.h. 142:210 Molecular Biology I 3 s.h. 142:215 Molecular Biology II 3 s.h. 142:270 Ethics and the Responsible Conduct in Research 1 s.h. 142:305 Molecular Biology Research 1 s.h. (required of all students throughout the first and second years) 4 s.h.

In addition, all students are required to complete at least 10 semester hours in four or more approved elective courses.

After successful completion of the comprehensive examination, usually at the end of the second year of graduate study, students advance to candidacy for the Ph.D. degree, where they devote full-time effort to completing thesis research and writing the Ph.D. dissertation. Upon successful completion of all requirements, including the dissertation and its oral defense in accordance with rules and regulations of the Graduate College, students are awarded the Ph.D. degree in molecular biology.

**Financial Aid**

Graduate students in the Molecular Biology Ph.D. Program receive stipends and tuition support from institutional and extramural sources, including training grants from the National Institutes of Health as well as University of Iowa fellowships and graduate research assistantships.

**Facilities**

Training is conducted primarily in laboratories and teaching facilities of the Departments of Biochemistry, Biological Sciences, Internal Medicine, Microbiology, Pathology, Pediatrics, and Physiology and Biophysics. Faculty laboratories and central research facilities available to students provide access to the most up-to-date research equipment.

**Admission**

Individuals seeking application materials and information about graduate training in molecular biology should contact the Molecular Biology Ph.D. Program.
COURSES

142:210 Molecular Biology I 3 s.h.
Mechanism, regulation of RNA, DNA, protein biosynthesis in prokaryotic and eukaryotic cells, emphasis on differences from prokaryotic organisms, experimental methods for analysis of these processes. Perquisites: 2128, and 99:130 or equivalent.

142:215 Molecular Biology II 3 s.h.

142:220 Cell Biology I 3 s.h.
Integration of concepts of cell biology, original research data concerning structure, function, cell interactions, intercellular signaling mechanisms, regulation of cell division. Perquisite: 142:220. Same as 72:220.

142:225 Cell Biology II 3 s.h.

142:270 Ethics and Responsible Conduct in Research 1 s.h.
Content and research, peer review, mentoring, and laboratory supervision, human and animal subjects, misconduct, conflict of interest. Same as 127:270, 132:270, 148:270.

142:290 Seminar in Molecular Biology 1 s.h.
Research findings in molecular biology. May be repeated. Open only to students in the Molecular Biology PhD Program or to others with consent of instructor.

142:301 Directed Study in Molecular Biology 1-4 s.h.
Consent of instructor required.

142:305 Molecular Biology Research 1-4 s.h.
Open only to molecular biology graduate students. Consent of instructor required.

142:405 Thesis Open only to advanced degree candidates in molecular biology.

NEUROLOGY

Head: Antonio R. Damasio


Professor emeritus: Arthur L. Bemon (Psychology)

Associate professors: Matthew Rizzo, Michael Wall (Anatomy), professors Sue Barcellos, Birgitte Bendixen, Patricia Davis, M. Eric Dyken, Thomas Grabowski, Mark Granner, Todd Janus, Betsy B. Love, Katherine Mathews (Pediatrics), Mark Ross (Anatomy), Malcolm Yeh (Neurology)

Assistant research scientists: Steven W. Anderson, Joseph Barras, Ralph Adolphs, Kathleen Rockland, Robert Rodnitzky, William Talman, Daniel Tranfel, Gary Van Hoesen (Anatomy), Thoru Yamada

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 behavior. Because of its interdisciplinary nature and the diverse backgrounds of entering students, the program provides considerable flexibility within the curriculum. The plan of study for each student is developed to provide appropriate background courses as well as a selection of elective courses appropriate to individual training objectives. The curriculum of the neuroscience program is based on two primary considerations: to provide a sequence of required courses that ensure graduate students a broad and comprehensive exposure to the conceptual and experimental foundations of modern neuroscience; and to provide a flexible program of elective courses and advanced training that, while taking into account the multidisciplinary nature of neuroscience, permits in-depth study within any of its five subdivisions-molecular neuroscience, cellular neuroscience, developmental neuroscience, neural systems, and behavioral neuroscience.

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 behavior. Because of its interdisciplinary nature and the diverse backgrounds of entering students, the program provides considerable flexibility within the curriculum. The plan of study for each student is developed to provide appropriate background courses as well as a selection of elective courses appropriate to individual training objectives. The curriculum of the neuroscience program is based on two primary considerations: to provide a sequence of required courses that ensure graduate students a broad and comprehensive exposure to the conceptual and experimental foundations of modern neuroscience; and to provide a flexible program of elective courses and advanced training that, while taking into account the multidisciplinary nature of neuroscience, permits in-depth study within any of its five subdivisions-molecular neuroscience, cellular neuroscience, developmental neuroscience, neural systems, and behavioral neuroscience.

COURSES

64:11 Clinical Neurology 2 s.h.
Ward teaching and bedside examinations in small groups.

64:100 Neurology Elective for Physician Assistant Students 1-4 s.h.

64:207 Introduction to Behavioral Neurology 2 s.h.

64:228 Introductory Neuropathological Assessment 2 s.h.
Standard behavioral assessment procedures; administration of neuropsychological tests under staff supervision; preparation of integrated reports on collected data; involvement in research projects.

64:239 Advanced Neuropathological Assessment 2 s.h.

64:302 Advanced Inpatient Neurology 4 s.h.

64:303 Advanced Outpatient Neurology 4 s.h.

64:304 Neurochemistry 2 s.h.

64:305 Behavioral Neurology and Language Disorders 2 s.h.
Behavioral impairment, aphasic disorders of patients with nervous disease; their significance for identifying presence, extent, locus of cerebral lesions.

64:306 Neurological Subspeciality 2 s.h.

64:310 Cerebrovascular Disease 2 s.h.
Experience in evaluation, management of patients with cerebrovascular disorders and their clinical rounds.

64:998 Special Studies on Campus 1-3 s.h.

64:999 Special Studies off campus 1-3 s.h.

NEUROSCIENCE

Chair: Joe D. Coulter

Professors: Paul J. Abban (Speech Pathology and Audiology), Nancy C. Andreassen (Psychiatry), Ranbir K. Bhamar (Pharmacology), Kevin P. Campbell (Physiology and Biophysics), P. Michael Corr (Pharmacology), Joe D. Coulter (Anatomy), Monio Damasio (Neurology), Hanna Damasio (Neurology), Jeffrey L. Denburg (Biological Sciences), Gary R. Dutton (Pharmacology), Robert E. Fellows (Physiology and Biophysics), Bruce J. Gantz (Otolaryngology), Gerald F. Gehart (Pharmacology), Carl V. Gisdi (Exercise Science/Physiology and Biophysics), Isidore Gormazano (Psychology), Michael N. Hart (Pathology), Donald D. Heistad (Anatomical Medicine), James V. Hirtichs (Psychology), Richard R. Lurtz (Speech Pathology and Audiology), Jean Y. Jew (Anatomy), Allan Kim Johnson (Psychology), Heli Krie (Otolaryngology), Kultas-Hinisky [Anatomy], Ramon Lim (Neurology), John P. Long (Pharmacology), Erich S. Luschei (Speech Pathology and Audiology), Stanley Perlman (Pediatrics), William J. Rhoad (Pediatrics), Philip G. Schmid (Internal Medicine), Eugene Spaziani (Biological Sciences), Barbara A. Stay (Biological Sciences), Gary W. Van Hoesen (Anatomy), Edward A. Wasserman (Psychology), Terence H. Williams (Anatomy), George Winokur (Psychiatry), Chun-Fang Wu (Biological Sciences)

Associate professors: Martin D. Cassell (Anatomy), Robert B. Felder (Internal Medicine), Nicholas J. Pantazis (Anatomy), Matthew Rizzo (Neurology), Robert L. Scheper (Pathology), William Talman (Neurology), Daniel T. Tranfel (Neurology), Ira Waziri (Psychiatry)

Assistant professors: Kelly J. Cole (Exercise Science), Steven H. Green (Biological Sciences), Rodrigo O. Kalis (Neurology), Steven A. Moore (Pathology), Sean P. Murphy (Pharmacology), Andrew F. Russo (Physiology and Biophysics), Erwin F. Shibata (Physiology and Biophysics), Daniel T. Tranfel (Neurology)

Graduate degree: Ph.D. in Neuroscience
Elective Courses

All students in the neuroscience program are required to take three or more advanced elective courses, for a total of at least 6 semester hours. These are selected from an approved list of courses offered by the Departments of Anatomy, Biological Sciences, Pharmacology, Physiology and Biophysics, Psychology, and other departments of the Graduate College and College of Medicine. Elective courses are to be taken from at least two of the five subdivisions of the neuroscience program. Students should select courses from the subdivision representing their area of specialization and at least one course from a related subdivision.

Financial Mod

Graduate students in the Neuroscience Ph.D. Program are eligible for stipends and tuition support, including training grants from the National Institutes of Health and the National Institute of Mental Health, and University fellowships and graduate research assistantships.

Facilities

Training is conducted primarily in the laboratories and teaching facilities of the graduate departments of Anatomy, Biological Sciences, Biochemistry, Pharmacology, Physiology and Biophysics, Psychology, and Speech Pathology and Audiology, and the clinical departments of Neurology and Psychiatry. 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; and behavioral genetics.

Admission

Information about predoctoral and postdoctoral training opportunities in the neuroscience is available from the Neuroscience Program Office.

Courses

64:16 Clinical Obstetrics and Gynecology am.
64:10 Gynecologic Oncology am.
64:13 Reproductive Endocrinology: Infertility am.
64:16 Advanced Obstetrics-Cynecologic Clerkship: La Crosse, Wisconsin am.
64:100 Obstetrics and Gynecology for Physician Assistant Students am.
64:110 Obstetrics and Gynecology Elective for physician Assistant Students am.
64:997 Research am.
64:998 Special Studies on Campus am.
64:999 Special Studies off Campus am.

Ophthalmology

Course Work for M.D. Students

Courses in 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 (66:4 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 students a variety of electives that provide advanced training in the special areas of obstetrics and gynecology. In addition to clerkships at The University of Iowa Hospitals and Clinics, these electives include a rotation at the Gunderson Clinic, 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 and care for both hospital inpatients and outpatients. Additional training is obtained in prenatal clinics in Waterloo, Des Moines, Muscatine, Clinton, and Davenport. During the final two years, residents spend time at Iowa Methodist Hospital and Broadlawns Medical Center in Des Moines, and at St. Luke’s Hospital in Davenport. They are trained in normal and abnormal obsteircs, gynecologic surgery, office gynecology, reproductive endocrinology, gynecologic oncology, family planning, and endoscopic procedures.

Ophthalmology

Head: Thomas A. Weingeist
Professors emeriti: Frederick C. Blodi, Paul Boeder, Edward S. Perkins
Assistant professor: H. Culver Boldt, Paul M. Munden, Chittaranjan V. Reddy

Ophthalmology is a medical and surgical specialty concerned with research, diagnosis, and treatment of diseases of the eye and its adnexa, including correction of refractive errors. Several subspecialties are represented in the department: ocular pathology and physiology, pediatric ophthalmology, retinal disorders, glaucoma, neuro-ophthalmology, ecography, cornea and external diseases, vascular diseases, plastic surgery, contact lens and refraction service, and medical ophthalmic photography.
The department prepares students for careers in teaching and research. Its teaching program trains medical students and resident physicians, with emphasis on a scientific approach to problem solving in diagnosis and treatment. The residency program lasts three years, culminating in qualification for the examination of the American Board of Ophthalmology.

**Facilities**

The department maintains research laboratories for tumor diagnosis, pathology, electrophysiology, pupillography, and vascular disease. Clinical facilities in ophthalmology are available at The University of Iowa Hospitals and Clinics and at the Veterans Affairs Medical Centers in Iowa City and in Des Moines. The department also manages an eye clinic at the Broadlawns Medical Center in Des Moines.

Each month the department sponsors a statewide program of continuing education. It also holds an annual alumni meeting, which is attended by nationally and internationally recognized ophthalmologists and vision scientists.

**Courses**

67:100 Elective in Ocular Pathology 4 S.h.
Ocular specimens, Histologic slides; reference work, self assessment.

67:101 Elective in External Eye Disease 4 s.h.
Common diseases of eyelid, conjunctival, cornea.

Visual, ocular motor dysfunction due to nectrologic disease; patient work-up, readings, neuro-ophthalmology rounds.

67:103 Elective in Pediatric Ophthalmology arr.
Clinical workup of squat patients, strabismus rounds, reading self-assessment.

67:105 Introduction to Clinical Ophthalmology arr.
Ocular history, visual acuity, intraocular pressure, extraocular muscles, pupillary responses, slit lamp examination, fundus examination; common ocular diseases. Open only to students who do not intend to become ophthalmologists.


opthalmologic emergencies, urgent eye disorders, common conditions usually brought to family physician; appropriate management of ophthalmic conditions under physician supervision; psychomotor skills, attitudes necessary for management of patients.

Use of recombinant DNA, tissue culture, protein electrophoresis in study of inherited eye diseases Consent of instructor required.

67:999 Special Studies off Campus arr.

**Clinical Program**

Trainees enter this program directly from medical school through the National Internship Matching Plan. The program consists of a one-year categorical diversified orthopedic internship and four years in orthopedic residency.

During the internship year, trainees gain experience not only in clinical orthopedics but also in medicine, pediatrics, neurology, surgical specialties, intensive care, anesthesiology, and other services.

During the following years, residents gain experience in trauma, children’s orthopedics, adult orthopedics, neuromuscular disorders, rehabilitation, prosthetics and orthotics, rheumatology, and basic science as related to orthopedics. They take specialized courses in anatomy, bone histology, biochemistry, physiology, and pathology.

A weekly seminar covers biomechanics, kinesiology, and selected clinical subjects.

**Academic Orthopedics Program**

In addition to the training described above under the clinical program, this program includes an additional one or two years of research in any field in which the resident is interested, provided it is related to the musculoskeletal system. It may be done in one of the orthopedic laboratories or in a basic science department.

**Laboratories**

The orthopedics laboratories deal with problems in these major subject areas.

Biochemistry: the biochemistry of mucopolysaccharides and collagen, both normal and those altered in epiphyseal dysplasia and scoliosis

Biomechanics: problems of the upper extremity; biomechanics of the spine, hip, and gait; total joint replacements (in conjunction with the College of Engineering)

Cell biology and pathology: ultrastructural studies on normal bones, cartilage, tendons, and muscles, and on those altered by experiment and disease

Tissue transplant radioactive isotopes, metabolic bone disease: skin, bone, and cartilage transplantation, skeletal physiology; qualitative and quantitative aspects of histology, mineral composition, and bone density; effect of in vivo and in vitro metabolic bone disease, and exercise

**Facilities**

The department is housed in the Roy J. Carver Pavilion of The University of Iowa Hospitals and Clinics and has an active service in the Veterans Affairs Medical Center.

Facilities include 75 beds, an outpatient clinic, an outpatient operating room, a specialty library, a specialty radiology unit, and physical therapy 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 155 patients per day. Approximately 2,500 major operations are performed each year under the auspices of the department.

The department provides consulting service to University Hospital School, Regional Child Health Specialty Clinics, and two state schools for the mentally retarded.

**Courses**

Courses numbered 201 through 999 are open only to senior medical students.

76:2 Clinical Orthopaedics arr.

76:102 Orthopedic Elective for physician Assistant students arr.

76:201 Advanced Clinics orthopaedics arr.

76:202 Musculoskeletal Trauma arr.

76:203 Surgical Care of the Hand arr.

76:998 Special Studies on Campus arr.

76:999 Special studies off Campus arr.

**Otolaryngology—Head and Neck Surgery**

Interim head: Bruce J. Cantz

Associate professor emerita: Jeanne K. Smith

Assistant professors: Michael R. Arcuri, John W. Canady, Phyllis Churg, Jerry F. Funk, Scott M. Grahnt, Timothy M. McCulloch, Edward J. Ricciardollo, Donald J. Shum

**Clinical assistant professor:** Peter L. Alt

Clinical instructors: Phillip C. Lee, Russell E. Schurtz

Research scientists: Jose Assouline, Carolyn Brown, Loraine K. Schum, Sue Ann Thompson, Nancy S. Tye-Murray
The department provides one of the oldest and largest otolaryngology-head and neck surgery training programs in the world. Currently it has a full-time faculty of 19, including several members from plastic surgery, audiology, speech pathology and audiology, and dentistry (orthodontics and prosthodontics).

The department’s main objective is to provide a high-level instrumental program in otolaryngology-head and neck surgery for medical students and residents. To maintain a teaching program, the department’s faculty and staff carry a large patient load in head and neck oncology, head and neck plastic reconstructive surgery, facial trauma, craniofacial congenital defects (such as cleft lip and palate), neurotology and skull base tumors, pediatric and geriatric hearing problems, voice problems, parotid endoscopy, surgery for deafness (including cochlear implant), and all the areas usually considered otolaryngologic.

There are eight divisions in the department that make this program comprehensive: otology/neurotology and skull base surgery, plastic and reconstructive surgery of the head and neck, oncologic surgery of the head and neck, rhinology, pediatric otolaryngology, craniofacial defects, speech pathology and audiology, and research.

Another major objective of the department is to foster research programs designed to yield new knowledge in the field and provide models for student and resident research training. There are several large-scale research programs within the department in vestibular neurophysiology, cleft palate and other craniofacial defects, head and neck oncology, cochlear implants, nasopharyngology, surgical nerve conduction, microvascular reconstructive surgery, anatomy of the temporal bone, neuroelectric audiometry, bone resorption in ear disease, electrophysiology of the inner ear, psychoacoustics, and molecular genetics.

Many of these research programs receive federal and private financial support.

### Residency Program

The residency program in otolaryngology is in accord with the requirements of the American Board of Otolaryngology and ACGME Residency Review Committee on Otolaryngology-Head and Neck Surgery. It consists of a four-year course of basic and clinical science. The basic science lectures and laboratory studies are conducted during the first three and one-half months of residence.

After passing an oral and/or written examination, students enter the clinical phase of the course, which includes supervised clinical and operative work, clinical conferences, and seminars pertinent to the practice of otolaryngology and its related fields.

An alternative research and clinical track is also available. Following one year of general surgery, residents may elect to enter a two-year research training fellowship followed by a four-year clinical residency. The research training fellowship is funded by an NIH National Research Service Award.

### Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>68:3</td>
<td>Clinical Otolaryngology</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>68:100</td>
<td>Clinical Internship in Otolaryngology</td>
<td>arr.</td>
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<tr>
<td>68:101</td>
<td>Head and Neck Oncology</td>
<td>arr.</td>
</tr>
<tr>
<td>68:104</td>
<td>Basic Principles of Facial Plastic and Reconstructive Surgery</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>68:106</td>
<td>Pediatric Otolaryngology</td>
<td>arr.</td>
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<tr>
<td>68:108</td>
<td>Otolaryngology Elective for Physician Assistant Students</td>
<td>arr.</td>
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</tbody>
</table>

### Programs

#### Clinical Education in Medical Technology

See “Division of Associated Medical Sciences” in this section of the Catalog.

#### Master of Science

The M.S. program in pathology is open to students with various educational backgrounds. The department particularly encourages applications from students with Bachelor of Science degrees in chemistry, biochemistry, biology, zoology, and medical technology, and from students with medical and dental degrees.

The M.S. program is flexible, but the department emphasizes two tracks, one to provide a research background for academically oriented resident physicians and for medical and dental students, the other for medical technologists who want to advance their training, usually by subspecialization in an area of laboratory medicine.

M.S. students participate in teaching, patient care, and research through the instructional programs of the department, the service laboratories of the department and The University of Iowa Hospitals and Clinics, and faculty members’ research laboratories.

Admission to the M.S. program requires a 3.00 grade-point average in science courses, a Graduate Record Examination (GRE) General Test combined verbal and quantitative score above 1200, and a personal interview. A brochure describing departmental course requirements and giving examples of the major academic tracks is available on request.

#### Residency Program

The department is approved for 20 residency positions in pathology, covering a training span of up to five years. The programs are designed to utilize the patient population of The University of Iowa Hospitals and Clinics and the Veterans Affairs Medical Center. There is systematic rotation through the various laboratory services, including surgical pathology, autopsy pathology, cytology, clinical chemistry, clinical microbiology, hematology, immunopathology, and transfusion medicine. There also is opportunity for one to three years of additional fellowship training in most pathology subspecialties.
The department also offers a postdoctoral training program in clinical chemistry for biochemists and chemists, which is approved by the American Board of Clinical Chemistry.

In addition, the department provides six 12-month medical student fellowships and a variable number of clerkships for medical students in any of the areas of anatomical and clinical pathology. One of the fellowships is a full-time research position in some facet of experimental pathology; the other five are primarily in anatomic pathology.

**Postdoctoral Training**

The Department of Pathology offers postdoctoral programs in hematopathology, immunopathology, transfusion medicine, laboratory microbiology, cytology, neuropathology, and surgical pathology for physicians who have completed at least two years of residency training in pathology. These fellowships consist of one year of diagnostic work and up to two years of laboratory research.

The department also provides postdoctoral research training in immunology, neuropathology, biochemistry of hemostasis, cancer biology, and clinical microbiology, as well as in other areas of cellular and molecular pathology. These positions are open to individuals with either Ph.D. or M.D. degrees.

**Facilities**

The Department of Pathology is well-equipped to carry out the sophisticated technology of modern cellular and molecular pathology. It administers the 40,000 square feet of clinical laboratories of The University of Iowa Hospitals and Clinics and has individual research and core facility laboratories for cellular and molecular pathology research in the Medical Research Center, Medical Laboratories, and at the Veterans Affairs Medical Center. Also available are the College of Medicine Core Laboratories for nucleic acid chemistry, hybridoma production, flow cytometry, ultrastructural studies, proteins in structure, image analysis, electron spin resonance, mass spectrometry, nuclear magnetic resonance, and laboratory animal care.

**Courses**

**69:000** Cooperative Education Internship 0 s.h. Work experience in a hospital, research, environmental, or industrial laboratory setting. Open only to medical technology students.

**69:104** Principles of Human Pathology 1 s.h. Terms, mechanisms, principles of disease, ability to communicate these in simple terms. Open only to nutrition graduate students. Offered fall semesters.

**69:119** Instrumentation in Clinical Laboratory Science 3 s.h. Theory, practice of instrumentation used in clinical laboratories. Offered spring semesters.

**69:120** Clinical Microscopy for Medical Technologists 1 s.h. Theory: practice of clinical laboratory science as used in study of body fluids; basic laboratory techniques.

**69:121** Immunology for Medical Technologists 2 s.h. Theory, practice of clinical immunochemistry; methodology.

**69:122** Clinical Chemistry for Medical Technologists 5 s.h. Theory, practice of analytical biochemistry applied to disease states; methodology, automation, reagent preparation.
Clinical assistant professors: Kenneth W. Andetson, Wintermeyer, Veljko Zivkovich

The Department of Pediatrics has designed its educational program to provide a solid foundation for students and those seeking postgraduate training. Extensive opportunities for general pediatrics and the subspecialties are available.

Affiliated programs in the Divisions of Maternal and Child Health and Iowa State Department of Health, Regional Child Health Specialty Clinics, University Hospital School, Blank Memorial Children's Hospital (Des Moines), and the Muscatine Community Health Clinic add depth to the educational program in community pediatrics and primary care.

The Department of Pediatrics is responsible for all facets of the pediatric section of 50:111 Introduction to Clinical Medicine. Didactic lectures and simulated physical examination of the newborn and toddler provide students with their initial pediatric patient contact. This experience includes taking a history, performing a physical exam, and managing growth and development, nutrition, and symptomatology of the newborn, toddler, and adolescent.

For the junior and senior medical student, the inpatient service provides an opportunity for training in the complex problems of disease and critical illness. There are daily rounds involving general pediatrics and all subspecialties. Challenging and interesting cases are presented to the staff for discussion of diagnosis and treatment.

Outpatient experience, available in senior electives, stresses principles and practices required for the maintenance of health in children, treatment of common general pediatric disorders, and the diagnosis and treatment of subspecialty ambulatory patients.

Graduate Program

The department offers an approved three-year residency program designed to prepare each trainee for a professional career in the broad field of pediatrics. The program meets the eligibility requirements of the American Board of Pediatrics (ABP).

Fellowships are available in all ABP-approved subspecialties as well as in the major subdivisions of pediatrics. The programs are research and clinically oriented, encouraging development of knowledge and skill in the chosen discipline. Upon satisfactory completion of the program, fellows meet the eligibility requirements of the ABP in the subspecialty.

Facilities

The Department of Pediatrics is located in The University of Iowa Hospitals and Clinics, with inpatient and outpatient areas immediately adjacent to faculty offices and the pediatrics library.

The inpatient service comprises more than 140 beds, and more than 25,000 patients are seen each year in the general, specialty, continuity care, and field clinics, and the Emergency Treatment Center.

Laboratories performing both clinical and research studies are maintained in the department.

The University Hospital School is available for children with developmental disabilities, cerebro-palsy, or mental retardation.

Courses

70:2 Clinical Pediatrics 6 s.h.
Principles, practices of health maintenance and treatment of acute, chronic illnesses in children; emphasis on diagnostic and evaluation, nutrition, behavior problems, disorders affecting children; patient care, daily rounds, ward work. Open only to third-year medical students.

70:3 Introduction to Medical Genetics 2 s.h.
70:12 Nutrition, Growth Care, and Developmental Gil Arr.
Clinical aspects of growth, pediatric nutrition, gastroenterology.

70:15 Community Pediatrics: Iowa Methodist Hospital, Des Moines Arr.
Work in a community-based hospital; care of patients in daily practice and in special problems referred to children’s hospital.

70:16 Pediatric Hematology Arr.
Basic concepts; clinical approach to hematological problems, tumors in children.

70:17 Pediatric Neurology Arr.
Participation in outpatient and inpatient activities, teaching, morning ward rounds.

70:19 Pediatric Cardiology Arr.
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.

