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The University of Iowa General Catalog 1990-92

University of Iowa
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Copies of the General Catalog are available for examination at Iowa High schools, offices of the county superintendents of schools, public libraries, and junior and community colleges; at the 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 the availability of courses can be found in the Schedule of Courses, which is available before each term begins. The publications This Is Iowa and The Graduate Experience also include information on admission, fees, scholarships, student financial aid, housing, and other university 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, or disability. The University also affirms its commitment to providing equal opportunities and equal access to University facilities without reference to detrimental or advantageous preference. For additional information on nondiscrimination policies, contact the Coordinator of Title IX and Section 504 in the Office of Affirmative Action, telephone 319-335-7105, 202 Iowa Hall, The University of Iowa, Iowa City, Iowa 52242.
University Calendar

Fall Semester 1990           1991
Registration begins         August 20            August 25
Classes begin              August 22            August 28
University holiday         September 5          September 2
Homecoming                 October 19           October 24
Thanksgiving recess begins  November 26          November 28
University holidays        November 22-23        November 28-29
Classes resume              November 26          December 2
Classes end                 December 7           December 13
Examination week           December 10-14        December 16-20
Commencement ceremonies    December 16-15        December 20-21
University holidays        December 24-25        December 24-25

Spring Semester 1991                1992
University holiday          January 1            January 1
Registration begins         January 14           January 20
Classes begin               January 15           January 21
Foundation day              February 25          February 23
Spring vacation begins      March 15             March 20
Saturday classes only meet  March 16             March 21
Classes resume              March 29             March 30
Classes end                 May 3               May 8
Examination week            May 6-10            May 11-15
Commencement ceremonies    May 11-11            May 15-16
University holiday          May 27              May 25

Summer Session 1991           1992
Registration                June 10             June 15
Classes begin               June 13             June 16
University holiday          July 4              July 3
Classes end                 August 2             August 7
Commencement ceremonies    August 5-23          August 21
Independent study unit for  law, graduate students

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, located at 230 N. Clinton. Office hours: Weekdays 8:30 a.m. to 4:30 p.m., Saturdays 8-11 a.m. It is best to visit the campus on weekdays, when classes are in session and when other University offices are open. Please call to arrange for a campus visit. Toll-free 1-800-553-4600, nationwide. Direct dial: 319-335-3847.
The University of Iowa is a major national research university with a solid liberal arts foundation. Responsible for many historic firsts, it has won international recognition for its wealth of achievement in the arts, sciences, and humanities.

Founded in 1847 as Iowa's first public institution of higher education, the University brings together undergraduate, graduate, and professional students with distinguished teachers and scholars in a close-knit, intellectual community.

The University 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 prominence in educational testing. It also operates the nation's largest university-owned teaching hospital.

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 15-mile journey to Jupiter. Its research in hydraulics, engineering, and medicine is world renowned, as are its innovations in biomedicine, agricultural medicine and pharmacology, and education.

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. Both are enhanced by Iowa's many centers and institutes and the University Libraries, one of the largest research libraries in the country.

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 entry point for most students, 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, Law, Medicine, Nursing, and Pharmacy. The Graduate College provides leadership in development, research, 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 outstanding accomplishments with awards including Guggenheim Fellowships, senior fellowships from the National Endowment for the Humanities, and