70:20 The Physically Impaired Child and Young Adult 4 s.h.
Normal developmental sequence of neuro-muscular maturation, reflexes, motor programming; theories of etiology, classification, diagnosis, treatment, prognosis of cerebral palsy; physical disabilities; methods to detect, quantify physical and cognitive impairments; long-term consequences of physical impairments; on individuals, and their families.

70:22 Child Abuse 4 s.h.
Legislation; identification of physical or sexual abuse, child neglect; examination, documentation, reporting of child abuse; agencies that work with WNA abused children and their families.

70:23 Infant and Child Development 4 s.h.
Normal developmental sequence of gestation and early childhood, impact of environmental influences; antecedents of developmental disabilities; methods to detect cognitive, motor delays in preschool child; long-term consequences of developmental disabilities for children, their families; interdisciplinary teamwork, its advantages.

70:24 Clinical Management of Developmental Disabilities 4 s.h.
Management of disorders such as cerebral palsy, myelodysplasia, attention deficit hyperactivity by diagnosis works, management; exposure to interdisciplinary team; long-term consequences of chronic disorders, developmental disabilities.

70:27 Intermediate Neonatal Intensive Care Unit Arr.
Experience in caring for ill neonates, proficiency in using diagnostic tests, procedures; responsibility for care of several infants; reference and literature review, conferences, teaching clinical rounds.

70:28 Pediatric Inpatient Care Arr.
Experience on pediatric inpatient team caring for patients ranging from infants through adolescents; evaluation, formulation of differential diagnoses, diagnostic works, appropriate therapy programs. Open only to senior medical students.

70:30 Pediatric Genetics, Cytogenetics, and Neuromuscular Disorders Arr.
Participation in diagnostic, therapeutic problems; techniques for evaluation, appropriate counseling in genetic cases; conferences.

70:32 Pediatric Nephrology/Collagen Vascular Disease Arr.
Work in renal clinic; collagen vascular clinic; inpatient service and outpatient consultations; conferences.

70:33 Pediatric Gastroenterology Arr.
Diagnosis, management, treatment of diseases of gastrointestinal tract, liver, pancreas in children; rounds, consultations, clinics, diagnostic procedures, conferences.

70:39 Pediatric Infectious Diseases Arr.
Diagnosis, management of infectious diseases in infants, children; microbiological, pharmacologic principles of antibiotic use; diagnostic microbiology. Consent of instructor required.

70:40 Infectious Disease Consults 4 s.h.
70:42 Newborn Intensive Care Unit, Raymond Blank Memorial Hospital Arr.
Work in a 36-bed unit; well staffed, well equipped Level II NICU.

70:43 Pediatric Allergy Arr.
Experience in taking historical data for diagnosis of out patients and inpatients, and in performing, interpreting pulmonary function, skin tests; appropriate disease management.

70:50 Pediatric Bone Marrow Transplant Service 4 s.h.
Hematologic support, infectious disease management of pediatric bone marrow transplant patients; consultation, care, followup.

70:53 Outpatient Subspecialty Rotation 4 s.h.
70:54 Alaska Native Health Service Pediatric Arr.
Work on infant ward and in pediatric clinic.

70:55 General Pediatric Outpatient Clinic 4 s.h.
Work in general pediatric outpatient clinics with acute or chronically ill patients and with well children.

70:102 Pediatrics Elective for Physician Assistant Students Arr.
70:104 Pediatric Elective (Bone Marrow Transplant) for physician Assistant Students Arr.
Hematologic support, infectious disease management of pediatric bone marrow transplant patients; consultation, care, followup.

70:106 Pediatric Elective (Cardiology) for physician Assistant Students Arr.
Participation in inpatient outpatient clinical activities; observation of cardiac catheterization, echocardiography; skill development in cardiac auscultation, EKG, chest x-ray interpretation, emphasis on the physical diagnosis, management of congenital and acquired heart disease in children.

70:150 Medical Cytogenetics 3 s.h.
Human chromosome structure, morphology; methods, mechanisms of preparative techniques; nature, mechanisms of chromosome abnormalities; cytogenetics of prenatal, cancer, toxicology testing. Prerequisites: cell or molecular biology, genetics, biochemistry, or consent of instructor. Same as 69:150.
The department offers professional training in pharmacology for health science students, offers a Master of Science program in clinical pharmacology for students with the M.D. degree, and offers a doctoral program of didactic and research experience.

Eligibility for the M.S. in pharmacology requires demonstrated proficiency in basic research, satisfactory performance on the qualifying examination (written and oral), and satisfactory preparation and defense of a research thesis.

**Doctor of Philosophy**

The following are core course requirements for the Ph.D. in pharmacology.

- 71:100 Chemobiodynamics 1 s.h.
- 71:135 Principles of Drug Action 2 s.h.
- 71:140 Statistics for Pharmacology 3 s.h.

Undergraduate courses may be included in the research training track at the discretion of the department.

The Ph.D. comprehensive examination is written and oral. It is given at the end of the fifth semester. Satisfactory preparation and oral defense of the thesis complete the program.

**Financial Aid**

Financial support is available for all predoctoral students in pharmacology.

**Courses**

- 71:100 Chemobiodynamics 1 s.h.
- 71:135 Principles of Drug Action 2 s.h.
- 71:140 Statistics for Pharmacology 3 s.h.
- 71:230 Pharmacology Research Seminar 1 s.h.
- 71:240 Pharmacology Seminar 1 s.h.
- 71:209 Receptors and Signal Transduction 3 s.h.
- 72:212 Medical Physiology 4 s.h.
- 99:120 Biochemistry and Molecular Biology I 4 s.h.
- 99:130 Biochemistry and Molecular Biology II 4 s.h.

- 71:207 Neuropsychopharmacology. Individual faculty research advisers may require additional courses.

- 71:208 Neuropsychopharmacology. Individual faculty research advisers may require additional courses.

- 71:209 Receptors and Signal Transduction 3 s.h.
- 72:212 Medical Physiology 4 s.h.
- 99:120 Biochemistry and Molecular Biology I 4 s.h.
- 99:130 Biochemistry and Molecular Biology II 4 s.h.

- 71:135 Principles of Drug Action 2 s.h.
- 71:140 Statistics for Pharmacology 3 s.h.
- 71:230 Pharmacology Research Seminar 1 s.h.
- 71:240 Pharmacology Seminar 1 s.h.
- 71:209 Receptors and Signal Transduction 3 s.h.
- 72:212 Medical Physiology 4 s.h.
- 99:120 Biochemistry and Molecular Biology I 4 s.h.
- 99:130 Biochemistry and Molecular Biology II 4 s.h.

- 71:207 Neuropsychopharmacology. Individual faculty research advisers may require additional courses.

- 71:208 Neuropsychopharmacology. Individual faculty research advisers may require additional courses.

- 71:135 Principles of Drug Action 2 s.h.
- 71:140 Statistics for Pharmacology 3 s.h.
- 71:230 Pharmacology Research Seminar 1 s.h.
- 71:240 Pharmacology Seminar 1 s.h.
- 71:209 Receptors and Signal Transduction 3 s.h.
- 72:212 Medical Physiology 4 s.h.
- 99:120 Biochemistry and Molecular Biology I 4 s.h.
- 99:130 Biochemistry and Molecular Biology II 4 s.h.

- 71:207 Neuropsychopharmacology. Individual faculty research advisers may require additional courses.

- 71:208 Neuropsychopharmacology. Individual faculty research advisers may require additional courses.

- 71:135 Principles of Drug Action 2 s.h.
- 71:140 Statistics for Pharmacology 3 s.h.
- 71:230 Pharmacology Research Seminar 1 s.h.
- 71:240 Pharmacology Seminar 1 s.h.
- 71:209 Receptors and Signal Transduction 3 s.h.
- 72:212 Medical Physiology 4 s.h.
- 99:120 Biochemistry and Molecular Biology I 4 s.h.
- 99:130 Biochemistry and Molecular Biology II 4 s.h.

- 71:207 Neuropsychopharmacology. Individual faculty research advisers may require additional courses.

- 71:208 Neuropsychopharmacology. Individual faculty research advisers may require additional courses.

- 71:135 Principles of Drug Action 2 s.h.
- 71:140 Statistics for Pharmacology 3 s.h.
- 71:230 Pharmacology Research Seminar 1 s.h.
- 71:240 Pharmacology Seminar 1 s.h.
- 71:209 Receptors and Signal Transduction 3 s.h.
- 72:212 Medical Physiology 4 s.h.
71:105 Pharmacology for Health Sciences: Medical 5 s.h.
Principles of pharmacology, pharmacologic actions of drugs, correlation with therapeutic uses. Offered fall semesters. Consent of instructor required. Prerequisites: 72:212 and 99:165, or equivalent.

71:111 Pharmacology for Health Sciences: Dental 5 s.h.
Principles of pharmacology, pharmacologic actions of drugs, correlation with therapeutic uses. Offered spring semesters. Prerequisites: 72:152 and 99:161, or consent of instructor.

71:115 Undergraduate Research Independent Study 1-2 S.h.
Research on drugs, chemicals that influence biological systems. Open only to non-health science students. Offered spring semesters.

71:125 pharmacology for Health Sciences: Physician Assistant Students 6 s.h.
Principles of pharmacology, pharmacologic actions of drugs, correlation with therapeutic uses. Offered fall semesters. Prerequisites: 99:164 and 72:150, or consent of instructor.

71:130 Intermediate Pharmacology 3 s.h.
Principles of pharmacology, pharmacologic actions of drugs, correlation with therapeutic uses. Offered fall semesters. Consent of instructor required. Prerequisites: undergraduate biochemistry and physiology, or consent of instructor.

71:132 Intermediate Pharmacology 3 s.h.
College of Nursing enrollment required. Offered spring semesters. Prerequisites: undergraduate biochemistry and physiology.

71:135 principles of Drug Action 2 s.h.
Sites, regulation of drug action, cellular specializations, enzymes, membrane transport, receptors as targets of drug action, signal transduction mechanisms, quantification of drug action. Offered fall semesters. Consent of instructor required.

71:140 Statistics for pharmacology 3 s.h.
Analysis, interpretation of data, focus on experimental design, appropriate tests for data analysis, data collection and statistical analyses using the computer. Offered summer session.

71:201 Pharmacology for Graduate Students 6 s.h.
Principles of pharmacology, pharmacologic actions of drugs, correlation with therapeutic uses. Offered fall semesters. Consent of instructor required. Prerequisites: graduate background in biochemistry and physiology.

71:203 Pharmacology Research 1 s.h.
Consent of department head required.

71:204 Pharmacology Seminar 1 s.h.
Consent of department head required.

71:207 Neuropharmacology 3 s.h.
Pharmacological mechanisms that modify neuroeffector function; central and peripheral action, membrane excitability, nervous system abnormality. Offered fall semesters. Consent of instructor required. Prerequisite: Medical Physiology background.

71:209 Receptors and Signal Transduction 3 s.h.
Major receptor families: G protein coupled receptors, ligand-regulated transmembrane enzymes, ligand-regulated ion channels, the receptor superfamily. Emphasis on description, interpretation of specific experiments, experimental strategies underlying current research. Offered spring semesters. Same as 72:209.

71:210 Special Topics in Pharmacology 1 s.h.
Consent of department head required.

71:215 Topics in Neuropharmacology 1 s.h.
Recent advances in neuropharmacology, developmental neurobiology, neuroendocrinology, related neuroscience. Consent of instructor required.

71:225 Topics in Molecular Pharmacology 1 s.h.
Recent advances in receptor, postceptor events in stimulus coupling. Consent of instructor required.

71:235 Topics in Pain and Analgesia 1 s.h.
Recent advances in pain research, therapy. Consent of instructor required.

71:244 Behavioral Neuroscience 2 s.h.
Principles of molecular, developmental, behavioral neuroscience. Offered fall semesters. Consent of course director required. Same as 31:244, 152:244.

71:255 Topics in Cardiovascular Pharmacology 0-4 s.h.
Recent advances in cardiovascular pharmacology, including hypertension and central control of the circulation. Offered fall and spring semesters. Consent of instructor required.

71:272 Seminar in Cellular and Molecular Biology 1 s.h.
Research reports; information transfer and regulation, assembly and developmental processes, membranes, transport. May be repeated. Open only to cellular and molecular biology research training program students or to others with consent of instructor. Same as 60:272, 72:272, 99:272.

71:380 Clinical Pharmacology and Therapeutics Lecture Series 2 s.h.
Pharmacologic approaches to treatment of disease in human beings. Open only to fourth-year medical students or to others with consent of instructor. Offered spring semesters. Same as 78:380.

71:545 Topics in Free Radical Biology Medicine 1 s.h.
Recent advances in free radical chemistry; antioxidation, photodestruction, lipid peroxidation, nitric oxide, metal-catalysis; role of radicals in inflammation, reperation injury; DNA damage and mutation. Consent of instructor required. Same as 77:545.

**PHYSICAL THERAPY**
See "Division of Associated Medical Sciences."

**PHYSICIAN ASSISTANT PROGRAM**
See "Division of Associated Medical Sciences."

**PHYSIOLOGY AND BIOPHYSICS**
Head: Robert E. Fellows

Professors: Francois M. Abboud (Internal Medicine), Kevin P. Campbell, Robert E. Fellows, Carl V. Gisolfi (Exercise Science), Jeffrey Pessin, Michael J. Welsh (Internal Medicine), Charles C. Wunder

Associate professors: Eric Hoffman (Radiology), Gary Koretzky (Internal Medicine), Andrew Russo, Thomas J. Schmidt, Deborah Segaloff, Erwin F. Shibata

Associate professors emeriti: Charles J. Imig, Gordon W. Searle

Assistant professors: Brett Adams, Toshinori Hoshi, Gordon W. Searle, Wayne Johnson, Scott Moyer-Rowley, Curt Sigmund (Internal Medicine)

Graduate degree: Ph.D. in Physiology and Biophysics

The Department of Physiology and Biophysics offers graduate study leading to the Doctor of Philosophy; provides instruction in physiology and biophysics for medical, dental, pharmacy, nursing, and other health professional students; and participates in the Medical Scientist Training Program, a combined M.D.-Ph.D. program conducted under the auspices of the Graduate College and the College of Medicine.

**Graduate Program**
The graduate program in physiology and biophysics provides students with fundamental knowledge of physiological life processes at molecular, cellular, and integrative levels of physiology and biophysics. It also imparts knowledge of modern research skills applicable to contemporary problems.

Principle areas of study represented in the department are endocrinology, neurobiology, and membrane physiology and biophysics, with the unifying theme of understanding mechanisms of signal transduction involved in regulating function at the cellular and molecular levels.

Entering students are advised by the director of graduate studies, who provides guidance in the planning of required course work and an introduction to research activities of departmental faculty. The core curriculum includes two semesters of cell biology, two semesters of either molecular biology or neurophysiology, and one semester of medical physiology. The department also offers advanced, specialized courses in membrane physiology, endocrine physiology, environmental and exercise physiology, and neurophysiology. Students elect courses in other departments appropriate to their educational and research objectives.

After satisfying the course and comprehensive examination requirements, students devote their full time to thesis research, which culminates in the preparation of a doctoral dissertation and its defense in a final oral examination.

All degree candidates have experience as classroom instructors, under faculty supervision, as part of their training.

**Admission**
Applicants for graduate admission must complete undergraduate studies in an accredited institution prior to matriculation with at least a 3.00 overall science grade-point average, coupled with a combined verbal and quantitative score higher than 1200 on the Graduate Record Examination (GRE) General Test. The appropriate background for graduate study in cellular and molecular physiology and biophysics includes an undergraduate major in one of the biological, chemical, physical, medical, or engineering sciences with one or more years of course work in biology, physics, biochemistry, and calculus.

**Financial Aid**
All full-time doctoral students receive financial aid in the form of tuition and stipend support from the Department of Physiology and Biophysics. Support is renewed annually based on satisfactory progress in meeting requirements for the Ph.D. degree.

**Research**
The department’s general research interests 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.
Facilities

Two floors of the Bowen Science Building are devoted to research and teaching in the Department of Physiology and Biophysics. The department also occupies laboratory facilities in the Eckstein Medical Research Building. In addition to specialized equipment in faculty research laboratories, the department has an extensive microcomputer network with direct access to a University mainframe, the global Internet multimedia design and education facility, and a computer imaging facility. The department also provides equipment for fluorescence microscopy and isotope analysis for cell culture and molecular biology. Graduate students have study space near the departmental library, which supplements resources available at the Hardin Library for the Health Sciences.

Courses

72:130 Systemic Physiology 3 s.h.
General mammalian physiology. Open only to preprofessional and professional students or to others with consent of course director. Prerequisites: grade of C or higher in 2:4, 4:7, and 4:8.

72:150 Intermediate Physiology 4 s.h.
Principles; organ system, cell function. Offered spring semesters. Consent of course director required. Prerequisites: grade of C or higher in 4:121, 4:122, and 2:10.

72:152 Mammalian Physiology 4 s.h.
Principles; organ system, cell function. Open only to dental students. Offered spring semesters. Consent of course director required. Prerequisites: grade of C or higher in 4:121, 4:122, and 2:10.

72:170 Biomedical Engineering Physiology 4 s.h.
Principles; organ system, cell function. Open only to biomedical engineering students. Offered spring semesters. Consent of course director required. Prerequisites: grade of C or higher in 4:13, 4:14, and 2:10.

72:164 Human Physiology for Physician Assistant 4 s.h.
Principles; organ system, cell function. Open only to physician assistant students. Offered summer sessions.

Open to students who are not advanced degree candidates in physiology and biophysics. Consent of instructor required.

72:203 Molecular Endocrinology 2 s.h.
Mechanisms of hormonal action, including cyclic AMP function, transcription, translation, transport; molecular processes from hormone receptor interactions to biochemical, biological responses. Consent of course director required.

72:209 Receptors and Signal Transduction 3 s.h.
Major receptor families. G protein-coupled receptors, ligand-activated transmembrane enzymes, ligand-regulated ion channels, the steroid receptor superfamily; emphasis on description, interpretation of specific experiments, experimental strategies that underlie current research. Consent of course director required. Prerequisite: 72:212 or equivalent. Same as 71:209.

72:212 Medical Physiology 4 s.h.
Principles of human physiology; organ system, cell function. Open only to medical or graduate students. Consent of course director required.

72:220 Cell Biology I 3 s.h.
organization and function of the eukaryotic cell. Offered fall semesters. Consent of course director required. Same as 142:220.

72:222 Cellular Neurophysiology 2 s.h.
Cellular basis of nervous system function: properties of nerve cell mechanisms of transmission, translation, integration. Consent of course director required.

72:225 (XI Biology 11 3 s.h.
Organization, function of the eukaryotic cell. Offered spring semesters. Consent of course director required.

72:234 Medical Neuroscience 4 s.h.
Principles of neurophysiology, neumatoany, with emphasis on the human central nervous system; laboratory work on anatomical study of spinal cord, brain. Offered spring semesters. Consent of course director required. Same as 50:234, 60:234, 132:234.

72:241 Structure and Function of Biological Membranes 2 s.h.
Cellular and molecular levels: lipidprotein interaction, membrane synthesis, energy, and lipid, active and coupled transport, membrane asymmetry and fluidity, hormone receptors. Offered even years. Consent of course director required.

72:243 Biophysics of Excitable Membranes 2 s.h.
Basic of excitability as found in nerve and muscle cells, including generation of resting and action potentials, synaptic transmission, propagation of action potentials, properties of cardiac cell membranes. Offered odd years. Consent of course director required.

72:262 Environmental Physiology 2 s.h.
Physiological responses, including aclimatization of mammals to extreme heat, cold, light, high and low pressure, space, smog, laboratory emphasis on telemetry, meteorological measurements, activity recording. Consent of course director required. Prerequisite: 72:150 or equivalent.

72:265 Neuroscience Seminar 0-1 s.h.

72:272 Seminar in Cellular and Molecular Biology 1 s.h.
Research and literature in cell, molecular biology; information transfer and regulation, assembly and development processes, membranes, transport. Consent of course director required. Same as 60:272, 71:272, 99:272.

72:274 Exercise Physiology Seminar 2 s.h.
Acute, chronic effects of exercise on biological systems. Offered spring semesters. Consent of course director required. Prerequisites: 72:212 or 72:150, and 99:130. Same as 27:274.

72:290 Special Topics arr.
Consent of director of graduate studies required.

72:302 Research Physiology and Biophysics arr.
Open only to advanced degree candidates in physiology and biophysics.

72:342 Graduate Physiology Seminar 1 s.h.
Offered only to advanced degree candidates in physiology and biophysics.

Open only to advanced degree candidates in physiology and biophysics.

PREVENTIVE MEDICINE AND ENVIRONMENTAL HEALTH

Head: Robert B. Wallace


Professors emeriti: Clyde Berry, Shu Ying Hsu, Peter Jascon, L. W. Knapp, Keith R. Low Donald P. Morgan


Associate professor emeritus: Franklin Kilpatrick

Adjunct associate professors: Mark A. Albanese, Roger D. Tracy

Assistant professors: Jeffrey D. Dawson, Laurence J. Fuortes, Stephen J. Reynolds, Mustafa L Selim, Craig S. Snetselaar

Associate: Nancy A. Lynch, James R. Cerhan

Graduate degrees: M. S., Ph.D. in Preventive Medicine and Environmental Health

Preventive medicine is a central discipline that focuses on improving the health of individuals and populations through disease prevention and activities that promote health. It brings the skills and knowledge of the biological, social, mathematical, environmental, and public health sciences to prevent or delay important health problems, in both the clinic and the community. It also is concerned with providing the skill necessary for effective economic improvement of the quality of health services to communities.

Departmental research and teaching activities are conducted within three divisions: biostatistics, epidemiology, and occupational and environmental health. Faculty of the biostatistics division work closely with both clinical and basic science investigators throughout the health center in design and subsequent analysis of research projects. They also work independently to study problems of statistical theory and to develop new analytic methods. Their primary research interests are general statistics, statistical computing, design of sample surveys, repeated measures analysis, design and analysis of clinical trials, categorical data analysis, quantitative epidemiological methods, and survival analysis.

The epidemiology faculty focuses its teaching and research on health care organization and delivery, risk factors for disease in the general population, behavioral factors in disease, and the establishment and evaluation of disease control measures in the community. Its research emphases include epidemiology of communication disorders, pharmacoepidemiology, cancer epidemiology, adverse reproductive outcome epidemiology, anatomic pathology, cardiovascular disease, nutrition, sleep disorders, smoking cessation, epidemiology of reproduction, dental epidemiology, neuropsychology, meta-analysis, intervention trials, international health, and effects of aging.

Faculty members in the occupational and environmental health division are concerned with assessment of risk factors in the physical environment and their relationship to disease—particularly health problems of agricultural and industrial workers. Their primary research interests are zoonoses, health of agricultural confinement workers, occupational medicine, indoor air pollution, public health laboratories, retroviruses, MDS, general pollution problems, environmental engineering, water quality, occupationally related lung disease, industrial hygiene, respiratory problems in agriculture, analytical toxicology, acid rain, industrial and agricultural immunotoxicology, pulmonary and dermal toxicology, aerosol physics, and injury epidemiology.

Graduate Programs

The department offers M.S. and Ph.D. degrees. Applicants who meet the requirements for the M.S. or Ph.D programs but who do not want to work toward an advanced degree may be admitted on “professional improvement” status.

Application deadlines are listed under “Admission,” later in this section.
Master of Science

Students in the master’s program may earn a degree with emphasis in biostatistics, epidemiology, occupational and environmental health, or community health. Admission to the community health track is limited to applicants who already are health professionals.

Students may choose the thesis or the nonthesis option. The master’s thesis is a formal research paper. The research often expands upon or explores from a different perspective a previously studied subject area.

All four M.S. subprograms require that students complete an in-depth preceptorship under the direction of a departmental faculty member and a minimum of 38 semester hours of coursework. In addition, students must maintain a minimum 3.0 grade-point average. Students who receive 7 or more semester hours of C may be dismissed from the program.

Students must complete the core courses listed under the appropriate subprogram heading. They also must complete the departmental courses listed as “additional requirements.” Fulfillment of the minimum 38 semester hours degree requirement includes approved electives chosen from departmental and nondepartmental courses. Departmental courses are listed at the end of this section.

Biostatistics

Students are trained in design and analysis of experiments and sample surveys and in analysis of data related to biomedical or public health problems. Mathematical, statistical, and computer methods for dealing with quantitative information are emphasized, and opportunities exist for students to gain statistical consulting experience on a variety of problems.

PREREQUISITES

Biological sciences: a minimum of one survey course on the principles of biology

Computer science: ability to program in at least one computer language, preferably Fortran, Pascal, or C

Mathematical sciences: training in methods and techniques of single-variable and multi-variable differential and integral calculus; and vector algebra

CORE COURSES

63:158 Principles of Epidemiology 3 s.h.
63:176 Biostatistical Methods I 4 s.h.
63:202 Environmental Health 3 s.h.

ADDITIONAL REQUIRED COURSES

63:131 Introduction to Human Pathology arr.
96:120 Pathology 4 s.h.

63:158 Principles of Epidemiology 3 s.h.
63:161 Introduction to Biostatistics 3 s.h.
63:202 Environmental Health 3 s.h.

ADDITIONAL REQUIRED COURSES

63:131 Introduction to Human Pathology 3 s.h.
63:202 Environmental Health 3 s.h.

Epidemiology

This program is designed to prepare graduate level students for professional career opportunities in which specialized knowledge of epidemiologic methods and analytical techniques are useful. Placement possibilities include employment in local, state, or federal health agencies; academic departments within schools of public health or colleges of health sciences; or private enterprise.

PREREQUISITES

A baccalaureate degree, a minimum of two semesters of biological sciences, and mathematics through calculus

CORE COURSES

63:158 Principles of Epidemiology 3 s.h.
63:161 Introduction to Biostatistics 3 s.h.
63:202 Environmental Health 3 s.h.

ADDITIONAL REQUIRED COURSES

63:131 Introduction to Human Pathology 3 s.h.
63:202 Environmental Health 3 s.h.

General Track with Emphasis in Community Health

This program is intended to provide broad training in community health and epidemiology for persons who already are health professionals.

CORE COURSES

63:158 Principles of Epidemiology 3 s.h.
63:161 Introduction to Biostatistics 3 s.h.
63:202 Environmental Health 3 s.h.

ADDITIONAL REQUIRED COURSES

63:131 Introduction to Human Pathology arr.
96:120 Pathology 4 s.h.
63:203 Preceptorship in Preventive Medicine and Environmental Health arr.

Students must select courses from at least two divisions from the following list.

Biostatistics

63:161 Application of Multivariate Statistical Techniques 4 s.h.
63:255 Linear Models 4 s.h.
63:173 Intermediate Design of Sample Surveys 2 s.h.
63:241 Statistical Methods in Epidemiology 3 s.h.
63:242 Statistical Methods in Epidemiology II 3 s.h.
63:258 Advanced Field Methods in Epidemiology 3 s.h.
63:261 Survival Data Analysis 3 s.h.
63:262 Analysis of Categorical Data 3 s.h.
63:273 Research Data Management 3 s.h.
63:279 Cancer Epidemiology and Control 3 s.h.
63:291 Pharmacoepidemiology 3 s.h.

Occupational and Environmental Health

The objective of this program is to prepare graduate students for professional careers in occupational and environmental health. Career opportunities include local, state, or federal health agencies; departments of industrial health and safety in commercial enterprises; and academic institutions.

PREREQUISITES

A baccalaureate degree is required, as well as at least two semesters of chemistry, one semester of physics, and mathematics through calculus. Course work in the biological sciences, microbiology, and computer programming is desirable, particularly for students interested in some specialty areas.

CORE COURSES

63:158 Principles of Epidemiology 3 s.h.
63:161 Introduction to Biostatistics 3 s.h.
63:202 Environmental Health 3 s.h.

ADDITIONAL REQUIRED COURSES

63:260 Environmental Toxicology 3 s.h.
63:280 Occupational and Environmental Health Seminar 01 s.h.

Prerequisites

Students must select at least 7 additional semester hours from the following.

22 S:161 Application of Multivariate Statistical Techniques 4 s.h.
22 S:255 Linear Models 4 s.h.
63:173 Intermediate Design of Sample Surveys 2 s.h.
63:241 Statistical Methods in Epidemiology 3 s.h.
63:242 Statistical Methods in Epidemiology II 3 s.h.
63:258 Advanced Field Methods in Epidemiology 3 s.h.
63:261 Survival Data Analysis 3 s.h.
63:262 Analysis of Categorical Data 3 s.h.
63:273 Research Data Management 3 s.h.
63:279 Cancer Epidemiology and Control 3 s.h.
63:291 Pharmacoepidemiology 3 s.h.

Additional Requirements

Students must select courses from at least two divisions from the following list.

Biostatistics

63:161 Application of Multivariate Statistical Techniques 4 s.h.
63:255 Linear Models 4 s.h.
63:173 Intermediate Design of Sample Surveys 2 s.h.
63:241 Statistical Methods in Epidemiology 3 s.h.
63:242 Statistical Methods in Epidemiology II 3 s.h.
63:258 Advanced Field Methods in Epidemiology 3 s.h.
63:261 Survival Data Analysis 3 s.h.
63:262 Analysis of Categorical Data 3 s.h.
63:273 Research Data Management 3 s.h.
63:279 Cancer Epidemiology and Control 3 s.h.
63:291 Pharmacoepidemiology 3 s.h.

Occupational and Environmental Health

The objective of this program is to prepare graduate students for professional careers in occupational and environmental health. Career opportunities include local, state, or federal health agencies; departments of industrial health and safety in commercial enterprises; and academic institutions.

PREREQUISITES

A baccalaureate degree is required, as well as at least two semesters of chemistry, one semester of physics, and mathematics through calculus. Course work in the biological sciences, microbiology, and computer programming is desirable, particularly for students interested in some specialty areas.

CORE COURSES

63:158 Principles of Epidemiology 3 s.h.
63:161 Introduction to Biostatistics 3 s.h.
63:202 Environmental Health 3 s.h.

ADDITIONAL REQUIRED COURSES

69:133 Introduction to Human Pathology arr.
or
96:120 Pathology 4 s.h.
63:191 Occupational Health 3 s.h.
63:203 Preceptorship in Preventive Medicine and Environmental Health arr.
63:260 Environmental Toxicology 3 s.h.
63:280 Occupational and Environmental Health Seminar 01 s.h.

General Track with Emphasis in Community Health

This program is intended to provide broad training in community health and epidemiology for persons who already are health professionals.

CORE COURSES

63:158 Principles of Epidemiology 3 s.h.
63:161 Introduction to Biostatistics 3 s.h.
63:202 Environmental Health 3 s.h.

ADDITIONAL REQUIRED COURSES

69:133 Introduction to Human Pathology arr.
or
96:120 Pathology 4 s.h.
63:203 Preceptorship in Preventive Medicine and Environmental Health arr.

Students must select courses from at least two divisions from the following list.

Biostatistics

63:161 Application of Multivariate Statistical Techniques 4 s.h.
63:255 Linear Models 4 s.h.
63:173 Intermediate Design of Sample Surveys 2 s.h.
63:241 Statistical Methods in Epidemiology 3 s.h.
63:242 Statistical Methods in Epidemiology II 3 s.h.
63:258 Advanced Field Methods in Epidemiology 3 s.h.
63:261 Survival Data Analysis 3 s.h.
63:262 Analysis of Categorical Data 3 s.h.
63:273 Research Data Management 3 s.h.
Occupational and Environmental Health
63:191 Occupational Health 3 s.h.
63:209 Rural Health and Agricultural Medicine 3 s.h.
65:260 Environmental Toxicology 3 s.h.

Epidemiology
63:257 Epidemiology of Infectious Diseases 4 s.h.
63:258 Advanced Field Methods in Epidemiology 3 s.h.
63:259 Chronic Disease Epidemiology 4 s.h.
63:260 Environmental Toxicology 3 s.h.

Joint Master's Degrees
A joint master’s option exists between the Graduate Program in Urban and Regional Planning (see the College of Liberal Arts section of the Catalog) and the Department of Preventive Medicine and Environmental Health, in the College of Medicine. With this option, students may earn an M.A. in Urban and Regional Planning and an M.S. in Preventive Medicine and Environmental Health. Students must gain separate admission to each academic unit.

The combined graduate-level course of study between the Physician Assistant Program and the Department of Preventive Medicine and Environmental Health provides a broad foundation in preventive medicine. This three-year, integrated curriculum consists of 26 semester hours of graduate courses in epidemiology, environmental health, biostatistics, and preventive medicine, and 95 semester hours of courses from the standard core curriculum of the Physician Assistant Program. Electives may be selected from a wide range of courses offered by the Department of Preventive Medicine and Environmental Health and by other departments in the College of Medicine. Upon completing the program, students earn an M.S. degree in the Physician Assistant Program, from the College of Medicine, and an M.S. degree in Preventive Medicine from the Graduate College. Consult the Physician Assistant Program for information about the combined degree.

Doctor of Philosophy
The Ph.D. program is available with emphases in biostatistics, epidemiology, and occupational and environmental health. Semester-hour requirements for the Ph.D. subprograms are 75 to 85 semester hours for biostatistics, 73 for epidemiology, and 72 for occupational and environmental health. All students must complete a preceptorship in their specialty, except for students in the epidemiology doctoral program. They also must successfully complete a qualifying examination and comprehensive examination.

All Ph.D. students must complete a dissertation—a substantial scholarly treatise of the student’s creative thoughts and original research. Topic and content, which vary depending on the program of study, must be approved in advance by the student’s thesis committee.

While pursuing a degree in the program, each student is expected to maintain a minimum 3.00 grade-point average. Students who earn a grade of C for 7 or more semester hours may be dismissed from the program. Fulfillment of the degree requirements includes approved electives chosen from departmental and external courses. Departmental courses are listed at the end of this section.

Biostatistics
The biostatistics Ph.D. program is designed to prepare students for professional and academic careers in biostatistics. Graduates will be able to assume positions in academic or research settings that emphasize developing and applying statistical methodology to solve important biological and public health problems.

PREREQUISITES
A baccalaureate degree is required. Although enrollment directly into the Ph.D. program is possible, completion of the M.S. program generally is required as a first step. Requirements for admission to the M.S. program include at least one course in principles of biology; an introductory course in computer science; Calculus I, II and III; and a course in linear algebra.

DEPARTMENTAL CORE-PART A
63:158 Principles of Epidemiology 3 s.h.
63:176 Biostatistical Methods I 4 s.h.
63:202 Environmental Health 3 s.h.
63:241 Statistical Methods in Epidemiology 3 s.h.
63:258 Advanced Field Methods in Epidemiology 3 s.h.
69:133 Introduction to Human Pathology arr.
or
96:120 Pathology 4 s.h.

DEPARTMENTAL CORE-PART B
Students must choose 6 semester hours of courses outside his or her division, from the following list.

Environmental Health
63:191 Occupational Health 3 s.h.
63:209 Rural Health and Agricultural Medicine 3 s.h.
63:252 Theories of Environmental Policy and Assessment 3 s.h.
63:260 Environmental Toxicology 3 s.h.

Epidemiology
63:250 Health Behavior and Promotion 3 s.h.
63:251 Injury Epidemiology 3 s.h.
63:254 Genetics and Epidemiology 3 s.h.
63:255 Psychiatric Epidemiology 3 s.h.
63:256 Hospital Epidemiology 2 s.h.
63:257 Epidemiology of Infectious Diseases 4 s.h.
63:259 Chronic Disease Epidemiology 4 s.h.
63:269 Cardiovascular Disease Epidemiology 3 s.h.
63:279 Cancer Epidemiology and Control 3 s.h.
63:291 Pharmacoepidemiology 3 s.h.

ADDITIONAL DIVISIONAL REQUIREMENTS
22S:153 Mathematical Statistics I 3 s.h.
22S:154 Mathematical Statistics II 3 s.h.
22S:255 Linear Models 4 s.h.
22S:161 Application of Multivariate Statistical Techniques 4 s.h.
or
22S:256 Multivariate Analysis 4 s.h.
63:163 Introduction to the Design of Sample Surveys 3 s.h.
63:173 Intermediate Design of Sample Surveys 2 s.h.
63:203 Preceptorship in Preventive Medicine and Environmental Health 3 s.h.
63:261 Survival Data Analysis 3 %:
63:262 Analysis of Categorical Data 3 s.h.
63:276 Biostatistical Methods II 4 s.h.

Students must select at least 9 additional semester hours from the following list.
22S:167 Introduction to Stochastic Processes 3 s.h.
22S:230 Introduction to the Theory of Nonparametric Statistics 3 s.h.
63:203 Preceptorship in Preventive Medicine and Environmental Health arr.
63:221 Theory of Biostatistics I 4 s.h.
63:222 Theory of Biostatistics II 4 s.h.
63:243 Cohort Data Analysis 1 s.h.
63:264 Longitudinal Data Analysis 3 s.h.
63:273 Research Data Management 3 s.h.

THESIS
63:300 Thesis 10-18 s.h.

Epidemiology
The primary goal of this program is to prepare graduates for professional careers as scientists, teachers, and practitioners of epidemiological methods. Career opportunities in epidemiology exist in academic institutions; local, state and federal health agencies; and in commercial enterprise.

PREREQUISITES
A baccalaureate degree is required. Although it is possible to enroll directly in the Ph.D. program, it is recommended that students complete the M.S. program as a first step. Course work in the biological, physical, and mathematical sciences provides important background and is also highly recommended.

DEPARTMENTAL REQUIREMENTS
core
63:158 Principles of Epidemiology 3 s.h.
63:161 Introduction to Biostatistics 3 s.h.
63:202 Environmental Health 3 s.h.

Other
69:133 Introduction to Human Pathology arr.
or
96:120 Pathology 4 s.h.

DIVISIONAL REQUIREMENTS
Departmental Courses
63:115 Computer W for Preventive Medicine and Environmental Health 1 s.h.
63:162 Design and Analysis of Experiments in the Biomedical Sciences 3 s.h.
63:163 Introduction to the Design of Sample Surveys 3 s.h.
63:172 Independent Study and Research in Preventive Medicine 3 s.h.
63:241 Statistical Methods in Epidemiology 3 s.h.
63:242 Statistical Methods in Epidemiology II 3 s.h.
63:254 Genetics and Epidemiology 3 s.h.
63:257 Epidemiology of Infectious Diseases 4 s.h.
63:258 Advanced Field Methods in Epidemiology 3 s.h.
63:259 Chronic Disease Epidemiology 4 s.h.
63:269 Cardiovascular Disease Epidemiology 3 s.h.
63:279 Cancer Epidemiology and Control 3 s.h.
63:273 Research Data Management 3 s.h.
63:276 Hospital Epidemiology 2 s.h.
63:277 Epidemiology of Infectious Diseases 4 s.h.
63:278 Advanced Field Methods in Epidemiology 3 s.h.
63:279 Chronic Disease Epidemiology 4 s.h.

**SPECIALTY AREA REQUIREMENTS**

Students must choose at least two additional courses from the following areas.

**Biostatistics**

63:162 Design and Analysis of Experiments in the Biomedical Sciences 3 s.h.
63:163 Introduction to the Design of Sample Surveys 3 s.h.
63:241 Statistical Methods in Epidemiology 3 s.h.
63:242 Statistical Methods in Epidemiology II 3 s.h.
63:257 Epidemiology of Infectious Diseases 3 s.h.
63:258 Advanced Field Methods in Epidemiology 3 s.h.
63:259 Chronic Disease Epidemiology 3 s.h.

**Medical Residency Training Program**

The department offers residency training in occupational medicine in affiliation with the University of Iowa Hospitals and Clinics. For more information, contact the director of the Occupational Medicine Residency Training Program at the Department of Preventive Medicine and Environmental Health.

**Admission**

Minimum grade-point average requirements for admission are 2.70 for the master’s program and 3.00 for the Ph.D. program. Applicants must have taken the Graduate Record Examination (GRE) General Test. The recommended score for most students is a combined verbal and quantitative score of 1050. Also, non-U.S. citizens may be required by the University’s foreign admissions office to take the Test of English as a Foreign Language (TOEFL); a minimum score of 600 is considered acceptable for most students. Remedial English courses are required for foreign students whose TOEFL score is between 550 and 600. Students who score 549 or lower are not considered for admission. All applicants and continuing students are required to have strong written and oral communication skills. Students may be required to take specific courses to overcome communication deficiencies.

Applicants are required to specify on the application form the program (track) to which they are applying. They also must forward three letters of recommendation, submit a short description of their professional goals describing why they want to earn the degree, and submit a current resume.

**ADMISSION DEADLINES FOR M.S. PROGRAMS**

Biostatistics: January 15 (early) and March 15 (late) for fall; October 1 for spring; entering enrollment for spring is not encouraged.

Epidemiology: July 15 for fall; December 1 for spring; May 1 for summer; non-U.S. citizens must comply with earlier deadlines as established by the University’s foreign admissions office.

Occupational and Environmental Health: July 15 for fall; December 1 for spring; May 1 for summer; non-U.S. citizens must comply with earlier deadlines as established by the University’s foreign admissions office.

General Track with Emphasis in Community Health: July 15 for fall; December 1 for spring; May 1 for summer; non-U.S. citizens must comply with earlier deadlines as established by the University’s foreign admissions office.

**ADMISSION DEADLINES FOR PH.D. PROGRAMS**

Biostatistics: January 15 (early) and March 15 (late) for fall; October 1 for spring; entering enrollment for spring is not encouraged.

Epidemiology: April 1 (early) and July 1 (late—applies only to U.S. citizens) for fall; October 1 for spring.

Occupational and Environmental Health: July 15 for fall; December 1 for spring; May 1 for summer; non-U.S. citizens must comply with earlier deadlines as established by the University’s foreign admissions office.

**Financial Aid**

A limited number of research assistantships, traineeships, and tuition grants are available within the department.

**Postdoctoral Fellowships**

A variety of funded postdoctoral fellowships are available for further scientific training in disciplines represented in the department. Funded programs exist in mental health, aging, pharmacoeconomics, and injury epidemiology.

**Facilities**

Examples of ongoing departmental resources and activities include the State Health Registry of Iowa, which records data on all cases of cancer that occur in residents of Iowa; the Aging Project, which examines health problems and needs of a representative sample of Iowa’s elderly; the Preventive Intervention Center; the University Occupational Health Service; WORKSAFE Iowa; the Biostatistical Consulting Service; the Center for the Health Effects of Environmental Contamination; and the Clinical
Courses

63:000 Cooperative Education Internship 0 s.h. Internship for training occupational and environmental health professionals.

63:105 Preventive Medicine for Physician Assistant Students 3 s.h. Epidemiology, clinical preventive medicine, occupational, environmental, public health; emphasis on application of skills to disease control, clinical prevention. Open only to Physician Assistant Program students. Offered fall semesters. Same as 117: 105.

63:106 Preventive Medicine 3 s.h. Introduction to epidemiology, preventive medicine, occupational health, organization and delivery of health services, environmental and public health; emphasis on application of skills to disease control and clinical prevention. Open only to second-year medical students. Offered fall semesters.

63:110 Concepts in Biostatistics 1 s.h. Development of skills to read and critique the medical literature; descriptive and inferential statistical methodology and terminology introduced through journal articles. Open only to first-year medical students. Offered fall semesters.

63:111 International Health 1.5 s.h. Structure, delivery of public and private health services, their evaluation in developing countries in political, cultural, economic contexts. Offered fall semesters.

63:115 Computer Skills for Preventive Medicine and Environmental Health 1.5 s.h. Basic understanding of personal and mainframe computers; computer skills required for biostatistics, quantitative epidemiology courses, and for thesis research. Offered fall and spring semesters.

63:158 Principles of Epidemiology 3 s.h. Epidemicologic concepts and methods, including design and analysis of descriptive and analytic studies, such as aggregate, case series, cross-sectional, case-control, cohort studies. Offered fall semesters.

63:161 Introduction to Biostatistics 3 s.h. Graphs and tables; descriptive statistics; probability; binomial, Poisson, and normal distributions; sampling distributions; tests of significance for one-, two-, and k-sample problems; confidence intervals; frequency data analysis; linear regression and correlation; nonparametric tests; elementary analysis of variance. Prerequisite: college algebra.

63:162 Design and Analysis of Experiments in the Biomedical Sciences 3 s.h. Linear, polynomial, multiple regression; correlation analysis; regression diagnostics; model-building analysis of covariance; one- and two-way analysis of variance; repeated measures designs; multiple comparison procedures; orthogonal contrasts; use of computer for data analysis. Offered spring semesters. Prerequisites: 63:155, 63:161 or equivalent. Same as 225:140.

63:163 Introduction to the Design of Sample Surveys 3 s.h. Techniques for design, analysis of sample surveys, including general methods of estimating properties on samples; simple random sampling; stratified sampling; systematic sampling; cluster sampling; nonresponse; randomization response; survey econometrics. Offered fall semesters. Prerequisite: 63:161 or equivalent.

63:171 Problems in Preventive Medicine 1 s.h. Didactic material in preventive medicine not organized as a formal course; may include natural, faculty directed independent work (e.g., literature search project, short research project).

63:172 Independent Study and Research in Preventive Medicine 1 s.h. In-depth pursuit of an area of special interest in preventive medicine requiring substantial creativity, independence.

63:173 Intermediate Design of Sample Surveys 2 s.h. Construction and number of strata; unbiased ratio estimators; systematic sampling; multi-stage sampling; double sampling; sampling frame construction; panel studies; modes of data collection; questionnaire construction. Offered spring semesters of odd years. Prerequisite: 63:163.

63:176 Biostatistical Methods I 4 s.h. Problem-oriented description of moments, estimation, parametric and nonparametric inference for one-sample and two-sample problems, analysis of frequency data, linear regression, correlation analysis, and analysis by computer. Offered fall semesters. Consent of instructor required.

63:191 Occupational Health 3 s.h. Principles, office and industrial medicine, industrial hygiene and safety, occupational health management. Offered fall semesters.

63:192 Occupational Safety 3 s.h. Principles and practices of occupational safety in agriculture, industry. Offered spring semesters.

63:195 Analytical Toxicology Lecture 3 s.h. Separation, identification, quantitative determination of toxic chemicals and their metabolites in biological, environmental matrices; basic principles of the use of instrumental methods of analysis, chemical separation, concentration techniques, quality control, good laboratory practice. Offered fall semesters. Consent of instructor required.

63:196 Analytical Toxicology Laboratory 3 s.h. Hands-on laboratory experience in applying advanced analytical methods to separate and identify toxic chemical components in biological and environmental samples; use of state-of-the-art instruments, application of quality control/quality assurance protocols, interpretation of data obtained from analytical instruments. Offered spring semesters. Prerequisite: 63:195.

63:198 Solid and Hazardous Wastes 3 s.h. Sources, characteristics, collection and disposal of solid, hazardous wastes; environmental impacts of hazardous waste management; resource recovery systems. Prerequisite: 63:150 or 63:202 or consent of instructor. Same as 53:158.

63:200 Introduction to Health Care Organization 3 s.h. Basic organizational arrangements of medical services in the United States; determinants of utilization; amount and type of health resources available; financing methods; government regulations; social, political, economic forces that determine future of health service. Offered fall semesters. Same as 200:200.

63:201 Research in Preventive Medicine and Environmental Health 1 s.h. For students engaged in research that may lead to a dissertation.

63:202 Environmental Health 3 s.h. 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, and control. Offered fall semesters.

63:203 Preceptoryship in Preventive Medicine and Environmental Health 1 s.h. Individual work experience in using knowledge, skill acquired in classroom; arranged in conjunction with ongoing activities in the department, the College of Medicine, or off campus in government agency or private industry.

63:209 Rural Health and Agricultural Medicine 3 s.h. Clinical orientations 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 agricultural population; health problems, general environmental health hazards in rural areas. Offered spring semesters. Prerequisite: enrollment in medical curriculum or 63:158 or consent of instructor.

63:221 Theory of Biostatistics I 4 s.h. Intermediate-level study of sufficiency, exponential families, methods of estimation, uniform minimum variance unbiasedness, information, likelihood theory, confidence intervals, Neyman-Pearson lemma, asymptotic theory and its applications. Offered fall semesters of even years. Prerequisites: 225:153 and 225:154.


63:231 Industrial Hygiene I 3 s.h. Principles, with emphasis on recognition of chemical hazards, physical health hazards at work. Offered fall semesters. Pre- or corequisite: 63:191.

63:232 Industrial Hygiene II (Evaluation) 3 s.h. Theory, methods of air sampling for evaluation of occupational, environmental exposures to chemical, physical, biological agents. Offered spring semesters. Prerequisite: 63: 191.

63:233 Industrial Hygiene III 3 s.h. Principles, practice of industrial hygiene controls of occupational hazards from gases, vapors, aerosol, management aspects of applied programs. Offered spring semesters. Prerequisites: 63:191 or 63:231 or consent of instructor.


63:242 Statistical Methods in Epidemiology II 3 s.h. Nonparametric, semiparametric methods for survival data; methods of comparing directly standardized mortality rates and standardized mortality ratios; Poisson regression for cohort data. Offered spring semesters of odd years. Prerequisites: 63:162 and 63:241.

63:243 Cohort Data Analysis 1 s.h. Methods of computing directly standardized rates and standardized mortality ratios and Poisson regression for cohort data; understanding of rationale behind methods used for cohort data analysis; independence in carrying out procedures on real data using computer. Offered spring semesters of odd years. Prerequisites: 63:115, 63:156, and 63:241.

63:250 Health Behavior and Promotion 3 s.h. Health behavior and attitudes, definitions in health and illness, clinical-patient interactions, sociobehavioral correlates of disease development, adherence/compliance behavior, health promotion/mediation programs, health targeting, medical ethics; focus on social marketing strategies in public and private health sectors related to medical management, outcome research. Offered spring semesters of even years. Graduate standing required. Same as 80:211.

63:251 Injury Epidemiology 3 s.h. How epidemiology can be applied to injury prevention: epidemiology literature, specific methodologic problems involved in epidemiology of injuries, critical evaluation of research articles. Offered spring semesters of odd years. Prerequisite: 63:158 or consent of instructor.

63:252 Theories of Environmental Policy and Assessment 3 s.h. Major concerns relating to environment and human health, basis on which legislation has been enacted to deal with these concerns; emphasis on contemporary legislation having major effects on environmental policy. Offered spring semesters. Prerequisite: 63:202 or consent of instructor. Same as 55:204.

63:253 Epidemiology of Occupational Injuries 3 s.h. In-depth review of epidemiologic literature regarding injuries, their prevention. Prerequisite: 63:158 or consent of instructor. Offered spring semesters of even years.

63:254 Genetics and Epidemiology 3 s.h. Fundamental genetic concepts; epidemiologic approaches to familial aggregation, including linkage analysis and segregation analysis. Offered spring semesters of odd years. Prerequisites: introductory biology, biostatistics, and epidemiology; or consent of instructor.

63:255 Psychiatric Epidemiology 3 s.h. Epidemiology of mental disorders; special problems in reliability, validity; diagnostic classification; epidemiology of specific diseases, including dementia, schizophrenia, manic-depression, anxiety neurosis, alcoholism, personality disorder. Offered fall semesters. Prerequisite: 63:188 or consent of instructor. Recommended: 63:258 or 63:259 or two years of resident training in psychiatry. Same as 73:255.
63:256 Hospital Epidemiology 2 s.h.
Epidemiological methods applied to positive, negative features of hospitalized patient’s care; classic use of epidemiologic concepts in description, investigation, control of hospital risks (infections, drug reactions, accidents, excess costs); collection, use of hospital data for patient care evaluations in context of current regulatory efforts. Offered spring semesters of odd years. Prerequisite: 63:158 or equivalent.

63:257 Epidemiology of Infectious Diseases 4 s.h.
Underlying epidemiological concepts of infection and disease, causation, methods of transmission, surveillance, sero-epidemiology; methods of control of infectious diseases, including venereal disease, congenital disease, respiratory diseases, enteric diseases, vectorborne diseases; relationship to cancer. Offered fall semesters of even years. Prerequisite: 63:158 or equivalent.

63:258 Advanced Field Methods in Epidemiology 3 s.h.
Epidemiological study design, analysis; bias, confounding, effect modification; matching; vital statistics; descriptive studies; case-control studies; cohort studies; intervention studies; measurement principles; data sources, questionnaire design, conditional surveys, relation to disease classification; examples from acute, communicable, chronic, and genetic diseases, as well as medical care organization and delivery. Offered spring semesters. Prerequisites: 63: 158 and 63: 161.

63:259 Chronic Disease Epidemiology 4 s.h.
Statistical epidemiologic methodology applied systematically to current problems of cancer, cardiovascular disease, respiratory disease, other major chronic diseases. Offered fall semesters of even years. Prerequisites: 63: 158 and 63: 161, or consent of instructor.

63:260 Environmental Toxicology 3 s.h.
Sources, routes of absorption, and effects of environmental toxicants affecting man; pathophysiology of toxic action including those of air and water pollutants, metals, pesticides, solvents, mycotoxins, food toxicants, other chemicals. Offered spring semesters. Prerequisite: chemistry, physiology, or biochemistry.

63:261 Survival Data Analysis 3 s.h.
Survival data analysis: logrank test; parametric calculations; empirical likelihood with exponential, Weibull, lognormal, generalized gamma models with and without censoring; nonparametric tests; Cox relative-risk regression with stratification and time dependent covariates. Offered fall semesters of odd years. Prerequisites: 228:153, 228:155, and 63:276 or equivalent. Same as 22S:225.

63:262 Analysis of Categorical Data 3 s.h.
Loglinear models as basis for study of categorical data; models for discrete data, distribution theory, maximum likelihood, and weighted least squares estimation for cross classified data, tests of fit, model selection. Offered spring semesters. Prerequisites: 22S:220, 22S:252, and 22S:194, or consent of instructor. Same as 22S:220.

63:264 Longitudinal Data Analysis 3 s.h.
Statistical methodology for analyzing data from observational, experimental studies in which response variable from each subject is measured repeatedly; topics include classical and recent parametric (normal theory) methods, extensions of general linear model methodology for binary and Poisson responses, logit and mean score models for repeated categorical data, nonparametric methods; emphasis on use of statistical software packages for mainframe, personal computer. Offered spring semesters of odd years. Prerequisites: 22S:154 and 63:276.

63:269 Cardiovascular Disease Epidemiology 5 s.h.
Natural history of atherosclerotic disease in humans, factors affecting its development: atherosclerotic disease in different populations (global), different ages of men and women, clinical trials to delay onset, reduce incidence; Impose outcome of cardiovascular disease. Offered fall semesters of even years. Prerequisites: 63: 158 and 63: 161.

63:270 Special Topics in Toxicology 2 s.h.
Advanced topics chosen according to faculty, student interest; may include human, animal, environmental toxicology research methods, current issues. Offered spring semesters of even years. Prerequisite: 63:260 or 71:103 or consent of instructor.

63:273 Research Data Management
Skills in computer usage, especially large databases; law, design, data editing, system utilities, data management computer systems, statistical packages. Offered fall semesters. Prerequisites: 63: 115 and FORTRAN, Pascal, or C programming capability.

63:276 Biostatistical Methods II 4 s.h.
Continuation of 63:176, which is prerequisite: correlation, multiple linear regression, multiple factor experiments, multiple comparisons, orthogonal contrasts, analysis of covariance, life tables, rate adjustment, analysis of odds ratios; parametric and nonparametric methods; emphasis on use of computers. Offered spring semesters.

63:279 Cancer Epidemiology and Control 3 s.h.

63:280 Occupational and Environmental Health Seminar 3-0-3 s.h.
Contemporary TO/PICS in occupational health, agricultural and environmental health.

63:291 Pharmacoeconomics 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 pharmacoendemic pharmacoconomics. Offered fall semesters. Prerequisites: 63:158, and 71:101 or 71:105 or equivalent; or consent of instructor.

63:300 Thesis
arr.
Master’s thesis or doctoral dissertation.

63:396 Occupational Medicine
arr.
Experience in a variety of settings, including heavy industry; community occupational clinics; environmental projects; agriculture; four weeks developed to match students’ interests; goals; on campus two times per semester in Agricultural Medicine; Occupational Health; off campus locations include industrial, community hospital sites in iowa. Open only to medical students.

63:997 Alternative Medicine 1 s.h.
Lectures, discussion, dialogue with nontraditional healers and consumers; evolution and cultural contexts of what constitutes health, role of the healer, relationship between traditional and alternative medicine, with focus on problems, compatibilities, potential for the future. Open only to medical students.

63:998 Special Studies on Campus
arr.
On campus clinical rotations in primary care practice; how public health and community health agencies operate in context of the total health care service system. Open only to medical students.

63:999 Special Studies off Campus
arr.
Rotations in community health or preventive medicine activities. Includes international assignments in developing countries, clerical jobs in health care programs on Indian reservations or in Appalachian or urban centers, assignment to governmental agencies or legislative bodies. Open only to medical students.

The Department of Psychiatry teaches medical students and trains resident physicians for academic and clinical careers in psychiatry. It offers no degree program.

It instructs medical students principally during their third year, in the course of a six-week clerkship.

The department maintains a four-year training program approved by the Residency Review Committee of the American Medical Association. Training experiences are available at The University of Iowa Hospitals and Clinics and at the Veterans Affairs Medical Center. Additional experiences are available at affiliated institutions: Broadlawns Medical Center in Des Moines, the Iowa Security Medical Facility at Oakdale, the Mid-Eastern Iowa Community Mental Health Center in Iowa City, and the Mental Health Institute at Independence.

The department offers an approved two-year residency in child psychiatry.

The department’s staff is actively involved in genetic and family studies of psychiatric disorders and in research in genetic and biological psychiatry, neurochemistry, 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 group psychotherapy also offer opportunities to a limited number of students for research and further study.

Courses
73: 100 Psychiatry for Physician Assistant Students
arr.

73:101 Psychiatry Elective for Physician Assistant Students
arr.

73:107 Psychosocial Interventions in Psychiatry arr.
Experience, training in psychosocial treatment for psychiatric disorders (i.e., depression, anxiety, eating disorders, experience with inpatient, outpatient psychotherapy); emphasis on short term interventions in group or individual format.

73:230 Research in Psychiatry arr.
Biological or psychological problems related to psychiatry. Open to medical students, graduate students, and physicians with training in scientific methodology.

73:231 Problems in Psychiatry arr.

73:255 Psychiatric Epidemiology 3 s.h.
Epidemiology of mental disorder; problems in psychiatric epidemiology; reliability, validity, diagnostic classification: epidemiology of specific diseases, including dementia, schizophrenia, mania, depression, anxiety, alcoholism, personality disorder. Same as 63:255.

Courses Open Only to Medical Students
73:5 Clinical Psychiatry 6 s.h.
Open only to junior medical students.

73:3 General Hospital Psychiatry arr.
Psychiatric Consultation Service, University Hospitals and Clinics.

73:33 Adult Psychiatry, Pappajohn Pavilion arr.

73:34 Hospital Psychiatry, Veterans Administration Hospital, Iowa City arr.

PSYCHIATRY
Radiation Biology

Director: James W. Osborne
Professors: Richard L. DeGowin, James C. Ehrhardt, David H. Hussey, Larry W. Oberley, James W. Osborne

Undergraduate Study

Two courses, 77:103 Introduction to Radi nuclides and Radiobiology and 77:106 Environmental and Radiological Health Physics, are open to undergraduate students in liberal arts or professional colleges. 77:103 is especially appropriate for students who want an overview of radiation’s biological effects and its uses in our society. These courses also are of interest to students who plan to enter medicine, nuclear medicine technology, environmental health, or similar programs.

Graduate Programs

The M.S. program in radiation biology emphasizes technical aspects and provides a good background for those who choose to pursue a Ph.D. degree in radiation biology or related field.

The Ph.D. program is open to graduate students with a background in physics, chemistry, mathematics, biology, health sciences, veterinary medicine, or engineering. Ordinarily, the M.S. in this or a related field is required for admission to the Ph.D. program, but consideration is given to other methods of qualifying.

After completing the introductory course, students may emphasize a particular aspect of the field. The details of the program are built around previous training, interests, abilities, and career objectives. Some students elect to emphasize training in physical aspects, such as radiological physics or health physics; others major in biological aspects.

In addition to formal lectures, radiation biology programs involve small-group conferences and discussions. Laboratory exercises are emphasized, and students have the opportunity to become familiar with many types of instruments and techniques. Students must have at least one semester of experience as teaching assistants and at least one as research assistants. No registration is required and no academic credit is given for the assistantships.

Special Programs

Postdoctoral training is available by arrangement with the program chair and individual faculty members.

Financial Aid

Graduate students are supported as research assistants from funds available through research grants and contracts, or as teaching assistants from departmental funds. Individual postdoctoral awards also may be available and are applied for jointly by the candidate and his or her faculty sponsor.

Facilities

The Radiation Research Laboratory has X-ray generators and other radiation sources, including a 10,000 Curie CS-137 irradiator. Students and staff also have access to other radiation sources, such as the CO-60 gamma source and the linear accelerators in the Department of Radiology.

The Radiation Research Laboratory has a variety of radiation detectors and counters, including gamma and liquid scintillation counters and a small animal whole-body counter. The laboratory also has ultraviolet/visible spectrophotometers; various types of equipment for chromatography and electrophoresis; an automatic cell counter and particle sizer; tissue culture facilities; and facilities for preparing histological sections of tissues–fixed or frozen–and autoradiographs.

Courses

77:103 Introduction to Radionuclides and Radiobiology 4 s.h.

Characteristics, biological effects of ionizing radiations; properties, uses of radionuclotides, medical applications, biological bases for protection. Prerequisite offered fall semesters. Consent of instructor required.

77:106 Environmental and Radiological Health Physics 4 s.h.

Radiation hazards, control regulations, problems of design and use of radiation facilities in medical, academic, industrial situations; exposure, dose measurements in radiation environments. Offered fall semesters of odd years. Prerequisite: 4 semester hours of physics or chemistry, or consent of instructor.

77:107 Special Topics: Advanced Undergraduates arr.

Readings and/or laboratory experience. Offered fall semesters. Consent of instructor required.
The Department of Radiology teaching program is designed to meet the needs and interests of fourth-year medical students in diagnostic radiology, nuclear medicine, and radiation therapy.

Rotations through the subdivisions of diagnostic radiology-including ultrasound, magnetic resonance, computerized tomography, nuclear medicine, and radiation therapy-are designed according to the student’s area of interest.

**Courses**

74:1 Clinical Radiology

Clinical rotation in diagnostic radiology, nuclear medicine, techniques, aims, techniques of radiation therapy.

74:2 Introduction to Radiation Therapy

4 s.h.

Radiation oncology and cancer management, with emphasis on interaction of radiation therapy, chemotherapy, surgery; experience with patient care, management.

74:3 Vascular and Interventional Radiology

arr.

74:5 Radiology Elective for Physician Assistant Students

arr.

74:100 Independent Study in the Radiologic Sciences

arr.

Didactic, clinical, or research. Consent of instructor required.

74:101 Principles of Nuclear Medicine I

0.6 s.h.

Didactic, laboratory work in radiopharmacy, patient care, radiation protection, math and statistics, radiation physics, anatomy and physiology, radiocomputer and tracer techniques, medical terminology, computer applications. Open only to nuclear medicine technology students.

74:102 Introductory Clinical Nuclear Medicine 0.6 s.h.

Experience in preparing radiopharmaceuticals, performing routine nuclear imaging and in vitro procedures; work with clinical instructors. Open only to nuclear medicine technology students.

74:103 Principles of Nuclear Medicine II

0.3 s.h.

Didactic, laboratory work in nuclear medicine instrumentation, radiobiology, radiomunomassay and immunology, administration and management, film processing, radiomunomassay laboratory introduction. Open only to nuclear medicine technology students.

74:104 Intermediate Clinical Nuclear Medicine 0.9 s.h.

Progressive responsibility in radiopharmacy, nuclear imaging, radiomunomassay procedures; rotations in magnetic resonance imaging, other related imaging areas. Open only to nuclear medicine technology students.

74:105 Advanced Clinical Nuclear Medicine

0.6 s.h.

Proficiency in performance, quality control of all radiopharmacy and nuclear medicine procedures; opportunities for independent study, research. Open only to nuclear medicine technology students.

74:901 Clinical Radiology in Private Practice

arr.

Off-campus rotations at community hospital radiology departme; experience in clinical activities.

74:998 Special Studies on Campus

Prerequisite: 74:1 or 74:901.

74:999 Specialist Studies off Campus

arr.

**SURGERY**

Interim head: Robert T. Soper


Clinical professor: Lester R. Dragstedt II

Clinical professor emeritus: Frederick D. Staab


Visiting associate: Yoons Min Wu

Clinical associate: P. Sue BeckWith

Clinical lecturer: Wendell K. Downing

Courses in surgery provide a unique combination of experience oriented toward patient care with basic surgical research designed to promote students’ awareness of the place of surgery among the physician’s skills. These courses are available only to medical students and qualified students in associated health sciences.

Students of surgery develop awareness of surgical therapy’s place in the treatment of disease. Emphasis is placed on basic emergency techniques, traumatology, oncology, burns, gastrointestinal and biliary tract disease, endocrine disease, transplantation, plastic surgery and reconstruction, peripheral vascular surgery, thoracic and cardiovascular surgery, and neurosurgery.

A majority of the courses involve patient-centered discussions and practical exercises interspersed with operating room experience. Lectures and conferences are scheduled regularly on specific topics.

Special courses in selected topics of surgical research, independent study, and clinical experience are available to individual fourth-year students by special arrangement with the faculty.

**Facilities**

The department has more than adequate numbers of patients with a wide variety of surgical diseases for teaching. Special areas include the only burn unit of its kind in the state, providing adequate patient material for both clinical and basic science research.

Laboratories provide equipment, space, and technical expertise to support teaching and a wide spectrum of clinical and scientific research. These laboratories include animal surgery, tissue culture, gastroenterology, microbiology, peripheral vascular surgery, transplantation, organ preservation, cardiovascular surgery, neurosurgery, and oncology.

**Courses**

75:5 Clinical Surgery

6 s.h.

Experience as active member of surgical team; work on wards in clinics and operating room; assistance in elective, emergency care.

75:100 Emergency Room Elective for Physician Assistant Students

arr.

75:10 Surgery Elective for Physician Assistant Students

arr.

75:111 Surgery Elective for Physician Assistant Students (Transplant/Organ Retrieval)

arr.

Experience in care of patient with end-stage organ failure; participation in evaluation of potential transplant candidates and in surgical procedures of University transplant service.

75:112 Surgery Elective for Physician Assistant Students (Burn Unit)

arr.

Burn care on unit and in the operating room; debridement, grafting techniques, skin storage techniques, dressing changes and tub baths, physical therapy procedures.

75:160 Introduction to Perfusion Technology

3 s.h.

History of cardiopulmonary bypass and heart surgery, medical terminology, aseptic techniques, extracorporeal devices, medical ethics. Open only to perfusion technology students.

75:161 Instrumentation in Perfusion Technology

3 s.h.

Electrical circuitry, filters, pressure transducers, thermometers, cardiac output computers, fluid dynamics, intra-aortic balloon pumps, blood gas analyzers. Open only to perfusion technology students. Prerequisites: 75:160; biochemistry, and physiology.

75:162 Pathophysiology of Perfusion Technology

3 s.h.

Hemostasis, acid base physiology, gas transfer, heart anatomy, heart embolus, congenital cardiac defects. Open only to perfusion technology students. Prerequisites: 75:160; biochemistry, and physiology.

75:163 Clinical Experience I

2 s.h.

Perfusion in operating room; patient workup, observation, and reporting on extracorporeal setup, surgical procedure. Open only to perfusion technology students. Prerequisites: 75:160; biochemistry, and physiology.

75:164 Clinical Experience II

3 s.h.


75:165 Clinical Experience III

12 s.h.

Continuation of 75:164; management of cardiopulmonary bypass system. Prerequisites: 71:130; 75:164, 75:170, 75:171, and 75:164.

75:166 Clinical Experience IV

12 s.h.

Continuation of 75:165; emphasis on supply maintenance, perfusion departmental management. Prerequisite: 75:165.

75:167 Perfusion Seminar

arr.

Ethics in perfusion. Open only to perfusion technology students.

75:168 Research in Perfusion

arr.

From topic selection to manuscript. Open only to perfusion technology students.

75:169 Clinical Experience V

12 s.h.

Continuation of 75:166, which is prerequisite.

75:170 Principle and Practice of Perfusion Technology

6 s.h.


75:171 Devices in Perfusion Technology 3 s.h.


75:216 Advanced Clinical Surgery

4 s.h.

Responsibility for patient care on wards, in operating rooms on a surgical service. Consent of instructor required. Prerequisite: 75:5.
Consent of instructor required. Prerequisite: 75:5.

75:999 Special Studies off Campus arr.
Consent of instructor required. Prerequisite: 75:5.

75:217 Advanced Surgical Extremity arr. Consent of instructor required. Prerequisite: 75:5.

75:218 Veterans Administration Medical Center Surgical Intensive Care arr. Experience assessing, managing seriously or critically ill patients from general surgery; full range of subspecialties. Consent of instructor required. Prerequisite: 75:5.

75:220 Emergency Room: St. Lukes, Cedar Rapids 4 s.h. Preceptorship with full-time emergency department physicians. Consent of instructor required. Prerequisite: 75:5.

75:221 Emergency Room on Campus arr. Preceptorship with house officers, faculty; emphasis on principles of acute medicine. Consent of instructor required. Prerequisite: 75:5.

75:222 Emergency Room off Campus arr. Preceptorship with house officers, faculty; emphasis on principles of acute medicine. Consent of instructor required. Prerequisite: 75:5.

75:223 Burn Therapy arr. Experience as member of burn team on ward, in operating room; resuscitation with fluid and electrolytes, nutritional support, wound healing, rehabilitation. Consent of instructor required. Prerequisite: 75:5.

75:224 Pediatric Surgery arr. Clinical experience in ward, operating room, outpatient clinics; surgical, pediatric conferences. Consent of instructor required. Prerequisite: 75:5.

75:225 Transplantation Surgery arr. Experience on renal transplant team; exposure to coordinated efforts of other medical disciplines (e.g., internal medicine, urology) in daily rounds, conferences; assistance in research project. Consent of instructor required. Prerequisite: 75:5.

75:227 Clinical Neurosurgery arr. Clerkship in neurologic diseases; emphasis on diagnosis of neurological disorder; operative therapy; radiology and neurology related conferences. Consent of instructor required. Prerequisite: 75:5.

75:228 Research in Neurological Surgery arr. Clinical or laboratory oriented projects. Consent of instructor required. Prerequisite: 75:5.

75:229 Research Surgery arr. Project with faculty member. Consent of instructor required. Prerequisite: 75:5.

75:230 Clinical Vascular Surgery arr. Diagnosis, treatment of peripheral vascular disease; noninvasive diagnosis of arterial, venous problems; vascular problems in outpatient clinic, inpatient w-vice; time in operating room, rounds with residents, conferences. Consent of instructor required. Prerequisite: 75:5.


75:232 Clinical Cardiothoracic Surgery arr. Concentration on cardiac or thoracic surgery; conferences; internship responsibilities; research. Consent of instructor required. Prerequisite: 75:5.

75:233 Research in Cardiothoracic Surgery arr. Short or long term project; may involve clinical material or laboratory research; completion of publishable manuscript. Consent of instructor required. Prerequisite: 75:5.

75:234 Externship at the VA in Des Moines 4 s.h. Consent of instructor required. Prerequisite: 75:5.

75:235 General Surgery: Iowa Methodist Medical Center 4 s.h. Consent of instructor required. Prerequisite: 75:5.

75:236 General Surgery for Physician Assistant Students arr. Consent of instructor required. Prerequisite: 75:5.

75:998 Special Study on Campus arr. Consent of instructor required. Prerequisite: 75:5.

75:999 Special Studies off Campus arr. Consent of instructor required. Prerequisite: 75:5.
College of Nursing

Dean: Geraldene Felton
Associate dean, undergraduate studies and community affairs: Eleanor McClelland
Director, continuing nursing education: Kathleen Kelly
Director, nursing research development and utilization: Toni Tripp Reimer
Associate director, nursing research development and utilization: Kathleen Buck Walter
Director, student services: Laraine Carmichael
Professors: Kathleen Buck Walter, M. Patricia Donahue, Geraldene Felton, Meridean L. Maas, Joanne McCloskey, Barbara Thomas, Toni Tripp Reimer
Professors emeritae: Myrtle Aydelotte, Eva Erickson, Rosemary McKee, Hope Solomon
Associate professors: Mary Blegen, Gloria Bulechek, Toni Clew, Martha Craff-Rosenberg, Connie Delaney, Joanne Eland, Rita Frantz, Rose Marie Friedrich, Mary Hardy, Laura Hart, Keeya Herr, Diane Huber, Marion Johnson, Jean I-akin, Leslie Marshall, Eleanor McClelland, Paula Mobily, Sandra Powell, Jean Reese, Elizabeth Swanson
Associate professors emeritae: Geraldine Busse, Phyllis Franck, Mildred Freer, Marjorie Gould, Nancy Jordan, Marjorie Lyford, Anna E. Overland, Etta H. Rasmussen

Assistant professors: Martha Carpenter, Mary Kathleen Clark, Perle Slavik Cowen, Carolyn Crowell, Janice Denhecy, Michele Elison, Orpha Glick, Kathleen Kelly, Louise Kruse, Sonja Lively, Ann Marie McCarthy, Frances Milde, Sue Moorhead, Imogene Ruth, Beverly Saboe, Annette Scheffel, Mary Stewart, Dedmon, Kay Weiler, Janet Williams
Assistant professors emeritae: Joelia Antes, Merle Heck, Mary Rock
Lecturers: Mary Aquiline, Pam Ballard, Teresa Boese, Veronica Brighton, Marlynn Bushnell, Lily Chen, Patricia Clinton, Ken Cuyp, Karen Griffith, Mary Harrison, Anne Hartson, Phyllis Heffron, Vicky Hertig, Deborah Jensen, Jonie Johnson, Lisa Skemp Kelley, Jean King, Nicollet Markovetz, Sheryl Miller, Patricia Nelson, Anita Nicholson, Margaret Rankin, Joyce Roberson, Michelle Ruhlmann, Joanne Tigges, Connie Trowbridge, Pamela Willard
Undergraduate degree: B.S.N.
Graduate degrees: M.A., Ph.D. in Nursing
The College of Nursing is an integral part of The University of Iowa Health Center, sharing in and contributing to teaching, research, and patient care resources that have earned international recognition. The University health center provides an unusually fine setting for nursing preparation because the educational and clinical resources that are needed to educate nurses are available on or near the campus. Faculty and students participate fully in University life and contribute their time, interest, and abilities to the many general and special activities of a major research university.

Both the baccalaureate and master’s programs of the college are accredited by the Department of Baccalaureate and Higher Degree Programs of the National League for Nursing, the professional accrediting agency for college and university programs of nursing education. The baccalaureate program is approved by the Iowa Board of Nursing, and graduates of the program qualify to take the licensure examination required for practice as registered nurses.

**Undergraduate Program**

The Baccalaureate of Science in Nursing (B.S.N.) at The University of Iowa is designed to provide preparation for careers in the hospital care of patients and in community agencies such as public health services, schools, homes, and industries. It also serves as the 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 be prepared for a career but to be able to achieve a life of thought and action informed by knowledge, introspection, and contemplation.

The program prepares professional nurses to be primary health care providers who are able to engage in a broad range of health promotion and teaching activities and to coordinate care in any sector of the health care system.

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 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.

The 128-semester-hour course of study consists of 75 semester hours of liberal arts General Education Requirement courses and supportive preregistration courses, and 53 semester hours of course work in the nursing major. Students can expect to complete the program in four or four and one-half academic years. An R.N.-B.S.N. progression option is available for diploma and ADN registered nurses who wish to complete the B.S.N. For these students, a one-year plan of study is available for the completion of required baccalaureate nursing courses upon satisfaction of all required prerequisite and general education courses and admission to the College of Nursing. At the time of admission, all R.N.-B.S.N. students declare one of the four options available within the Iowa Articulation Plan for Nursing Education: R.N. to baccalaureate.

Nursing courses are based on the concepts of health, deviations from health, and nursing intervention and are presented at progressive levels of 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 clinical experiences that are selected from more than sixty agencies in the state. Basic baccalaureate graduates are eligible to take the licensure examination required for practice as a registered nurse.

**Approaches to the College of Nursing**

Students may complete their entire program at Iowa, enrolling during their first year and one-half to two years in the College of Liberal Arts. Or they may transfer from an institution that offers a two-year sequence of specific courses approved by The University of Iowa 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, Calmar, Carroll, Cedar Rapids, Clarinda, Clinton, Davenport, Des Moines, Estherville, Fort Dodge, Marshalltown, Mason City, Muscatine, Ottumwa, Sheldon, 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.

**Cooperative Education Summer Clinical Internship**

High-achieving undergraduates have the opportunity to develop clinical skills through placement in a summer employment setting. Internships are available in hospitals, community health settings, and occupational health services in Iowa and surrounding states. This program affords undergraduates the opportunity to work closely with a preceptor while being employed, and with a faculty member in pre- and post-internship seminars.

Internships are available to qualified undergraduate students who have completed three semesters of clinical nursing courses and have maintained a nursing grade-point average of 3.00 or higher. Interested students should contact the College of Nursing coordinator of the Cooperative Education Summer Clinical Nursing Internship Program, or the Office of Cooperative Education, for specific information about the program.

**Aging Studies**

Students in the College of Nursing may participate in the Aging Studies Program, which is designed to provide undergraduate students a multidisciplinary approach to gerontology.

Students plan their course of study with their academic adviser in close cooperation with the Aging Studies Program coordinator. Nursing students who successfully complete 15 semester hours of acceptable course work in aging studies are awarded a certificate of completion by the University registrar. Nursing students also have the option of completing a minor in aging studies by taking 15 semester hours outside of the major in courses approved by the program. For further information, see “Aging Studies Program” in the College of Liberal Arts section of the Catalog.

**Honors**

The University of Iowa College of Nursing Baccalaureate Honors Program provides seminars and independent study experience for qualified students. To be eligible, students must have completed the first clinical nursing course and must maintain a 3.25 cumulative grade-point average and a 3.50 nursing major grade-point average. The honors program enables students to explore subject matter based on individual interests, needs, and goals. It provides opportunities for self-initiative 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.

**Pregraduation Assessment Test**

All students are encouraged to take a pregraduation assessment test during the final semester of their senior year. The test is designed to assess nursing students’ essential nursing knowledge and application in 8 semester hours of clinical situations; to identify students’ specific strengths and weaknesses, providing a sense of direction for further study and a means for setting priorities; and to help students choose effective and efficient plans for further study and review before they take the National Council on Licensure Examination for Registered Nurses.

The examination score is not computed in the course grade. Students receive a detailed printout of the results of their examination and are given recommendations for self-directed study.
Registered Nurses
The R. N.-B.S.N. progression program offers registered nurses the opportunity to build on their nursing knowledge and experience base. The nursing major sequence is designed specifically for registered nurses, with a focus on nursing process and health assessment; community health care clinical settings; leadership, management, and research opportunities; nursing professionalism; and computer expertise. Each R. N.-B.S.N. student is assigned to a College of Nursing faculty member for continued academic advising and curriculum planning.

The College of Nursing participates as a receiving institution in the Iowa Statewide Articulation Plan for Nursing Education: R.N. to baccalaureate. At the time of admission to the College of Nursing, students declare one of the four options available within the plan. Plans of study are developed and credit is awarded according to the option the student declares.

Students may transfer previous course work completed at another college or university to satisfy some prerequisites to the nursing major. They may complete the balance of prerequisites at The University of Iowa and at many other colleges and universities in Iowa. In addition, they may take specific challenge examinations. Once prerequisites are met, students may complete the R. N.-B.S.N. nursing major sequence in one calendar year or three semesters in a sequence that includes three clinical and two nonclinical nursing courses. R.N.’s may study on campus and in designated satellite sites. Registered nurses planning to enter the baccalaureate program should obtain special information and advising from the College of Nursing.

Faculty Advisers
Advisers from the Undergraduate Academic Advising Center advise prenursing students. After admission to the College of Nursing, each student is assigned a College of Nursing faculty adviser.

Student Organizations
College of Nursing undergraduate students have their own organization, The University of Iowa Association of Nursing Students (AGNS). ACNS provides opportunities for professional growth and development in nursing. Its representatives are members of The University of Iowa Student Association (UISA), and there is a UIANS representative on the Academic Council of the College of Nursing.

College of Nursing graduate students also have an organization, the Association of Graduate Nursing Students (AGNS). ACNS provides opportunities for professional growth, sharing of research, and representation on various college and University committees.

Expenses
Students pay the general University fees throughout the 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 for their own health screening requirements, professional liability insurance, and transportation once they are enrolled in clinical nursing courses.

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. Entering students in the College of Nursing are provided information about this requirement and must show verification that they have purchased and currently hold professional liability insurance with a minimum coverage of $1 million per single occurrence.

Financial Aid
In addition to general assistance available to University students, there are assistance programs specifically for nursing students. Information about financial assistance is available from the University’s Office of Student Financial Aid.

Admission
High School Background
The College of Nursing strongly recommends four years of English, three years of social science, three years of mathematics, two years of one foreign language, and one year each of biology, chemistry, and physics, plus other college preparatory courses selected with the help of the high school counselor.

College Background
APPLICATION AND ADMISSION REQUIREMENTS
To apply for admission to the undergraduate program in nursing, each student must qualify for admission to The University of Iowa and meet these requirements:
- completion of all prerequisites (or current enrollment in any remaining prerequisites);
- a minimum grade-point average of 2.50 on a 4.00 scale.

Applicants whose first language is not English are required to present a minimum score of 550 on the Test of English as a Foreign Language (TOEFL). Registered nurses educated outside of the United States are required to present verification of having passed the CGFNS examination and specified ACT/PEP baccalaureate nursing examinations.

Preclinical Background
Students must satisfy the following requirements, in addition to the biological and behavioral science courses required for admission to the college, before beginning clinical nursing course work.
- Rhetoric—8 semester hours (may be satisfied by testing for advanced standing); a student who has earned 6 semester hours of credit in English composition may complete the speech component after admission.
- Mathematics—three years of high school math or a score greater than or equal to 26 on the mathematics battery of the ACT, or completion of a college course in mathematics comparable to or more advanced than intermediate algebra (22M:2).
- Physics—one-half year of high school physics or equivalent; if physics is completed at the college level, it may be included in the 28 semester hours required for admission.

STANDARDS
To be considered for admission to the College of Nursing, the applicant must have satisfactorily completed all prerequisites.

American College Tests
All entering freshmen and undergraduate transfer students who present fewer than 24 semester hours 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 the American College Testing Program, Box 451, Iowa City, Iowa 52243.

Selection Factors
The college’s admission committee recommends to the dean the applicants who appear to be best qualified. However, 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 Student Health Service ten days prior to the opening of classes for the first clinical nursing course.

Application Deadlines
Fall semester—March 1
Summer session for registered nurse students only—March 1
Spring semester—October 1

Graduate Programs
Master of Arts
The University of Iowa M.A. program in nursing is accredited by the National League for Nursing (NLN). The curriculum is designed to build on
general and professional baccalaureate study in which nursing is an upper-division offering. Graduation from an NLN-approved baccalaureate degree program is one of the admission requirements. Options are available for registered nurse applicants with a non-NLN-accredited B.S.N., a non-nursing B.A. or B.S., or a B.S.N. from a foreign country.

The curriculum consists of a core component and areas of specialization and role preparation enhanced by supporting course work in a related discipline. Forty two semester hours are required for graduation.

Core courses are taken by all students in the program. Students select an area of nursing specialization in child health nursing, adult health nursing, community health nursing, or gerontological nursing, and a role preparation area in clinical specialization, administration, or teaching. Students may choose a pediatric nurse practitioner option in the child health specialization area, a nurse manager option in the nursing administration role preparation area, or a rural health gerontological nurse practitioner option in the gerontological health specialization area. Genetics counseling is also available. Students also may choose an M. B.A./M.A. in nursing.

Four to five supporting courses related to either the nursing specialization or role preparation areas are taken in the social, behavioral, or biological sciences or in business administration, law, hospital and health administration, or computer science.

Degree Requirements

The curriculum ordinarily requires four semesters of full-time study for completion. Part-time and evening study options are available. The M. B. A./M.A. in nursing program requires a minimum of six semesters of full-time study. Students must maintain a 2.50 minimum grade-point average and must successfully complete a master's thesis or master's project.

The master's curriculum consists of five components.

Advanced Nursing Core

The core consists of 15 semester hours of course work in leadership in nursing (3 semester hours), theory and methods of nursing research (3 semester hours), health policy and economics (3 semester hours), and nursing informatics and technology (3 semester hours).

Nursing Specialization

The specialization requires 8 semester hours of course work with practicums; it allows students to build a special area of knowledge and practice that extends beyond the advanced nursing core. Specialization may be in the broad areas of child health nursing, adult health nursing, gerontological nursing, or community health nursing. Students may develop their areas of specialization through their choices of course work and fieldwork experiences. For example, students who select adult health nursing as their area of specialization may choose practicum experiences with patients in a long-term care facility, a mental health clinic, or a cardiac care unit. Students with unique career goals have the option of further modifying their plans of study under the direction of their academic advisors.

Role Development

Students may select administration, advanced clinical practice, or education as a role preparation area. The role preparation requires 6 semester hours of course work with practicums. Students who elect to prepare for careers in clinical practice, for example, enroll for 6 semester hours of advanced clinical practice in addition to courses required for the nursing specialization component. In fulfilling the practicum requirements of these courses, students may select particular settings and/or preceptors compatible with their own career goals. Students who select community health are encouraged, but not required, to choose the nursing administration role option.

Supporting Courses

Students must complete 11-14 semester hours; they may choose their supporting course work in areas related to their nursing specialization or role preparation interests. Community health nursing students must enroll in 63:158 Principles of Epidemiology.

Thesis/Master's Project

All master's students at the University must take a final examination. Students in the College of Nursing satisfy this requirement by completing either a thesis or a master's project. Students, with their advisers, select the option that best maximizes their individual career objectives.

The 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 Graduate College. Students earn a total of 5 semester hours of credit 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 a previous course assignment. Students earn 2 semester hours for the master's project and complete 3 additional semester hours in supporting course work.

Plan of Study

The plan of study described below is designed for full-time students. Those who want to study on a part-time basis progress through courses in approximately the same way, but over a longer period of time. Taking one or two courses per semester, for example, extends the time of study to three to five years. Any course work taken ten years or more prior to the final examination must be updated, according to University policy.

FIRST YEAR

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<th>Fall Semester</th>
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<tr>
<td>96:203 Theory Development and Research Methods</td>
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<td>96:204 Leadership in Nursing: Theory and Application</td>
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<tr>
<td>96:263 Introduction to Nursing Informatics and Technology</td>
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<th>Spring Semester</th>
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<td>96:205 Methods and Utilization of Nursing Research</td>
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<td>Supporting course (master's project)</td>
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<td>96:212 Health Care Economics and Public Policy</td>
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<td>96:222 Nursing of Children: Health Promotion</td>
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<td>96:226 Nursing of Adults: Health Promotion</td>
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<td>96:231 Nursing of Older Adults: Response to Illness</td>
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<td>96:234 Foundations: Advanced Community Health in Nursing Practice</td>
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SECOND YEAR

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<td>96:298 Master's Project</td>
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<tr>
<td>96:299 Thesis</td>
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<tr>
<td>One of these:</td>
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<tr>
<td>96:223 Nursing of Children: Responses to Illness</td>
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<td>96:227 Nursing of Adults: Responses to Illness</td>
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<td>96:230 Nursing of Older Adults: Health Promotion</td>
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<td>96:235 Advanced Community Health in Nursing Practice</td>
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<td>One of these:</td>
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<td>96:246 Nursing Education: Process, Roles, and Strategies</td>
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<td>96:260 Nursing Administration: Process, Roles, and Strategies</td>
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<tr>
<td>96:268 Advanced Clinical Practice I</td>
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<th>Spring Semester</th>
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<td>96:247 Curriculum Development in Nursing Education</td>
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<td>96:261 Nursing Administration: Process, and Strategies</td>
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<td>96:269 Advanced Clinical Practice II</td>
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<td>96:298 Master's Project</td>
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<td>96:299 Thesis</td>
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Joint Master's Program with Business Administration

A joint M. B.A./M.A. in nursing is available. The program is designed for students with previous clinical and administrative experience. Applicants to this program need to be accepted for graduate study in both programs. The joint program requires a total of 69 semester hours. For more information, contact the Office of Student Services.
Admission

Students should seek admission to the master’s program in nursing through direct application to The University of Iowa Graduate College. Minimum requirements for admission to the Graduate College include a completed application; official transcripts from other institutions attended; Graduate Record Examination (GRE) General Test scores; a passing score on the Test of English as a Foreign Language (TOEFL), when appropriate; and a 2.50 minimum grade-point average for regular admission or 2.30 for conditional admission.

In addition to the general requirements for admission to the Graduate College, the College of Nursing requires that the applicant: possess a bachelor’s degree with a major in nursing from a program accredited by the National League for Nursing. Options are available for registered nurse applicants with a non-NLN-accredited B.S.N., a non-nursing B.A. or B.S., or a B.S.N. from a foreign country; fulfill the legal requirements for the practice of nursing in Iowa; have an undergraduate grade-point average of 2.70 or higher, or a demonstrated ability to do graduate work for regular admission; have an undergraduate grade-point average of 2.50 or higher for conditional admission; have current written recommendations from three persons familiar with the applicant’s competence in the practice of nursing and potential for leadership and scholarship; and have successfully completed a graduate-level (or equivalent) statistics course prior to admission.

Foreign students must earn a score of at least 550 on the Test of English as a Foreign Language (TOEFL).

Applications for admission to the master’s degree program are reviewed on a continuing basis. For review, the applicant’s file must be complete, with all relevant materials submitted. Deadline for summer and fall admission is May 1. The spring semester admission deadline is December 1. Initial course enrollment may begin any term.

All regulations of the Graduate College pertaining to academic standing, probation, and dismissal are applicable to graduate students in nursing. Transfer credits applicable to the master’s degree program are limited and must be approved by the dean for the graduate program in nursing and by the student’s adviser.

Doctor of Philosophy

The Ph.D. in nursing program prepares scientists to conduct research in nursing, extends the knowledge base relevant to nursing, and contributes to the body of knowledge in the discipline of nursing. Study requires expertise in clinical nursing and competence in research that relates to the practice of nursing and the delivery of health care.

The curriculum has two focal areas from which students choose: nursing in aging and nursing administration. 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.

Degree Requirements

All candidates must take the following courses.

- 96:300 Classics in the Social Evolution of Modern American Nursing 3 s.h.
- 96:340-341 Nursing Theory Construction I-II 6 s.h.
- 96:310 Nursing and Health Information Systems 3 s.h.
- 96:320 Economics of Health Care and Nursing 3 s.h.
- 96:330 Nursing’s Role in Health Care Policy 3 s.h.
- 96:335 Cognate minor courses 9 s.h.
- 96:470-471 Research Practicum I-II 6 s.h.
- 96:490-491 Research Practicum in Policy 3 s.h.
- 96:440 Research Seminar in Nursing 3 s.h.

In addition, candidates must take the appropriate seminars and practicums for their focus-area (total of 12 semester hours).

Aging Focus

- 96:410 Nursing Research of Biological Phenomena and Interventions for the Elderly 3 s.h.
- 96:420 Geriatric Mental Health Research 3 s.h.
- 96:430 Nursing Research in Sociocultural Phenomena and Interventions for the Elderly 3 s.h.
- 96:440 Research Utilization in Care of the Elderly 3 s.h.

Nursing Administration Focus

- 96:450 Research Seminar in Nursing Administration I: Organizational Concepts 3 s.h.
- 96:451 Research Seminar in Nursing Administration II: Health Care System Concepts 3 s.h.
- 96:460 Innovations in Nursing Management 3 s.h.
- 96:480 Residence in Nursing Service Administration 3 s.h.

Comprehensive Exam, Dissertation

All students must complete a written comprehensive examination. Candidates earn 12 semester hours for work on their dissertation by completing 96:497 Dissertation Research Seminar: Research Application and Advanced Design, a dissertation prospectus, the dissertation, and an oral defense.

Admission Requirements

Students applying to the Ph.D. program must fulfill the following requirements:

- completion of an NLN-accredited basic nursing program;
- completion of a master’s degree program; current R.N. licensure to practice nursing; GRE General Test, preferably within the past five years;
- for students whose first language is not English, a minimum score of 550 on the Test of English as a Foreign Language (TOEFL); a minimum of one graduate-level, 3-semester-hour course in research and inferential statistics;
- a two- to three-page statement describing educational objectives and identifying a focal area for doctoral study;
- three recommendations from professionals in the field; and
- a current curriculum vitae.

One year of nursing experience is preferred.

Professional Improvement

Some registered nurses may wish to take course work at the University to fulfill the objective of professional or personal improvement. Such individuals may request admission in the professional improvement (P. I.) category. This admission status allows students to take some graduate courses at the University without commitment 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 must be submitted to fulfill the University requirement before the end of first semester registration. Deadlines are July 15 for admission in the fall semester, December 1 for admission in the spring semester, and May 1 for admission in the summer session.

Since acceptance as a professional improvement student has no direct bearing on acceptance as a master’s or doctoral candidate, P.L. students are required to follow the application procedure described in the preceding section if they want to seek admission as master’s or doctoral degree candidates. Only 3 semester hours, or one required nursing core course, taken under professional improvement status may be used to fulfill the M.A. requirements. P.L. students may not enroll in doctoral courses.

Continuing Education

Through its Office of Continuing Nursing Education, the college offers nonacademic, short-term programs for registered nurses. Programs are scheduled on campus and at community sites throughout Iowa. Self-study programs and learner-designed nursing continuing education modules also are available. Continuing education units (CEUS) are awarded for each program on the basis of one unit per 10 clock hours of instruction. The Office of Continuing Nursing Education 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 Colleges of Medicine, Pharmacy, and Dentistry and The 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, laboratories, and the Learning Resource Services, which includes a technology laboratory. Additional classrooms and laboratories are located throughout the building. Conference rooms, student lounges, and meeting rooms are conveniently located. Research and computer facilities in the building provide direct access to the Weeg Computing Center and to college-owned microcomputers.

Courses

Primarily for Undergraduates

96:000 Cooperative Clinical Internship 0 s.h. Seminar for students selected for clinical nursing internships.

96:30 Human Development and Behavior 3 s.h. Developmental stages of the human organism from conception through senescence; physiological, intellectual, emotional, social factors. Prerequisite: 31:11 or 31:13.

96:31 Adult Development and Aging 1 s.h. Physical, cognitive, personality development in the adult; emphasis on the aging process. Prerequisites: A course in general or introductory psychology and one in child/adolescent development

96:80 Macintosh Computer Application for Clinical Nursing Practice 3 s.h. Preparation for using selected computer software to create professional manuscripts and group presentations, and to manage data from clinical projects; includes Microsoft Word, SuperPaint, Alden Persuasion, End note, Hypercard, Microphone, 4th Dimension. Open only to College of Nursing students, registered nurses or others with consent of instructor.

96:90 Professional Nursing: An Overview 3 s.h. Practice of nursing and the values, norms, perceptions of the discipline of nursing as a career development process. Prerequisite: competence in computer use.

96:120 Pathology 4 s.h. Common gastrointestinal, psychological disorders of humans; emphasis on changes that occur in the human organism during illness and the methods used to correct these changes. Prerequisites: completion of all courses required prior to 96:121.

96:121 Foundations of Nursing Practice 4.7 s.h. Emphasis on nursing role; dimensions of health, professional nursing practice; application of the nursing process with emphasis on assessment. Prerequisite for 7 s.h.: admission to College of Nursing. Prerequisite for 4.7 s.h.: 96:120; R.N. students: admission to College of Nursing. R.N. licensure in Iowa, 96:30-96:120, and requirements of declared articulation option. Prerequisite: completion of 4 s.h. (R.N. students): 96:90.

96:122 Clinical and Technological Nursing Skills 2 s.h. Scientific principles, applications of basic clinical and technological nursing skills. Open only to College of Nursing students. Corequisite: 96:121.


96:132 Nursing Practice in Acute Illness 7 s.h. Physiological, psychological, and social concepts and interventions of the critically ill hospitalized patient; provides the opportunity to practice the professional nurse role in this setting. Prerequisites: 96:120 and 96:121.

96:133 Nursing Practice in Chronic Illness 7 s.h. Physiological and psychosocial concepts and interventions for individuals and families with long-term health problems; opportunity to practice the professional nurse role in long-term health care settings. Prerequisite: 96:132. Pre or corequisite: 71:132.


96:144 Nursing Practice in Health Promotion 7 s.h. Theories, concepts of disease prevention, health promotion; opportunity to practice the professional nurse role in the organization that supports programs and services for individuals, families, groups, communities. Prerequisites: 96:133 and 71:132.

96:145 Leadership, Management and Research in Nursing Practice 1-3,5,7-8 s.h. Concepts, theories, skills; application of knowledge and skills in practice setting; self-appraisal of competence, career aspirations, professional accountability. Prerequisite: 96:144. Prerequisite for R.N. students: 96:142.

96:146 Historical philosophical, and Social Foundations of Nursing 3 s.h. Relationship of professional values, ethics, historical and legal factors in current nursing and health care issues, trends. Prerequisite: 96:144 or consent of instructor. Pre- or corequisite for R.N. students: 96:142.

Primarily for Graduates

Courses are offered only if minimum enrollments are maintained.

96:203 Theory Development and Research Methods 3 s.h. Evolution of nursing knowledge and research; concepts, theories from nursing and related disciplines; contributions of taxonomy development to nursing science. Prerequisite: graduate level statistics course.

96:204 leadership in Nursing: Theory and Application 3 s.h. Concepts, theories, research find in relation to leadership, behavior; characteristics of groups, organizations; interactive variables, functional relationships of leadership, characteristics of leaders, followers; applications to nursing and health care situations.

96:205 Methods and Utilization of Nursing Research 3 s.h. Reminds of the research process, utilization of nursing research, obtaining support for research. Prerequisite: 96:203.

96:212 Health Care Economics and Public Policy 3 s.h. Principles of macroeconomic theory applied to analysis of health care system components; clinicians’ and nursing administrators’ concerns addressed within an economic framework; public policy making process applied to health care.

96:220 Concepts of primary Health Care in Nursing 3 s.h. Application of nursing process in delivery of primary health care to a target population; physiopsychical, life-span perspective, multidisciplinary, interdisciplinary, focus on development and management of physical assessment and data collection skills, primary health care concepts, ambulatory health care systems, management of selected health concerns. Prerequisites: 96:203, 96:204, one child health specialisation course, and at least six months’ clinical experience as an R.N.

96:222 Nursing of Children: Health Promotion 4 s.h. Expansion of knowledge, skills in assessing health, formulating nursing diagnoses relating to health; planning, implementing, evaluating nursing interventions designed to promote health of children, their families. Prerequisite: 96:203.

96:223 Nursing of Children: Responses to Illness 4 s.h. Expansion of knowledge, skills in assessment, diagnosis, intervention, evacuation of responses to illness. Prerequisite: 96:203.

96:224 Applications of Primary Health Care Concepts in Children and Adolescents 3 s.h. Development of knowledge, skills in health promotion, maintenance in clinical settings; participation in delivery of primary health care. Prerequisite: 96:220. Same as 70:201.

96:226 Nursing of Adults: Health Promotion 4 s.h. Expansion of knowledge, skills in assessing health; formulating nursing diagnoses; planning implementing, evacuating nursing interventions to maintain, promote, optimize health of adult clients; development of functional assessment applied to analysis of major health concepts, interventions. Prerequisite: 96:203.

96:231 Nursing of Older Adults: Response to Illness 4 s.h. Assessment, diagnosis, intervention, evaluation of older adult clients’ responses to illness; major illness concepts, interventions arising from actual or potential alterations within illness. Prerequisite: 96:230.

96:234 Foundations: Advanced Community Health and Nursing Practice 4 s.h. Community health nursing and public health conceptual models that promote aggregate, population-focused practice; health promotion, disease prevention concepts. Prerequisite: 96:203.

96:235 Advanced Community Health in Nursing Practice 4 s.h. Continuation of 96:234 through development, testing of nursing interventions, outcomes for aggregates, communities; framework of health promotion and disease prevention concepts, national health policy documents. Prerequisite: 96:234 or consent of instructor.

96:246 Nursing Education: Process, Roles, and Strategies 3 s.h. Role of nurse educator through study of teaching/learning; learning tasks of students in nursing education programs. Offered fall semesters of even years. Prerequisite: 96:203. Pre- or corequisite: 96:204.

96:247 Curriculum Development in Nursing Education 3 s.h. Curriculum development; curriculum design; applications of components in basic nursing education programs. Offered fall semesters of even years. Prerequisite: 96:246.


96:262 Nursing Administration Seminar 2 s.h. Current issues, applications; focus on emerging administrative concerns, including product-line management, information management systems, policy concerns. Open only to nurse manager students. Prerequisite: 8 s.h. of support courses in administration. Pre- or corequisite: 96:261.

96:263 Introduction to Nursing Information and Technology 3 s.h. Effective, efficient use of technological innovations, including computerized information, for making practice decisions in advanced nursing roles.

96:266 Advanced Clinical Practice I 3 s.h. Analysis of nurses’ roles, provision of care to clients in students’ clinical interest area. Prerequisites: 96:204 and a specialization course.

96:269 Advanced Clinical Practice II 3 s.h. Continuation of 96:268. Prerequisites: 96:268 and two specialization course.

96:278 Master’s Project arr.

For Doctoral Candidates

Open only to doctoral students, except 96:440, 96:490, 96:491.

96:300 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.

96:310 Nursing and Health Information Systems 3 s.h.
Computers in nursing tools to assess computer resources; computer information systems, systems theory and analysis, nursing applications.

96:320 Economics of Health Care and Nursing 3 s.h.
Economic principles: demand, supply for health manpower; insurance; costs, financing of health care services; contemporary hospital structures, organization; role of government.

96:330 Nursing’s Role in Health Care Policy 3 s.h.
Impact of federal policy on nurses, nurse manpower projections, trends in hospital nursing challenges of long term care, frontiers of nursing practice, strategies for increasing nurses’ autonomy, federal nursing priorities.

96:340 Nursing Theory Construction I 3 s.h.
Foundation of theory for professional practice; history, philosophy, sociology of science; development of a scientific community in nursing, relationship between theory, construction, research; methods for generating specific theories.

96:341 Nursing Theory Construction II 3 s.h.
Generation, testing, reformulation of theory for professional practice; focus on legal, ethical, political forces that shape and influence research, scholarship; how research and scholarship contribute to society.

96:410 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.

96:420 Geriatric Mental Health Research 3 s.h.
Analysis, evaluation; emphasis on program evaluation, geriatric mental health services research, methodological issues.

96:430 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.

96:440 Research Utilization Residence in Care of the Elderly 3 s.h.
Project based on relevant gerontological nursing research. Prerequisites: two of 96:410, 96:420, 96:430.

96:450 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.

96:451 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: 96:450 or consent of instructor.

96:460 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 for high risk populations.

96:460 Residency in Nursing Service Administration 3 s.h.
Participation in on going investigative team as staff instructor. Prerequisite: 96:490. Consent of adviser required.

96:491 Research Practicum 0 s.h.
Continuation of research practicum. Prerequisite: 96:490. Consent of adviser required.

96:497 Dissertation Research Seminar Research Application and Advanced Design 0 s.h.

96:499 Dissertation Research arr.

Electives

The current Schedule of Courses lists nursing electives being offered. Courses vary from semester to semester.

96:12 Human Sexuality 1-3 s.h.
Physiological, psychological aspects. same as 42:112, 7C:112.

96:166 Loss and Death in Clinical Nursing Practice 3 s.h.
Prerequisite: 96:144.

96:129 Introduction to Gerontology 2-3 s.h.
Concept of aging; emphasis on theories, resources, challenges of aging implications for nursing practice; interdisciplinary approach; senior standing or consent of instructor required.

96:130 Normative and Psychosocial Aspects of Aging 3 s.h.
Geriatric mental health; focus on normative, psychopathological aspects of adult aging.

96:131 Psychological and Biological Aspects Of Aging 3 s.h.
Common problems of aging in context of biological, psychological function in later life; emphasis on differentiating between normal, disease, related changes; common adaptive and maladaptive coping, compensatory mechanisms. Prerequisites: introductory course in biology and psychology or consent of instructor; and 34:130 or 42:184 or 96:129.

96:137 Nursing Care of the Patient in Pain 3 s.h.
Focus on assessment pharmacological and non-pharmaceutical nursing intervention, evaluation of acute, chronic, malignant pain. Prerequisite: 96:132 or R.N. student status.

96:148 Summer Clinical Internship 1-3 s.h.
Opportunity for high-achieving undergraduates to enhance clinical skills, work closely with faculty member and preceptor. Prerequisite: three semesters of clinical nursing comes and 3:00 grade-point average in clinical nursing.

96:149 Undergraduate Compensatory independent Study 0 s.h.
Additional skill building for undergraduates.

96:150 independent Study arr.
Study and/or clinical practice.

96:151 Honors independent Study 1-3 s.h.
Project or experience related to the course objectives of a required nursing course. May be repeated. Open only to students in undergraduate honors program.

96:152 Honors Seminars 1 s.h.
Humanities, social and biological sciences topics related to nursing; contemporary issues that affect nursing practice. May be repeated. Open only to students in undergraduate honors program.

Human tissues, types, subcellular organelles, their identification and functions; processes common to normal human cells; necessary components of human, gill, environment; cellular defense mechanisms. Offered fall semesters of odd years. Prerequisite: 96:121 or consent of instructor.

96:162 Human Structure and Function-A Systemic Approach 4 s.h.
Structure, function, organization of human neural, hormonal control and communication systems; relationships between functions, structures (gross, microscopic) of organs; mechanisms for regulation of organ functions. Offered fall semesters of even years. Prerequisite: 96:121 or consent of instructor.

96:165 Applied Genetics for Health Care Professionals 2-3 s.h.
*Genetics in health, illness; human genetic principles, their application, their application to health care policy. Pre- or corequisite: 96:144 or R.N. student status or consent of instructor.

96:172 Health and Cultural Diversity 3 s.h.
Health, illness in cross-cultural perspective. Offered spring semesters of even years; prerequisite: 113:1 or 113:101 or 96:132 or consent of instructor. Same as 113:108.

96:174 Transcultural Mental Health 3 s.h.
Cross-cultural perspectives on mental health, illness; expected behavioral patterns for developmental ages in various cultures, deviance from these patterns. Offered spring semesters of odd years. Prerequisite: 96:132 or junior standing in anthropology or consent of instructor. Same as 1:13:107.

96:175 Issues in International Nursing and Health Care 3 s.h.
Seminars provide American and international students opportunity to investigate and compare issues in nursing.

96:182 Financial Management for the Nurse Manager 3 s.h.
Basic concepts; projecting and monitoring budgets, statistics used in formulating and supporting budgets, writing proposals using statistical and financial data.

96:183 Community Health Nursing as a Field of Practice 3 s.h.
The field of practice in community health from viewpoint of public health science and nursing; concepts of epidemiology, client advocacy, prevention, holistic health in relation to individuals, families, aggregates; legal authority and social policy issues pertaining to community health care. Open only to R.N. license holders.

96:184 Management and Supervision in Community Health Nursing 3 s.h.
Management concepts of organization, power, change, conflict, authority, accountability; organization, communication management leadership theories applied to the role of manager in community health nursing; decision-making strategies incorporated in planning implementing evaluating programs of care in community health nursing. Open only to R.N. license holders.

96:185 Nursing Practice in the Workplace 3 s.h.
Scope of occupational health nursing; focus on concepts of epidemiology; health promotion, prevention of health hazards in workplace; legal, ethical, social issues of occupational environment.

96:186 Seminar in Oncology Nursing 3 s.h.
Care of client living with cancer diagnostic, nursing process, expanded content of pathophysiology, care of clients in acute and chronic phases; oncologic emergencies, issues, trends; care of the cancer giver; advanced concepts based on the oncology Nursing Society standards of care. Open only to R.N.’s currently practicing or experienced in care of cancer clients, or to other with consent of instructor.

96:187 Technology and Clinical Application for Nursing 3 s.h.
Current evolution of technology; societal, professional expectations compared to professional nursing practice; usefulness of devices. Prerequisite: 96:132 or R.N. license or consent of instructor.

96:188 Advanced Technological Nursing Applications 3 s.h.
Content and application of clinical, technological nursing skills; physiological concepts related to critically ill patient, with focus on complex multi-system involvement, implications for nursing care. Prerequisite: 96:132 or registered nurse or consent of instructor.

96:216 Group leadership in Human Sexuality 0-3 s.h.
Emphasis on role of group leader; method of teaching-didactic presentation, discussion, group expedience, practice application. same as 7C:216, 42:216.

96:230 Independent Study arr.
Supervised study and/or clinical practice adjusted to needs of master’s degree students. Open only to master’s students.

96:496 Independent Study arr.
Supervised study adjusted to needs of doctoral degree students. Open only to doctoral students.
Dean: Gilbert S. Banker
Associate dean, professional programs:
Lloyd E. Matheson
Director, pharmaceutical service: Rotland I. Poust
Director, Iowa Drug information Service:
Hazel H. Seaba
Head, medicinal and natural products chemistry:
John P. Rosazza
Head, pharmaceutics: Ronald D. Schoenwald
Head, clinical and administrative pharmacy:
Joseph M. Scavone


Professors emeriti: David P. Carew, Dale E. Wurster

Clinical professor James A. Ponto

Associate professors: Mary J. Berg, Ting-Fong Chin, Douglas R. Flanagan, Jr., Lloyd E. Mathesom, Gary Milavetz, Bernard A. Sorofman, Thomas N. Taylor, Dale Eric Wurster

Adjunct associate professors: Karen A. Baker, Robert W. Dick, Mark E. Jones, Alan H. Mutnick

Clinical associate professors: Bruce Alexander, Hazel M. Seaba

Assistant professors: Harold J. Black, Stephen R. Campion, Maureen D. Donovan, Douglas R. Geraets, Randall A. McCoy, David I. Min, Saleem E. Noormohamed, Mary E. Teresi, Jean M.B. Woodward


Clinical assistant professors: Ruth Ann Calloway, Jay D. Currie, Sandra J. Johnson, Vijay Kumar, Jan C. Wenger

Adjunct instructors: David H. Bernhard, Randy W. Burden, Charles S. Dayton, Carl E. Hensley, Warren A. Knarr, Mary J. Stamy


Degrees: B. S.Ph.; Pharm.D.; M.S., Ph.D. in Pharmacy
Pharmacists are specialists in the science of drugs. They must understand drug composition, biochemical, biological, chemical, physical properties; manufacture and uses; and activity in normal individuals as well as in ill patients. They must be familiar with tests for strength, purity, and efficacy of drug products. Pharmacists compound and dispense prescriptions written by health practitioners, who rely on pharmacists for information about the availability, activity, toxicology, and contraindications of various drugs. Pharmacists also communicate knowledge of drugs to patients and to other health professionals and, in general, serve the community as a prime source of information on health topics.

Nearly everyone is familiar with the community pharmacist and the pharmacy in which he or she practices. The size and type of practice may vary—community pharmacies may be large or small, operated by individuals or by corporations. The pharmacists who staff these pharmacies make up the majority of practitioners. More than 125,000 men and women practice in community pharmacies. Approximately 45,000 pharmacists are employed in hospital pharmacy practice. In this setting, they work closely with other members of the health care professions. Some work in government agencies such as the U.S. Public Health Service, Veterans Affairs, Food and Drug Administration, and the armed forces. Pharmacists serve as commissioned officers in the military services as well as the U.S. Public Health Service.

Many pharmacists assume administrative positions in industry, including manufacturing, research and development, control, marketing, and advertising. Many are employed in pharmaceutical sales as medical service representatives. Pharmacy training is especially valuable to these men and women, who are responsible for acquainting physicians, dentists, veterinarians, and other pharmacists with drug products. The educational background of pharmacists provides an opportunity for employment in many fields not commonly associated with pharmacy.

In the United States, more people are in need of health care than ever before, and the demand for pharmacists continues to expand. Young pharmacists will face new challenges, expanded responsibilities, and an ever-increasing growth in opportunities.

Doctor of Pharmacy (Pharm.D.)

Students enroll in pharmacy in the Doctor of Pharmacy program. They receive professional education in a number of areas, including pharmaceutical technology, biopharmaceutics, medicinal chemistry and natural products, pharmaceutical socioeconomic, and clinical and hospital pharmacy. Aspects of biotechnology are a common part of pharmacy education.

The Doctor of Pharmacy program in pharmacy consists of one year of prepharmacy study, taken in the College of Liberal Arts at The University of Iowa or at any accredited community or liberal arts college, and five years of pharmacy studies in the College of Pharmacy. The University of Iowa College of Pharmacy is accredited by the American Council on Pharmaceutical Education. Graduates of the college are qualified to take the national licensure examination given by the Iowa Board of Pharmacy Examiners.

Graduation from the Doctor of Pharmacy program in pharmacy requires satisfactory completion of the required courses, 20 semester hours of general education electives, and a pharmacy grade-point average and a total cumulative grade-point average of at least 2.00.

Rules and regulations concerning academic probation, pass/no pass, 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 in the current Schedule of Courses and the Handbook for Pharmacy Students.

Honors
The honors program gives students an opportunity to interact as part of a small group with leading professors and scientists from all areas of the University. In their P3 year, students in the upper 20 percent of their class may enroll in the Honors Seminar, a series of weekly discussions on topics from the humanities, the sciences, law, and the social sciences.

Honors students may elect to prepare a major paper or carry out a research project of limited scope during their P4 year. Satisfactory completion of the project certifies them as having completed the College of Pharmacy Honors Program.

Admission
The college-level course work outlined below is the minimum academic requirement for admission to the College of Pharmacy. Fulfillment of these requirements does not ensure admission to the college. The college admission committee selects the best qualified applicants. Questions concerning satisfaction of degree requirements should be directed to the associate dean for professional programs.

Preprofessional Course Work

Rhetoric: 8 semester hours, or 6 semester hours of transfer credit in English composition and rhetoric, and 2 semester hours in speech.

General biology: the first 4 semester hour course (2:10) of a two semester sequence.

General chemistry: 8 semester hours.

Mathematics: 3–4 semester hours of a satisfactory differential and integral calculus course.

Physics: may be satisfied with one year of high school physics.

General education electives: at least 6 semester hours. Each student must complete 20 semester hours of general education courses to meet graduation requirements. These elected courses should be in the behavioral, social, and humanistic areas of knowledge. Some courses in the College of Business Administration also may satisfy General Education Requirements.

Transfer Students

Students who plan to obtain their prepharmacy education at another college or university before transferring to The University of Iowa should consult the associate dean for professional programs before beginning the prepharmacy year. It is imperative that transfer students have completed an approved two-semester biology course.

Students who want to satisfy required or elective credit at other institutions must have consent of the associate dean for professional programs before enrolling in such courses.

A minimum grade of C is required for work applied for transfer toward the pharmacy degree.

Professional Curriculum

Undergraduates must be enrolled in the College of Pharmacy before they may take College of Pharmacy courses. Graduate students in other majors may take College of Pharmacy courses with consent of the associate dean for professional programs.

**In addition to the required courses in the curriculum, students must complete 20 semester hours of general education courses. These elected courses should be in the behavioral, social, and humanistic areas of knowledge.

FIRST YEAR

<table>
<thead>
<tr>
<th>First Semester</th>
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<tr>
<td>2:11 Principles of Biology II</td>
<td>4 s.h.</td>
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<tr>
<td>4:121 Organic Chemistry I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>46.49 Introduction to Pharmaceutical Care</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>60:1 Principles of Human Anatomy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Communications course</td>
<td>3 s.h.</td>
</tr>
<tr>
<td><strong>General education elective</strong></td>
<td>3 s.h.</td>
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Second Semester

| 4:122 Organic Chemistry II | 3 s.h. |
| 4:141 Organic Chemistry Laboratory | 3 s.h. |
| 46:22 Pharmaceutical Socioeconomics: Health Care Systems | 4 s.h. |
| 46:50 Introduction to Pharmaceutical Sciences | 3 s.h. |
| **General education electives** | 5 s.h. |

SECOND YEAR

First Semester

| 46:35 Pharmaceutical Socioeconomics: Pharmacy Practice Management | 3 s.h. |
| 46:70 Pharmacy Math | 3 s.h. |
| 46:123 Pharmaceutical Technology: Solids | 4 s.h. |
| 61:1 12 Health Sciences Microbiology | 4 s.h. |
| 99:162 Biochemistry for Pharmacy Students | 4 s.h. |
Postbaccalaureate Doctor of Pharmacy (Pharm.D.)

This program is a two-year, postbaccalaureate professional degree program that combines didactic course work and clinical clerkship. The program is accredited by the American Council on Pharmaceutical Education. The major goal of the program is to provide the health care system with pharmacists who are specifically prepared to undertake an extended role in monitoring, evaluating, and optimizing drug therapy in hospitalized and ambulatory patients. This program is available to a limited number of highly qualified pharmacy graduates.

Prospective students may obtain specific information on the postbaccalaureate program by writing to College of Pharmacy.

Facilities

The Pharmacy Building is located in the health center complex on the University’s main campus, in close proximity to the Colleges of Medicine, Nursing, and Dentistry. The University of Iowa Hospitals and Clinics, the Bowen Science Building, and the Hardin Library for the Health Sciences also are nearby.

The building is a five-story structure designed to provide modern facilities for a comprehensive program of pharmacy education. In addition to classrooms and an auditorium, there are well-equipped separate laboratories for instruction at the undergraduate and graduate levels. An addition to the building will be completed by 1996.

The building also houses the Learning Resource Center (LRC), with current texts and periodicals useful to undergraduate and graduate pharmacy students. The LRC has computer terminals available to students and provides on-line computer searches for pharmacy students and faculty.

The Pharmaceutical Service Division of the college serves as a teaching unit as well as a service division. Here, undergraduate and graduate students learn methods of large-scale pharmaceutical product development and production. The division’s state-of-the-art equipment and its licensure by the U.S. Food and Drug Administration make it an outstanding facility.

The Iowa Drug Information Service (IDIS) also is a service division of the college. IDIS serves as a central repository and distribution center of specialized information related to drugs and drug therapy. IDIS not only reaches subscribers throughout the world but plays an important educational role for undergraduate and graduate pharmacy students as well.

In the clinical pharmacy program, students work with other health professionals and have the opportunity to monitor drug therapy in hospitalized and nonhospitalized patients under the supervision of clinical instructors in pharmacy, medicine, and dentistry. The various clerkships/externships in which students are enrolled include many areas of The University of Iowa Hospitals and Clinics; the College of Dentistry; the Veterans Affairs Medical Center; the family practice centers at Iowa City, Cedar Rapids, and Davenport; Iowa City Mercy

Graduation

Graduation from the College of Pharmacy with the Doctor of Pharmacy degree requires completion of all required courses plus 20 semester hours of general education electives. In order to graduate, students must earn a pharmacy and a total cumulative grade-point average of at least 2.00. The pharmacy grade-point average is computed from the grades earned in all of the specifically required courses that students have completed while enrolled in the College of Pharmacy.

Graduate Programs

The college has graduate programs in each of its three academic divisions. Master of Science and Doctor of Philosophy programs are available in pharmaceutics, medicinal and natural products chemistry, and clinical and administrative pharmacy.

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 a number of health-related institutions and organizations.

The application deadlines, grade-point average for admission, Graduate Record Examination (CRE) Aptitude Test scores, and necessary letter of recommendation are the same as those for the Graduate College. Academic requirements for maintaining graduate registration are determined by individual divisions of the College of Pharmacy.
Hospital; Mercy and St. Luke’s hospitals in Cedar Rapids; Covenant Medical Center in Waterloo; the Burlington Medical Center in Burlington; St. Joseph’s Mercy Hospital in Mason City; the Marian Health Center and St. Luke’s Hospital in Sioux City; Mary Greeley Hospital in Ames; St. Luke’s and Mercy hospitals in Davenport; Mercy Health Center in Dubuque; Ottumwa Regional Health Center in Ottumwa; the Indian Health Service hospitals in Arizona and New Mexico; St. Mary’s Hospital in Streator, Illinois; some pharmaceutical companies; and numerous selected community pharmacies.

Courses

For Doctor of Pharmacy Students

Pharmaceutics

46:50 Introduction to Pharmaceutical Sciences 3 s.h.
Basic problem solving; dosage forms; equilibrium, kinetic properties of pharmaceutical systems, influence of chemical structure on these properties. Open only to first-year pharmacy students.

46:55 Career Options 1 s.h.
Practic and non-practice opportunities available to pharmacy graduates.

46:56 Non-Description Drugs 2 s.h.
Consumer-oriented information about nonprescription drugs and other pharmaceutically active substances. Not open to nonpharmacy freshmen.

46:79 Pharmacy Math 3 s.h.
Application of systems of weights and measures and mathematical calculations involved in pharmaceutical procedures and practices; statistics, its application to pharmaceutical problems.

46:123 Pharmaceutical Technology: Solids 4 s.h.
Properties of solids; formulation, preparation, evaluation of solid dosage forms. Prerequisite: 46:122.

46:124 Pharmaceutical Technology: Solutions 4 s.h.
Application of physical, chemical laws to formulation, preparation of liquid dosage forms, including solution, colloids, emulsions. Prerequisites: 46:122 and 46:123.

46:138 Introduction to Pharmacokinetics 3 s.h.
Quantitative, descriptive kinetics of drug absorption, distribution, elimination, including physiological factors that influence each process; adjustment of dosing regimens for optimizing therapeutic drug levels in the body. Prerequisite: 46:122 and 71:101.

46:143 Professional Practice 4 s.h.
Extemporaneous dispensing, compounding, dispensing of medications, use of computers, intravenous admixture; development of communication skills necessary for delivery of pharmaceutical care.

46:145 Therapeutic and Diagnostic Systems 2 s.h.
Design, selection, use of traditional and novel dosage forms; applications of physical pharmacy and biopharmaceutical principles to dosage form performance; diagnostics and mechanical delivery systems. Corequisite: 46:143 or consent of instructor.

46:128 Medicinal and Natural Products Chemistry I: Biotechnology and Chemistry 5 s.h.
First of a three-semester sequence; lectures on 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; detoxification mechanisms; functional group chemistry; nomenclature; chemistry of radiodiagnostics and therapeutic agents; introduction to biopharmaceutical analysis. Prerequisites: 46:122, 99:162, or equivalent; and 61:112 or equivalent.

46:131 Medicinal and Natural Products Chemistry II: Pharmacodynamic Agents 5 s.h.
Continuation of 46:128, which is prerequisite.

46:132 Medicinal and Natural Products Chemistry III: Medicinal Neurochemistry 5 s.h.
Continuation of 46:131, which is prerequisite.

46:135 Perspectives in MCNP Research 1 s.h.
Contemporary research in medicinal chemistry and natural Products.

Clinical and Administrative Pharmacy

46:22 Pharmaceutical Socioeconomics: Health Care Systems 4 s.h.
Overview of the U.S. health care delivery system, with emphasis on socioeconomic and political factors affecting health care delivery; the role of pharmacy and the pharmaceutical industry.

46:35 Pharmaceutical Socioeconomics: Pharmacy Management 3 s.h.
Prerequisites: 46:128 and consent of instructor necessary for good management of human and financial resources in pharmaceutical organizations; case study approach permits student to apply principles to real life situations.

46:49 Intro to Pharmaceutical Care 2 s.h.
Patient, centered care; patient communication, information retrieval and analysis, clinical problem-solving skills. Open only to first-year Pharmacy students.

46:59 Hospital Pharmacy Extensity 4 s.h.
Instruction and practice experience in various components of hospital pharmacy; numerous sites available; emphasis on hospital organization, inpatient and outpatient services, IV additives, unit dose, clinical services. P4 standing and consent of instructor required.

46:60 Community Pharmacy Extensity 4 s.h.
Conducted primarily in community pharmacies; emphasis on communications skills with practitioners and didactic education in nonprescription drug use. P4 standing and consent of instructor required.

46:61 Drug Information 3 s.h.
Application of information resources and drug literature evaluation. Pre- or corequisite: 46:111.

46:80 Medicine Clerkship 4 s.h.
Application of therapeutic skills necessary for the pharmaceutic management of patients in general practice or the specialties. P4 standing and consent of instructor required.

46:81 Family practice Clerkship 4 s.h.
Primary care therapeutic experience in family practice offices. P4 standing and consent of instructor required.

46:82 Pediatrics Clerkship 4 s.h.
Clinical experience in Pediatrics; emphasis on the subspecialties of allergy or clinical pharmacology. P4 standing and consent of instructor required.

46:83 Pharmacotherapy Clerkship 4 s.h.
Instruction in the clinical applications of pharmacokinetics using an institutionalized pharmacokinetics service. P4 standing and consent of instructor required.

46:84 Psychiatry Clerkship 4 s.h.
Lecture and laboratory course on rational use of psychiatric drugs in treatment of psychiatric disorders. P4 standing and consent of instructor required.

46:85 Neurology Clerkship 4 s.h.
Pharmacotherapeutic and pathophysiologic considerations of neurology clinical pharmacy practice. P4 standing and consent of instructor required.

46:86 Surgery clerkship 4 s.h.
Lectures and clinical practice experience in pharmacotherapeutics on a general surgery unit. P4 standing and consent of instructor required.

46:87 Clinical Nuclear Pharmacy clerkship 4 s.h.
Pharmacological basis for design, chemistry, preparation, quality control, and clinical application of radiopharmaceuticals. P4 standing and consent of instructor required.

46:88 Dental College Clerkship 4 s.h.
Frequent patient contact in specialty areas, including periodontics, oral pathology, and the frail elderly clinic; readings and lectures on antimicrobial, corticosteroids, lab tests, control, anesthesia. P4 standing and consent of instructor required.

46:89 Elective Clerkship 4 s.h.
Selected rotations in health care facilities. Maybe repeated. P4 standing and consent of instructor required.

46:102 Pharmacy Honors Seminar 1 s.h.
Scientific, philosophical, economic, ethical issues of importance to the practice of pharmacy.

46:109 Computer Applications in Pharmacy 2 s.h.

46:111 Therapeutics II 4 s.h.

46:120 Pharmaceutical Care Systems 3 s.h.
Principles of social and administrative pharmacy applied to systems of drug use evaluation, cost effectiveness analyses, patient behavior.

46:125 Pharmacotherapy I 4 s.h.

46:126 Pharmacotherapy II 4 s.h.
Continuation of 46:125, which is prerequisite.

46:136 Physical Assessment 1 s.h.
Skills in assessment of health. Prerequisite: 46:126.

46:141 Jurisprudence 2 s.h.
Overview of legal systems in the United States, with emphasis on contracts, torts, related areas of civil law; in depth study of federal food, drug, and cosmetic law, and of federal laws regulating narcotics and other dangerous drugs; discussion of state and federal laws regulating pharmacy practice and drug distribution.

46:147 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. Preference given to students who have had introductory statistics. Consent of instructor required.

46:154 Communications Skills for Pharmacists 3 s.h.
Elective; basic concepts and processes for effective communication between pharmacies and patients. P3 standing and consent of instructor required.

46:160 Advanced Problems in Pharmaceutical Socioeconomics 1-4 s.h.
Independent study of problems in pharmaceutical Socioeconomics, under supervision of a faculty member; data collection and literature review.

46:161 Drug Information Clerkship arr.
Drug information knowledge applied to service and research projects. Pharm.D. standing and consent of instructor required.

46:165 Pharmacotherapy III 4 s.h.
Continuation of 46:162, which is prerequisite.

46:166 Pharmacotherapy IV 5 s.h.
Continuation of 46:165, which is prerequisite.

46:179 Community Pharmacy Clerkship 4 s.h.
Delivery of pharmaceutical care in ambulatory primary care environment. Prerequisite: all required didactic courses.

46:195 Clinical Professional skills 1-2 s.h.
Topics vary.

For Graduate Students

Pharmaceutics

46:101 Pharmacy Projects 1-3 s.h.
Basic and applied research problems of pharmaceutical interest.

46:105 Industrial Pharmacy Survey 2-3 s.h.
Organization and unit operations as production of pharmaceuticals. Prerequisite: 46:124.

46:148 Pharmacokinetics and Biopharmaceutics 3 s.h.
Kinetics of drug absorption, distribution, elimination, including development of mathematical models. Prerequisites: two semesters of calculus and one semester of statistics or consent of instructor.

46:157 Quantitative Research Methods in Pharmacy 3 s.h.
Lecture and laboratory; collection and interpretation of analytical data; instrumental analysis as applied to pharmaceutical quality control; separation techniques.

46:202 Pharmacy: Selected Topics 1-4 s.h.
Recent advances and contemporary research in pharmaceutics. May be repeated.
46:206 Stability of Pharmaceuticals 3 s.h.
Mechanisms of degradation of pharmaceuticals; prediction of shelf life of pharmaceuticals, stabilization. Prerequisite: 4:132.

46:207 Polymers in Pharmaceuticals 3 s.h.
Polymer science, its implications in pharmaceuticals; polymers useful as excipients in design of controlled and sustained release products.

46:225 Product Development 3 s.h.
Application of physical-chemical principles to formulation and design of pharmaceutical dosage forms.

46:226 Product Development Continuation of 46:225 3 s.h.

46:229 Advanced Pharmacokinetics and Pharmacodynamics 2 s.h.
Advanced treatment of selected topics in pharmacokinetics and biopharmaceutics, including nonlinear curve fittings. Prerequisite: 46:148.

46:217 Medicinal and Natural Products Chemistry Research arr.

46:233 Pharmacy Research arr.

46:235 Equilibria processes 3 s.h.
Equilibria pertaining to ionic systems, complexation, partitioning and volatility. Prerequisite: 4:131.

46:236 Surface Phenomena 3 s.h.
Behavior of matter in phase boundaries, especially adsorptive processes at liquid-solid and vapor solid interfaces. Prerequisite: 4:131.

46:237 Transport Phenomena 3 s.h.
Diffusion and mass transport phenomena related to pharmaceutical systems. Prerequisite: 4:131.

46:147 Enzymatic Basis of Drug Metabolism 2 s.h.
Current literature on catalytic and physical properties, distribution, and substrate specificity of enzymes involved in mammalian drug metabolism. Prerequisites: 4:122 and W:162, or consent of instructor.

46:150 Synthetic Strategy in Medicinal Chemistry 3 s.h.
Lectures, assigned readings, and discussion of special relevance to medicinal chemistry and drug design. Prerequisites: 4:122 and 46:132.

46:151 Peptide and Peptidomimetic Drug Design 2 s.h.
Chemical nature, conformation, synthesis of peptides, inhibition of synthesis of mammalian importance: computational methods of inhibitor design, examples from current literature; stability of peptides. Prerequisite: 46:132 (MCNP III: Medicinal Neurochemistry) or consent of instructor.

46:155 Molecular Modeling Techniques I 2 s.h.
Model building, conformational optimization, biopolymer building, conformational analysis techniques; preparation for using molecular modeling techniques as part of research project. Consent of instructor required. Same as 50:150.

46:156 Molecular Modeling Techniques II 2 s.h.
Advanced UNIX, SYBYL Programming Language (SPL), advanced topics in molecular modeling; emphasis on individual projects. Prerequisite: 50:150 or consent of instructor, same as 50:151.

46:205 Stereochemistry and Conformational Analysis 2 s.h.
Basic concepts of conformational analysis; selected recent references; application of this science to design and synthesis of biologically active molecules. Prerequisite: 4:172.

46:206 Medicinal Chemistry of Nucleosides 2 s.h.
Nucleosides and nucleotides, including history, biochemical and chemical synthesis, chemical transformations, mechanism of action, resistance, uses. Consent of instructor required.

46:209 Biopolymetric Drugs 3 s.h.
Drug applications for naturally occurring polymers such as polysaccharides, enzymes, hormones, antibodies, nucleic acids, polysaccharides; topics include synthesis, formation, delivery, pharmacokinetics, metabolism. Prerequisites: 4:122 and W:162, or consent of instructor.

46:211 Heterocycles 3 s.h.
Selected heterocyclic ring systems of medicinal importance; special reference to synthesis, mechanisms, and stereochemistry as related to biochemical effects; primarily from current literature. Prerequisites: 46:205 and 4:172.

46:212 Aspects of Drug Design 3 s.h.
Use of modern concepts of structural chemistry in the rational design and creation of new therapeutic agents; applications of chemical principles to investigation and understanding of molecular level interactions of endogenous and exogenous organic molecules with receptor sites on macromolecules. Consent of instructor required. Prerequisites: 46:205 or 46:132 or equivalent; 71:101 or equivalent; and biochemistry.

46:215 Medicinal Chemistry: Survey 3 s.h.
Current literature on modern theoretical organic chemistry applied to study and understanding of biological phenomena; chemical and stereochemical aspects of autonomic nervous system and the chemical agents that influence it. Prerequisites: 46:132 and 71:101, or consent of instructor.

Continuation of 46:171 and 46:172.

46:180 Medicine Clerkship arr.
Continuation of 46:171.

46:173 Drug-Induced Diseases 2 s.h.
Drug-induced diseases according to affected organ systems.

46:174 Fluid and Electrolyte Therapy 2 s.h.
Theory and application of contemporary fluid and electrolyte metabolism.

46:175 Clinical Investigation 1-3 s.h.
Student participation in clinical investigations under the direction of clinical pharmacy faculty. May be repeated.

46:176 Advanced Therapeutics III 3 s.h.
Continuation of 46:171 and 46:172.

Advanced application of therapeutic skills necessary for the pharmaco/therapeutic management of patients in general medicine or other subspecialties.

46:183 Pharmacokinetics Clerkship arr.
Instruction and preceptor experience in clinical pharmacokinetics using an institutional pharmacokinetics service.
46:184 Psychiatry Clerkship  
Advanced application of clinical pharmacotherapeutics and pharmacokinetic psychopharmacology to the care of inpatient and outpatient psychiatric patients using a consultant role model.

46:185 Neurology Clerkship  
Lecture and advanced clinical practice of pharmacotherapeutics related to neurological diseases.

46:186 Surgery Clerkship  
Advanced application of therapeutic skills necessary for the pharmacotherapeutic management of general surgery patients.

46:187 Clinical Nuclear Pharmacy Clerkship  
Advanced clinical instruction in the uses of radiopharmaceuticals, radiopharmaceutical drug interactions, pharmacological intervention in nuclear medicine studies, radiopharmaceutical drug information.

46:188 Dental College Clerkship  
Advanced clinical experience involving general and local anesthesia, conscious sedation and pain control, rational antibiotic therapy, participation in management of medically compromised patients.

44:189 Pharm.D. Elective Clerkship  
Advanced clinical experience in a nontraditional setting.
Continuing Education

Dean: Emmett J. Vaughan

The Division of Continuing Education was established by special legislation of the General Assembly of Iowa to “render a larger service to the Commonwealth and to the people of Iowa by carrying out to every part of the State the knowledge, the thought, the ideals, and the spirit of several departments and colleges of the University and by bringing the University generally into direct contact with the citizens.”

The division’s organization and services include the following.

Audiovisual Center

Director: William Oglesby

The Audiovisual Center provides consultation, planning, design, production, and marketing of instructional audiovisual materials. Its media production units are the University’s major manufacturers of a broad range of graphic, photographic, and audio materials.

- Graphics Unit: graphs, charts, maps, titles, layouts, posters, illustrations, models, exhibits, and overhead transparencies
  - Photographic Service: black-and-white and color photographs, negatives, two-inch slides, filmstrips, portraits, macrophotographs, many types of specialized photography, and still photographic laboratory services
  - Audio Unit: original audiotape recording (studio and location), tape duplication (open reel and cassette), sound editing, equalizing, mixing, and transfer
  - Multi-image Unit: design and production of single- and multiple-screen slide programs, one to twelve projectors, manual and programmed control, open-reel and cassette sync/sound track

The Audiovisual Center also markets and distributes audiovisual products originated at the University. Nominal royalties are paid to sponsoring University departments and authors.

The center charges most University departments for materials only. For requests funded by grants, charges are made for materials and labor.

Media Services

Director: James Smith

The University Media Library provides at no charge a major collection of 16-mm instructional films and videotapes for on-campus instruction and curriculum-related activities; there is a rental fee for off-campus use. Smaller collections of audiotapes, filmstrips, and slides plus facilities for student or faculty use also are available. Catalogs of these collections are available on request. The library also maintains a reference collection of materials from other sources.

Equipment Services provides the following, for instructional use at no charge: projectors for films, slides, filmstrips, and videos; opaque and overhead projectors; portable projection screens; audiotape recorders; record players; videocassette recorders/players; portable public-address systems; and display devices (exhibits, easels, boards). Repair service is available for audiovisual equipment.

Center for Conferences and Institutes

Acting director: George J. Lapos

The Center for Conferences and Institutes is the University’s principal agency for developing, coordinating, and conducting noncredit continuing education programs for nonresident adults and for administering the Continuing Education Unit (CEU) program. The center’s primary goal is to enhance the University as a center of learning and to provide educational opportunities for people who are not full-time students but who seek new knowledge related to their work or special interests.

Each year more than 20,000 adults participate in the center’s varied programs, which are cooperative endeavors with colleges, departments, and service units of the University. As stated in the University Operations Manual faculty and staff members who plan University conferences must seek approval for those programs from the director of conferences and institutes. The center uses conference facilities, dining services, and lodging accommodations at the Iowa Memorial Union when these facilities are available and appropriate. It also uses facilities in Iowa City and Coralville as well as those located state- and nation-wide. Some programs are presented by satellite television. The center also manages national and international programs for faculty and departments.

Center for Credit Programs

Director: Von V. Pittman

The Center for Credit Programs is responsible for delivering University of Iowa credit courses to part-time students in Iowa City and throughout the state. In cooperation with the University’s colleges and academic departments, the center offers courses through several formats and delivery systems.

Correspondence Courses

More than 180 Guided Correspondence Study courses are available in the Colleges of Liberal Arts, Business Administration, Education, Engineering, Medicine, and Nursing. These courses represent 42 University departments. Students may enroll at any time, and they have nine months in which to complete a course. A catalog of course listings, procedures, and enrollment forms is available from the Guided Correspondence Study office.

Off-Campus Classes

The Center for Credit Programs offers University courses off campus. Classes are scheduled where they best serve off-campus students, at the request of public school officials, and/or where professional, industrial, or other qualified groups express a need for instruction. The center also offers courses through audioconferencing and interactive television. In addition, it provides a variety of telecourses in cooperation with Iowa Public Television.

Enrollment in each course must be sufficient to meet the cost of offering the course. Information is available from the Center for Credit Programs.

Saturday and Evening Classes

The Center for Credit Programs offers University courses on campus at times convenient for nontraditional students. Enrollment in each course must be sufficient to meet the cost of offering the course. A bulletin describing Saturday and evening classes is available from the Center for Credit Programs.

Bachelor of Liberal Studies Degree

The Bachelor of Liberal Studies (B. L. S.) degree is offered by each of the three State Board of Regents universities (The University of Iowa, Iowa State University, and the University of Northern Iowa). It serves adults whose job, family, geographic location, or other personal circumstances prevent them from attending college as full-time, on-campus students. The program has no residence requirement.

Credit applicable toward the degree may be earned through Saturday and evening courses, correspondence and independent study courses, off-campus courses at sites throughout Iowa, televised courses, and daytime on-campus courses.

At The University of Iowa, the B.L.S. is awarded by the College of Liberal Arts and administered by the Division of Continuing Education. For a detailed program description, see “Liberal Studies” in the College of Liberal Arts section of the Catalog.
**Labor Center**

Director: Laurence M. Clements

The Labor Center targets instruction to the specific needs of the labor movement in Iowa. Staff members combine on-campus and off-campus programs to reach as many people as possible.

**Institute of Public Affairs**

Acting director: Tim J. Shields

The institute is the primary research and continuing education link between the University and state, city, and county governments in Iowa. Its services are available to state and local government agencies, to citizen groups interested in civic affairs, and to organizations of public officials, such as the League of Iowa Municipalities and the Iowa State Association of Counties.

The institute provides:

- in-service training and continuing education services to public officials, primarily policy makers and key administrators, with a wide variety of information sources and educational programs aimed at meeting organizational and leadership development needs;

- research services, informational resources, and publications ranging from Iowa public policy studies to handbooks for elected officials in Iowa governments; and

- organizational assistance ranging from advising on city council goal setting, management systems, and quality circles to serving on statewide government committees that deal with major concerns of state and local governments.

**Video Center**

Director: Daniel G. Lind

The University Video Center provides high-quality video services and facilities, including those necessary to sustain and promote research activities. It also coordinates video equipment purchase and inventory and promotes efficient University support of campus video. Toward this end, the center has the personnel and facility resources to help units purchase equipment and supplies and carry out production and post production activities. The center also provides video system design and maintains guidelines for equipment standardization.
Administrative Officers

State Board of Regents
The State Board of Regents 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, as follows.

President: Marvin S. Bernstein, Sioux City
Thomas M. Collins, Cedar Rapids
Thomas C. Dorr, Marcus
Betty Jean Furgerson, Waterloo
Elizabeth D. Hendricks, Cedar Rapids
Melissa L. Johnson-Matthews, Cedar Falls
Owen J. Newlin, Des Moines
Nancy C. Pellett, Atlantic
John E. Tyrrell, Manchester
Executive secretary: R. Wayne Richey

Central Administration
President: Hunter R. Rawlings III
Provost: Peter E. Nathan
Vice president for health sciences: Henri R. Manasse, Jr.
Vice president for research: David J. Skorton
Vice president for university relations: Ann M. Rhodes
Vice president for statewide health services: John W. Colloton

Office of the Provost
Provost: Peter E. Nathan
Dean of students Phillip E. Jones
College of Business Administration
Dean: Gary C. Fethke
College of Education
Dean: Steven R. Yussen
College of Engineering
Dean: Richard K. Miller
Graduate College
Dean: Leslie B. Sims
College of Law
Dean: N. William Hines
College of Liberal Arts
Dean: Judith P. Aikin
Division of Continuing Education
Dean: Emmett J. Vaughan
Libraries
University librarian: Sheila Creth
Museum of Art
Director: Stephen S. Prokopoff
Office of International Education and Services
Director: Stephen M. Arum
Summer Session
Director: Michael McNulty

Research
Vice president: David J. Skorton
Center for Advanced Studies
Director: Jay Semel
Center for Health Services Research
Director: James E. Rohrer
Division of Sponsored Programs
Director: Brian Harvey
Health Protection Office
Director: James C. Walker
Occupational Health Service
Director: Laurence Fuortes
Office of Information Technology
Director: William F. Decker
State Archaeologist
William Green
Technology Innovation Center
Director: W. Bruce Wheaton
University of Iowa Press
Director: Peter E. Nathan
University Veterinarian
Paul S. Cooper
Weeg Computing Center
Director: W. Lee Shope

Student Academic Services
Admissions
Director: Michael Barron
University Registrar
Jerald W. Dallam
Undergraduate Academic Advising Center
Director: Juliet Kaufmann
University Examination and Evaluation Services
Director: Joyce E. Moore

Student Administrative Services
Associate provost: Phillip E. Jones
Campus Programs and Student Activities
Director: David Grady
Iowa Memorial Union
Director: Jean Kendall
Student Disability Services
Coordinator: Donna Chandler
Residence Services
Director: George L. Droll
Special Support Services
Acting director: Sheila K. Vedder
Student Financial Aid
Director: Mark Warner
University Counseling Service
Director: Gerald L. Stone
Women’s Resource and Action Center
Coordinator:

Finance and University Services
Vice president and treasurer: Douglas True
Business manager: Michael J. Finnegan
Director of financial management and budget and university secretary: Douglas M. Young
Controller: Mary J. Beach
Physical Plant
Director: George Klein
Planning and Administrative Services
Director: Richard E. Gibson
Public Safety
Director: William Fuhrmeister
Purchasing
Director: Richard Scharff
Recreational Services
Director: Harry R. Ostrander
University Personnel Services
Director: Marvin J. Lynch

University Relations
Vice president: Ann M. Rhodes
Alumni Association
Director: D. Richard Emerson
Athletic Training Services
Director: Edward T. Crowley
Health Science Relations
Director: Mary Abboud-Kamps
Intercollegiate Athletics for Men
Director: Robert A. Bowisby
Intercollegiate Athletics for Women
Director: Christie H.B. Grant
Old Capitol
Administrator: Bette A. Thompson
Radio Stations WSUI-KSUI
Director: John O. Monick
State Relations
Director: Ted O. Yaneeck
University Relations
Director: Joanne Fritz

Health Sciences Center
Vice president: Henri R. Manasse, Jr.
College of Dentistry
Dean: James H. McLean
College of Medicine
Dean: Robert P. Kelch
College of Nursing
Dean: Geraldene Felton
College of Pharmacy
Dean: Gilbert S. Banker
Regional Child Health Specialty Clinics
Director: Richard P. Nelson
State Hygienic Laboratory
Director: William J. Hausler, Jr.

Student Health Service
Director: Mary L. Khowassah

University Hospitals and Clinics
Director: R. Edward Howell

University Hospital School
Director: Alfred Healy

**General University**

Affirmative Action Affairs
Director: Susan L. Mask

University of Iowa Foundation
President: Darrell D. Wyrick
Alexander, Saramina J., M.B.B.S. Christian Medical School (India) 1965; clinical assistant professor, Internal Medicine, 1979 (1988)
Alfaro, Aixa, B.S. Puerto Rico 1978, Ph.D. Wisconsin (Madison) 1986; assistant professor, Biological Sciences, 1992
Amato, Timothy W., B.A. Victoria 1982, M.S. 1989; clinical assistant professor, Pediatrics, 1992
Andersen, Charles V., B.S. Nebraska 1955, M.A. 1957, Ph.D. Pittsburgh 1962; associate professor, Speech and Language Pathology, 1966 (1968)
Andringa, Dale J., B.A. Calvin 1972, M.D. Iowa 1976; clinical assistant professor, Internal Medicine, 1988
Buck, Robert E., B.S. California (Berkeley) 1939, M.S. 1940, Ph.D. California (Los Angeles) 1942; professor, Geology, 1949
Bucaille, Robert J., B.S. Illinois 1964, M.S. 1966; associate professor, Geology, 1969
Burk, David L., B.S. California 1962, M.S. 1964; professor, Pediatrics, 1969
Burke, Philip F., B.S. Georgia 1978, M.S. 1980; associate professor, Medicine, 1982
Burkholder, B.S. Iowa 1969, M.S. 1971; professor, Mathematics, 1972
Cain, George D., B.S. Sterling 1962, M.S. Purdue 1964, Ph.D. 1968; professor, Biomedical Science, 1967 (1972)
Camou, Ruth Ann, clinical assistant professor, Pharmacy, 1994
Campbell, C., B.S. California (Los Angeles) 1976; associate professor, Physics, 1978 (1979)
Campbell, C., B.S. California 1963; associate professor, Physics, 1967 (1976)
Campbell, F., B.S. California 1978; associate professor, Physics, 1978
Campus Torres, Javier, B.S. California 1971, M.D. Autonomous-Mexico 1975; professor, Anesthesiology 1993
Cate, David E., B.S. Trinity 1954, Ph.D. Kansas 1960; professor, Chemistry, 1961 (1979)
Cates, Dana F., B.S. University of Colorado 1979; associate professor, Religion 1990
Cate, David E., B.S. Trinity 1954, Ph.D. Kansas 1960; professor, Chemistry, 1961 (1979)
Cates, Dana F., B.S. University of Colorado 1979; associate professor, Religion 1990
Caryl, Michael R., B.S. North Carolina State 1975, M.A. Iowa 1982; adjunct instructor, Nursing, 1984
Cazin, John, Jr., B.S. North Carolina 1952, M.S. 1954, Ph.D. 1957; professor, Microbiology, 1957 (1972)
Ceilery, Roger Ivan, B.A. Northern Iowa 1971, M.D. Chicago 1977; clinical assistant professor, Dermatology, 1976 (1979)
Academic Personnel


Downing, Donald T., B.S.C. Western Australia 1951, Ph.D. 1955, professor, Dermatology, 1978

Downing, Donald T., B.S.C. Western Australia 1951, Ph.D. 1955, professor, Dermatology, 1978

Downing, Donald T., B.S.C. Western Australia 1951, Ph.D. 1955, professor, Dermatology, 1978


Dutta, Verna L., B.S. Missouri 1967; clinical instructor, Pharmacy, 1993


Durand-Centeno, Julio, B.A. Liceo de Temuco (Chile) 1933, Ph.D. Chile 1944; professor emeritus, Spanish and Portuguese, 1966 (1985)


Ebert, Dennis A., B.S. Iowa 1973; clinical instructor, Pharmacy, 1976


Eldred, Harold K., B.S. S.M.E. Cairo 1945, M.S.A.E. California Institute of Technology 1948, Ph.D. Iowa 1951; associate professor, Industrial Engineering, 1992


Dy, John William, B.S. Hiram 1968, M.D. SUNY 1972; assistant professor, Family Practice, 1992


Emmons, Marcia A., B.S.N. Iowa 1971; associate instructor, Nursing, 1984


Heckel, Philip H., B.A. Amherst 1960, Ph.D. Rice 1966; professor, Geology, 1971 (1978)
Hoff, Darren B., B.A. Luther 1955, M.A. Western Iowa 1963, Ph.D. Iowa 1970; assistant professor, Geology, 1993
Hoffman, Eric A., B.A. Antioch College 1974, Ph.D. Minnesota 1981; associate professor, Radiology/Physics, 1992
Honold, Judith, B.S.N. Iowa 1965, M.A. 1967; assistant professor, Nursing 1982
Hoefer, Felicia N., B.A. Iowa 1950, M.A. 1974; adjunct assistant professor, Nursing, 1987


Lilley, Virginia Ann B. Augustana 1979, M.D. South Dakota 1986; assistant professor, Anesthesia, 1992

Lilly, Gilbert B. Minnesota 1951, D.D.S. 1955; professor, Oral Pathology, Radiology, and Medicine, 1975


MacFarlane, Donald E., M.B.B.S. London 1967, Ph.D. 1975; associate professor, Internal Medicine, 1979 (1985)


MacIndoe, Aimee H., A.B. Dartmouth 1965, M.D. Jefferson Medical College, 1974, associate professor, Internal Medicine, 1992


MacQueen, John C., A.B. Seattle Pacific 1939, M. A. Kansas 1943; professor emeritus, Pediatrics, 1949 (1966)


Madison, Donald H., B.S. Iowa State 1944, M.S.M.E. Purdue 1948, Ph.D. 1953; professor emeritus, Mechanical Engineering, 1954 (1960)


Reynolds, David R., B.S. Pennsylvania State University 1962, M.S. Northwestern University 1963, Ph.D. 1966; professor, Geography 1964 (1968)


Rezai, Karim, M.D. Shmil Medical School (Iran) 1971; associate professor, Radiology 1984 (1988)


Ricco, Diane, B.S.M. Iowa 1972, M.A. 1986; adjunct instructor, Nursing, 1987


Richards, Carl J., B.A. Iowa 1960, M.D. 1964; clinical associate professor, Internal Medicine 1991


Richardson, Robert L., M.D.D. Louisville 1944, M.S. Iowa 1953; associate professor, Emeritus, Microbiology, 1951 (1984)

Richenbacher, Wayne E., B.S. Case Western Reserve University 1976, M.D. University of Cincinnati College 1980; associate professor, Surgery 1993


Riley, Edgar F., Jr., B.A. Wisconsin 1938, Ph.D. Iowa 1953; professor emeritus, Radiology, 1953 (1985)

Ringsell, Verna, B.S.N. Iowa, M.A., assistant instructor, Nursing 1985


Academic Personnel 489

Barbara, J., B. S. Ph. Iowa 1980; adjunct instructor, Pharmacy, 1991
Strock, Colvin, B. S. Adair 1949, M.S. 1951, Ph.D. Virginia 1965; professor, Emeritus, English, 1967 (1952)
Strauss, John S., B.S. Yale 1946, M.D. 1950; professor, Dermatology, 1978
Strom, Gerald, B.A. Pittsburgh 1947, M.A. Columbia 1949; professor, English 1982
Stevens, Harriet, B.A. Iowa 1932, M.S. 1934; assistant professor, Emeritus, Home Economics, 1934 (1951)
Stewart, John M., B.A. Cambridge (England) 1953, M.D. St. Thomas Hospital Medical School (England) 1956; professor, Psychiatry, 1972
Stewart-Dodson, Mary K., B.S.N. South Dakota 1959, M.S. 1964, Ph.D. 1966; assistant professor, Nursing, 1974 (1983)
Thompson, Robert L., B.A. Iowa 1979, Ph.D. Washington 1987; Instructor, Psychology, 1993

Timmerman, Dennis, B. A. Cornell College, M.S.W. Illinois (Chicago), M.P.A. Iowa State; adjunct Instructor, Social Work 1989

Tinker, John H., B.S. Cincinnati 1964, M.D. 1968; professor, Anesthesiology, 1983

Tipton, Carol Sue, B.A. 1979, M.P.H. North Carolina (Chapel Hill) 1983; adjunct Instructor, Nursing, 1989


Tocbachan, Joanne K., A.B. Radcliffe 1972, M.D. Case Western Reserve 1976; assistant professor, Internal Medicine, 1992


Tonn, Nancy J., B.S. California Polytechnic State 1984, Ph.D. Yale 1990; assistant professor, Chemistry, 1993


Trevor, Margaret C., B.A. Chicago 1984, M.A. 1988; instructor, Political Science, 1993


Tsai, Fu-Feng, B.S. National Taiwan Institute 1978, M.S. Iowa 1984, Ph.D. 1989; adjunct assistant professor Mechanical Engineering, 1991


Thisner, Erwin P., B.A. Regensburg (Germany) 1979, M.A. Colorado (Boulder) 1984, Ph.D. California (Berkeley) 1988; assistant professor, German, 1990


Turek, Lubomir P., M.D. Charles-Prague (Czechoslovakia) 1975, associate professor, Pathology, 1982 (1988)


Uhl, George J., B.S. Iowa 1945, B.S. 1954; M.D. Iowa 1959; clinical assistant professor emeritus, Family Practice/Otolaryngology, Radiology and Medicine, 1973 (1977)


Wu-Yuan, Christine D., B.S. National Taiwan 1973, Ph.D. Loyola University of Chicago 1975; associate professor, Periodontics, 1990

Wyatt, Patricia Anne, B.A. Northern Iowa 1982, M.A. Iowa 1986; assistant professor, Counseling Education, 1993


Yager, Robert E., B.A. Iowa State Teachers 1950; M.S. Iowa 1953, Ph.D. 1957; professor, Curriculum and Instruction, 1956 (1967)


Yankowitz, Jerome, B.S. Yale 1980, M.D. SUNY-Downstate Medical Center 1986; assistant professor, Obstetrics and Gynecology, 1993

Yao, Javad, M.D. Tabriz Medical School (Iran) 1965; clinical associate professor, Internal Medicine, 1973 (1983)


Yates, Leroy L., Jr., B.S. Iowa State 1978, M.D. Loyola Stritch 1986; clinical assistant professor, Obstetrics and Gynecology, 1993


Ye, Yangbo, B.S. Seoul National (Korea) 1968, M.S. Bucknell 1987, Ph.D. Penn State 1992; assistant professor, Asian Languages and Literature, 1992


Yerington, Kenneth H., B.S.C. Iowa 1958; adjunct assistant professor, Hospital and Health Administration, 1977

Yerkes, Barbara H., B.A. Marquette 1969, Ph.D. Iowa 1984; adjunct assistant professor, English, 1993


Yossi, Debra L.; adjunct instructor, Preventive and Community Dentistry, 1989

Young, Donald C., B.A. Drake 1951, M.D. Iowa 1955; assistant professor, Radiology, 1990


Young, Mark Alan, A.B. Princeton 1979, Ph.D. California (Berkeley) 1987; assistant professor, Chemistry, 1990


Zach, Karen R., B.S. Iowa 1959; adjunct instructor, Preventive and Community Dentistry, 1990


Zagel, Milton, M.A. Iowa 1936, Ph.D. 1950; associate professor emeritus, German 1946 (1978)

Zaval, Donald C., B.A. Wooster 1944, M.D. Cincinnati 1948; professor emeritus, Internal Medicine, 1969 (1976)


Zebrowski, Patricia M., B.S. SUNY (Geneseo) 1977, M.S. Syracuse 1981, Ph.D. 1987; assistant professor, Speech Pathology and Audiology, 1988


Zimmerman, Gerald N., B.A. Brown 1968, M.S. 1976; associate professor, Pharmacy, 1982; associate professor emeritus, Pediatrics, 1976

Zivkovich, Veljko K., M.D. Belgrade (Yugoslavia) 1949; M.S. Pittsburgh 1952, Ph.D. 1954; assistant professor, Physiology and Biophysics, 1954 (1971)

Zawada, Donald C., B.S. Iowa State 1953, Ph.D. Iowa 1957; professor emeritus, Anatomy, 1965 (1972)


The following is extracted from the Board of Regents section of the Iowa Administrative Code as of May 25, 1994.

Admission Rubs Common to the Three State Universities

681-1.1(262) Admission of undergraduate students directly from high school

Students desiring admission must meet the requirements in this section and also any special requirements for the curriculum, school, or college of their choice.

Applicants must submit a formal application for admission, together with a $10 application fee, 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 scores from the American College Test (ACT) or the Scholastic Aptitude Test (SAT), or the equivalent, as determined by each university. The Test of English as a Foreign Language (TOEFL) is required of foreign students whose first language is not English. Applicants may be required to submit additional information or data to support their applications.

1.1(1) Graduates of approved Iowa high schools who have the subject matter background as recommended by each university and who rank in the upper one-half of their graduating class may be admitted. Applicants who are not in the upper one-half of their graduating class 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.

1.1(2) Graduates of accredited 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(3) 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(4) Applicants who are not high school graduates, but whose classes have graduated, may be considered for admission. They 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.

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.

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.

681-1.2(262) Admission of undergraduate students by transfer from other colleges

Students desiring admission must meet the requirements in this section and also any special requirements for the curriculum, school, or college of their choice.

Applicants must submit a formal application for admission, together with a $10 application fee, 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 born 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.

683(262) Transfer credit

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.

*683(262) Transfer credit

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.

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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 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 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.

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,
(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.
681-2.3(262) College of Business Administration

2.3(1) Application for admission

Applications for admission to the college of business administration shall 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. Maintained satisfactory scores on the university’s required admission examinations.

c. Maintained a satisfactory grade-point average 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.

Fulfilment 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 those applicants who have the baccalaureate degree or who have completed the requirements for the degree in a combined program.

Fulfilment 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 2.50. 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.

Applicants who have completed 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 his 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 admission to the college of law. The college work as outlined below will suffice to meet the minimal academic requirements for admission to the college of medicine.

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 - 206(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 six 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 - 2.8(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 law at 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

Applicants 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 hour 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

To be considered for admission to the college of pharmacy, students must have earned a 2.00 or C average on all collegiate work undertaken. The minimum grade-point average of 2.00 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

Applicants for admission to liberal arts must meet the rules that are common to the three state institutions in Iowa as listed in 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 or the graduate college. Requirements for permission to take teacher-training courses are listed in the university catalog.
For information about the admission requirements, degree requirements, and collegiate policies of the respective colleges, see these pages:

Liberal Arts, 44-257
Business Administration, 258-275
Dentistry, 276-289
Education, 290-333
Engineering, 334-371
Graduate, 372-383
Law, 384-395
Medicine, 396-449
Pharmacy, 450-455

Academic achievement, recognition for; University, 9; Liberal Arts, 58; Business Administration, 260; Engineering, 325

Academic advising offices, 19

Academic programs, 9

Academic records, 14

Academic services, 19

Academic sessions, 9

Accounting, 265
Accounting Research, Ira B. McGladrey Institute of, 32, 264

Accreditation and associations, 9

Actuarial Science, Statistics and, 373

ACT test scores, 12

Administrative Code, 494

Administrative officers, 458

Admissions, general, 12; Liberal Arts, 59; Business Administration, 260; Dentistry, 277; Education, 291; Engineering, 335; Graduate, 375; Law, 388; Medicine, 400, 401; Nursing, 444; Pharmacy, 451

Advanced placement program, Liberal Arts, 61
Advanced Reproductive Care, Center for, 32
Advanced Studies, Center for, 30
Advising; general, 19; Nursing, 444
Aerospace Military Studies (Air Force ROTC), 62

Affective Disorders, Collaborative Studies of, 33

African-American World Studies, 63

African Studies Program, 67

Afro-American Cultural Center, 21, 65
Aging, Center on, 33
Aging Studies Program, 69, 373, 443

Agricultural Medicine and Occupational Health, Institute of, 32
AIDS Training and Education Center, Midwest, 33
Alumni Association, The University of Iowa, 41
Alzheimer’s Disease Research Center, 32
American Indian and Native Studies Program, 70

American Studies Program, 71
Anatomy, 403
Anesthesiology, 404
Animal Care Unit, 27
Anthropology, 73
Application deadlines, fees, procedures, 12-14
Applied Mathematical and Computational Sciences, 78, 373
Art and Art History, 38, 78
Art, Museum of, 39
Arts Education/Outreach, 40
Arts, Iowa Center for the, 38
Asian Languages and Literature, 87
Associated Medical Sciences, Division of, 401, 405
Associations, 9
Asthma and Allergic Diseases Center, 32
Astronomy, Physics and, 193
Audiovisual Center, 456

B

Biocatalysis and Bioprocessing, Center for, 30, 32
Biological Engineering, Chemical and, 348
Biotechnology Byproducts Consortium, 33

Biomedical Engineering, Iowa Institute of, 342
Biostatistics Consulting Center, 32

Botany (see “Biological Sciences”), 94

Business Administration, College of, 258-275; Accounting, 265; Certificate in International Business, 261; Economics, 267; Entrepreneurial Management, 264; Executive Development Center, 264; Finance, 269; Financial Markets Institute, 264; Industrial Relations Institute, 264; Ira B. McGladrey Institute for Accounting Research, 264; Institute for Economic Research, 264; Management and Organizations, 270; Management Center, 264; Management Sciences, 272; Manufacturing Productivity Center, 264; Marketing, 273; School of Management, 261; Small Business Development Center, 264

CEU (Continuing Education Unit), 456
Calendar, University, 4
Campus Information Center, 21
Campus Programs and Student Activities, 21
Campus Map, 500-501
Campus visits, 14
Cancer Center, 32, 398
Cardiovascular Research Center, 32, 397
Career information, placement services, 20
Career Development and Cooperative Education, Center for, 20
General Catalog information, 3
Center for International and Comparative Studies (CICS), 32, 33
Centers, 32
Central research facilities, 27
Chemical and Biochemical Engineering, 348
Chemistry, 100
Chicano/Native American Cultural Center, 21
Child Health Research Center, Iowa, 32
Child Health Services, Specialized, 38
Chinese (Asian Languages and Literature), 87
Cinema and Culture, Institute for, 34, 107
Civil and Environmental Engineering, 352

Classics, 102
Cleft Palate Research Center, 33
Clinical Research Center, 33, 397
 Cochlear Implant Clinical Research Center, 33
Code of Student Life, 23
Codes, Policies, and Students’ Rights, 23
Collaborative Studies of Affective Disorders, 33
College Level Examination Program (CLEP), 61
Communication (major), 106
Communication Studies, 105
Communication, Journalism and Mass, 159
Comparative Legislative Research Center, 33
Comparative Literature, 110
Composition, English, 210
Computer-Aided Design, Centers for, 32, 342
Computer-Aided Engineering Network, Iowa, 341
Computer Engineering, Electrical and, 358
Computer Science, 112
Computing Center, Weeg, 31
Conferences and Institutes, Center for, 456
Connie Belin National Center for Gifted Education, 33
Continuing Education, Division of, 456-457; Audiovisual Center, 456; Conferences and Institutes, Center for, 456; CEU (Continuing Education Unit), 456; correspondence study, 456; Credit Programs, Center for, 456; Labor Center, 457; Liberal Studies, Bachelor of, 456; Media Services, 456; off-campus classes, 456; Public Affairs, Institute of, 457; Saturday and evening classes, 456; Video Center, 457
Continuing Education, nursing, 446
Cooperative Education, 20; Engineering, 338
Correspondence courses, 456
Counseling Service, University, 22
Counselor Education, 295
Course numbering, 10-12
Craniofacial Anomalies Research Center, 33
Creative writing, 124
Credit by examination, Liberal Arts, 61; Business Administration, 260; Engineering, 340
Credit Programs, Center for, 456
Credit requirements, Liberal Arts, 48
Criminal justice and corrections (Sociology), 223
Cultural centers, 21
Curriculum and Instruction, 298

D
Dance, 40, 117
Dean’s list, Liberal Arts, 9, 58; Business, 260; Engineering, 335
Degrees offered, University, 9; Liberal Arts, 45; Business Administration, 258; Dentistry, 276; Education, 290; Engineering, 334; Graduate College, 373; Law, 385; Medicine, 396; Nursing, 442; Pharmacy, 450
Degree requirements, Liberal Arts, 48
Dental Health Bureau, 37
Dental Hygiene, 280
Dental Service, 37
Dentistry, College of, 276-289; Clinical Management Concepts, 279; Dental Hygiene, 280; Endodontics, 280; Family Dentistry, 280; Hospital Family Dentistry, 281; Operative Dentistry, 281; Oral and Maxillofacial Surgery, 282; Oral Pathology, Radiology, and Medicine, 283; Oral Science, 278; Orthodontics, 285; Pediatric Dentistry, 285; Periodontics, 286; Preventive and Community Dentistry, 287; Prosthodontics, 288
Dermatology, 413
Diabetes and Endocrinology, Core Center, 33
Diabetes Control and Complications Trial, 33
Dietetic Internship, 414
Disability Services, Student, 21
Division of Associated Medical Sciences, 405
Division of Mathematical Sciences, 174
Dew’s Institute for Dental Research, 32

E
Economic Research Institute, 32, 264
Economics, Business Administration, 267; Liberal Arts, 119
Education, College of, 290-333; Counselor Education, 295; Curriculum and Instruction, 298; Planning, Policy, and Leadership Studies, 319; Psychological and Quantitative Foundations, 325; Science Education, 215; support units and special resources, 293; teacher education programs, 291
Electrical and Computer Engineering, 358
Electron Microscopy Facility, 28
Endodontics, 280
Engineering, College of, 334-371; Biomedical Engineering, 343; Center for Computer-Aided Design, 342; Chemical and Biochemical Engineering, 348; Civil and Environmental Engineering, 352; combined degree with Liberal Arts, 337; Electrical and Computer Engineering, 358; Industrial Engineering, 362; Institute of Hydraulic Research, 342; Mechanical Engineering, 366
English, 122
English composition, 210
English as a Second Language (ESL) (Linguistics), 170
Evening Class Program, Saturday and, 456
Environmental Engineering, Civil and, 352
Evaluation and Examination Service, University, 41
Evolutionary ecology and behavior, 31
Excellence in Pediatric Nephrology and Urology, Center of, 33
Exemption examinations, Liberal Arts, 61
Exercise Science, 127

F
Faculty, 460
Fair housing policy, 22
Family-Based Services, National Resource Center on, 33
Family Dentistry, 280
Family housing, University, 23
Family Practice, 414
Fees, tuition and, 14
Fermenter Facility, 28
Film, Media Studies and, 40, 106
Film and Critical Studies in Paris, Interuniversity Center for, 373
Finance, 269
Financial aid, 15 (also see collegiate and departmental sections of the Catalog)
Financial Markets Institute, 32
Foreign Language House, 133, 148
Foreign languages offered regularly:
Chinese, 87; French, 132; German, 147; Greek, 102; Hindi, 87; Italian, 132; Japanese, 87; Latin, 102; Modern Greek, 102; Portuguese, 227; Russian, 211; Sanskrit, 87; Spanish, 227; Swahili, 170; Yoruba, 170
Foreign languages offered irregularly:
Arabic, 87; Biblical Aramaic, 207; Biblical Hebrew, 207; Celtic, 122; Gothic, 170; Korean, 87; Middle English, 122, 170; Middle High German, 122, 147; Modern Hebrew, 87; Old English, 122, 170; Old Norse, 122, 170; Turkish, 87
See the above page numbers for more information; also see the current Schedule of Courses for availability.
Foreign students, admission, 13
Foundation, University of Iowa, 41
Fraternities, 23
French and Italian, 132

G
General education requirements, Liberal Arts, 48-53
General services for students, 21
Genetics, 135,415
Geography, 136
Geology, 142
Geriatric Education Center, Iowa, 33
Gerontology Projects, 33
German, 147
Global and Regional Environmental Research, Center for, 30, 32
Global Studies, 149
Guided Correspondence Study, 456
Graduate and professional college examinations, 12
Grading procedures, Liberal Arts, 56
Graduate College, 372-383; degree programs, 373; financial assistance, 374; Graduate Student Senate, 375; joint law and graduate degree programs, 374; joint programs within the Graduate College, 374; rules and regulations, 375
Graduation requirements, Liberal Arts, 48
Grants, faculty, 27; student, 16
Greek, 102
Group Processes, Center for the Study of, 32

503
Gynecology, Obstetrics and, 425

H
Hancher Auditorium, 40
Handicapped, 21
Hazardous Substances Research Center, 33
Health, Behavior, and Environmental Policy, Institute for, 32
Health Effects of Environmental Contamination, Center for, 30, 32
Health Occupations Education, 37
Health Policy, and Disability Center, LAW, 33
Health Registry of Iowa, State, 33
Health Sciences, Hardin Library for the, 35, 37
Health Sciences Center, The University of Iowa, 35
Health Service, Student, 22
Health Services Research, Center for, 32, 397, 416
High Field Nuclear Magnetic Resonance Facility, 28
High Resolution Mass Spectrometry Facility, 28
High school preparation, 12
History, 151
Honorary and professional societies, 10
Honors Program, Liberal Arts, 45; Business Administration, 260; Nursing, 443
Hospital and Health Administration, 415
Hospital Family Dentistry, 281
Hospitals and Clinics, The University of Iowa, 36
Hospital School, University, 38
Housing, 22
Human Nutrition, 417
Human rights, University policy, 24
Hydraulic Research, Institute of, 32, 342
Hygienic Laboratory, University (State) 37

Image Analysis Facility, 27
Immunology, 418
Industrial Engineering, 362
Industrial Relations Institute, 32, 264
Institutes, 32
Institute for Cinema and Culture, 34, 107
Insurance Education and Research, Institute for, 32
Intercollegiate athletics, 21
Interdepartmental Studies, 156
Interdisciplinary Activities, Research and, 27
Interdisciplinary Ph.D. programs, ad hoc, 373
Interdisciplinary programs, Liberal Arts, 46

Interdisciplinary programs and centers, Medicine, 397
Internal Medicine, 419
International and Comparative Studies, Center for (CICS), 32, 33
International Center, 21
International Education and Services, Office of (OIES), 19
International Rural and Environmental Health, Center for, 32
International Writing Program, 40, 124, 165
Intramural sports and recreational activities, 21
Iowa Administrative Code, 494
Iowa Center for the Arts, 38
Iowa Center for the Book, 33, 165
Iowa Lakeside Laboratory, 33, 98, 158
Iowa Memorial Union, 22
Iowa Quaternary Studies Group, 32
Iowa Testing Programs, 33, 293
Italian, French and, 132

Japanese (Asian Languages and Literature), 87
Journalism and Mass Communication, 159
Jobs, 16

K
KSUI-FM (radio), 41
Labor Center, 457
Laboratories, 33
Lakeside Laboratory, Iowa, 33, 98, 158
Language House, Foreign, 133, 148
Languages—see “Foreign languages”
Laser Science and Engineering, Center for, 32
Latin (Classics), 102
Latin American Studies Program, 163
Law, College of, 384-395; joint law and graduate degree program, 386; Law School Admissions Test, 389; Legal Clinic, 386
Learning at Iowa, 8
Letters, Programs in, 165
Libel Research Project, Iowa, 33
Liberal Arts Office of Academic Programs, 45
Liberal Arts, College of, 44-257; academic achievement, recognition for, 58; academic probation and dismissal, 57; admission requirements, 59; Academic Programs Office, 45; attendance, final examinations, and student conduct, 58; combined degree with College of Engineering, 47; Dean’s List, 58; degrees, 45; double majors, 46; early admission to Medicine and Dentistry, 46; General Education Requirements, 48-53; grading procedures, 56; graduation requirements, 48; honors interdisciplinary major, 46; interdisciplinary opportunities, 46; major fields, 45; major requirements, 53; majors in education, 46; military service credit, 61; minors, 54; multiple bachelor’s degrees, 47; nondepartmental courses, 61; registration, 55; specializations within degree programs, 46
Liberal Studies, 165, 456
Libraries, University, 34
Library and Information Science, 166
Linguistics, 170
Literature, Science, and the Arts, 173
Loans, student, 16

M
Macbride Nature Recreation Area (see “Outdoor Recreation”), 22
Major fields; Liberal Arts, 45; Graduate College, 373
Management and Organizations, 270
Management Center, 264
Management Sciences, 272
Manufacturing Productivity Center, 33, 264
Map, Campus, 500-501
Marketing, 273
Marking system, general, 10; Engineering, 339; Law, 389; Liberal Arts, 56
Mass Communication, Journalism and, 159
Maternal and Child Health Resource Center, National, 32
Mathematical Sciences, Division of, 174
Mathematics, 174
Mathematics Tutorial Lab, 20
Mechanical Engineering, 366
Media Services, 456
Media Studies and Film, 40, 106
Medical information for students, 14
Medical Scientist Training Program, 397, 420
Medical Technology, 405
Medicine, College of, 396-441; Anatomy, 403; Anesthesiology, 404; Biochemistry, 411; combined M.D.-master’s degree programs, 397; Dermatology, 413; Dietetic Internship, 414; Division of Associated Medical Sciences, 405; Family Practice, 414; Genetics, 415; Hospital and Health Administration, 415; Human Nutrition, 417; interdisciplinary programs and centers, 401; Immunology, 418; Internal Medicine, 419; Medical Scientist Training Program, 397, 420; Medical Technology, 405; Microbiology, 421; Neurology, 424; Neuroscience, 424; Nuclear Medicine Technology, 406; Obstetrics and Gynecology, 425; Ophthalmology, 425; Orthopedic Surgery, 426; Otolaryngology-Head and Neck Surgery, 426; Pathology, 427; Pediatrics, 428; Pharmacology, 430; Physical Therapy, 407; Physician Assistant Program, 410; Physiology and Biophysics, 431; Preventive Medicine and Environmental Health, 432; Psychiatry, 437;
Radiation Biology, 438; Radiology, 438; research facilities, 402; Surgery, 439; urology, 440
Mental Health Clinical Research Center, 33
Microbiology, 179, 421
Military Science (Army ROTC), 181
Minors (Liberal Arts), 46
Molecular Biology, 423
Museum of Art, 39
Museum of Natural History, 41
Museum Studies, 182
Music, 39, 183
Natural History, Museum of, 41
Neurology, 424
Neuroscience, 190, 424
New Music, Center for, 32, 39
News Service, University, 42
Night classes (see “Saturday and Evening Class Program”), 456
Nondiscrimination statement, 3
Nuclear Medicine Technology, 406
Numbering of courses, 10-12
Nursing, College of, 442-449; admission, 444; continuing education, 446; professional improvement, 446
Oakdale research campus, 29, 36
Oakdale research park, 29
Obstetrics and Gynecology, 425
Off-campus classes, 456
Off-campus housing, 23
Old Capitol, 41
Ombudsperson, University, 24, 42
Operative Dentistry, 281
Ophthalmology, 425
Oral and Maxillofacial Surgery, 282
Oral and Maxillofacial Implant Center, 33
Oral Pathology, Radiology, and Medicine, 283
Orientation Services, 14
Orthodontics, 285
Orthopedic Biochemistry and Cell Biology Laboratory, 33
Orthopedic Biomechanics Laboratory, 33
Orthopedic Surgery, 426
Otolaryngology-Head and Neck Surgery, 426
Part-time jobs, 16
Pathology, 427
Pediatric Dentistry, 285
Pediatric Nephrology and Urology, Center of Excellence in, 33
Pediatrics, 428
Periodontics, 286
Pharmaceutical Service, 33
Pharmacology, 430
Pharmacy, College of, 450-455; admission, 451
Philosophies and Ethics of Politics, Law, and Economics, 190
Philosophy, 191
Physical Education Skills, 193
Physical Therapy, 407
Physician Assistant Program, 410
Physics and Astronomy, 193
Physiology and Biophysics, 431
Placement Office, 20; Education, 293; Engineering, 342 (“Engineering Career Services”)
Planning, Policy, and Leadership Studies, 319
Political Science, 198
Portuguese, Spanish and, 227
Saturday and Evening Class Program, 456
Scholarships, 15
Science Education, 215
Science Education Center, 33
Services, academic, 19
Social Science Institute, 29
Social Studies, 218
Sanskrit (Asian Languages and Literature), 87
Speech and Hearing Clinic, Wendell Johnson, 38
Speech Pathology and Audiology, 33
Speech Pathology and Audiology, Council on, 36
Sponsored Programs, 29
Sport, Health, Leisure, and Physical Studies, 239
Satellite, 45
SAT test scores, 12-13
Sanskrit (Asian Languages and Literature), 87
Sponsored Programs, 29
Sport, Health, Leisure, and Physical Studies, 239

R
Radiation Biology, 438
Radio broadcasting services (WSUI, KSUI-FM), 41
Radiology, 438
Reading Lab, 20
Recent History of the United States, Center for the Study of, 32
Records, 14
Recreational Services, Division of, 21
Refund schedule, 15
Regents Exchange Program, 14
Registrar, 20
Registration, 14
Religion, 207
Research and Interdisciplinary Activities, 27
Research Foundation, University of Iowa, 30
Reserve Officers Training Program (ROTC); Air Force, 62; Army, 181
Residence, determining, 13, 495
Residence halls, 23
Rhetoric, 210
Rhetoric of Inquiry, Project on (POROI), 34
Rhetorical Studies, Communication, 106
Ronald McDonald House, 37
Rural Education Policy and Planning, Office for, 33
Russian, 211
Russian, East European, and Eurasian Studies, 213

S
SAT test scores, 12-13
Sanskrit (Asian Languages and Literature), 87
Saturday and Evening Class Program, 456
Scholarships, 15
Science Education, 215
Science Education Center, 33
Services, academic, 19
Service, West, 29
Sessions, academic, 9
Sexual harassment, policy on, 24
Small Business Development Center, 33, 264
Social Science Institute, 29
Social Studies, 218
Social Work, 219
Sociology, 223
Sororities, 23
Spanish and Portuguese, 227
Special Resources at Iowa, 26
Special Support Services, 21
Specialization within degree program, Liberal Arts, 46
Specialized Child Health Services, 38
Speech and Hearing Clinic, Wendell Johnson, 38
Speech Pathology and Audiology, 33
Speech Pathology and Audiology, Council on, 36
Sponsored Programs, 29
Sport, Health, Leisure, and Physical Studies, 239

P
Part-time jobs, 16
Pathology, 427
State Archaeologist, Office of, 31
State Health Registry of Iowa, 33
Statistical Consulting Center, 29, 243
Statistics and Actuarial Science, 240
Student accounts, payment of, 15
Student Activities, Campus Programs and, 21
Student complaints concerning faculty actions, 24; Engineering, 341
Student Disability Services, 21
Student Health Service, 22
Student Life at Iowa, 18
Student rights, 24
Study Abroad, 19
Study of Croup Processes, Center for the, 32
Substance Abuse Research and Education, Iowa Center for, 33
Substance Abuse Research and Evaluation, Iowa Consortium for, 30
Surgery, 439

T
Teacher licensure/certification services, 292
Technology Innovation Center, 30
Telecourses, 456
Testing Programs, Iowa, 33, 293
The Iowa Center for the Arts, 38
The University of Iowa Health Sciences Center, 35
Theatre Arts, 245
Theatres, University, 39
Transcripts, 20
Transfer students, Liberal Arts admission, 59
Translation Laboratory, 33
Transportation Studies, 250
Tuition and fees, 14
Tutorial labs, 20

U
Undergraduate Academic Advising Center, 19, 339
Undergraduate Scholar Assistant Program, 10
Unified Program, 48, 252
University calendar, 4
University Hospital School, 38
University hospitals, 36
University Libraries, 34
University of Iowa Foundation, 41
University of Iowa Health Sciences Center, 35
University of Iowa Press, 42
University Ombudsperson, 24, 42
University Relations, Office of, 42
University Theatres, 39

Urban and Regional Planning, 252
Urban Community Research Center, Iowa, 33
Urology, 440

V
Veterans Affairs Medical Center, 38
Veterans Services, 22
Video Center, 457
Voice and Speech, National Center for, 33

W
WSUI (radio), 41
Wendell Johnson Speech and Hearing Clinic, 38
Weeg Computing Center, 31
Weekend classes (see “Saturday and Evening Class Program”), 456
Windhover Press, 40
Women’s Resource and Action Center, 22
Women’s Studies, 255
Writers’ Workshop, 40, 122 (“Creative Writing”), 124
Writing Lab, 20
Writing programs, 40, 124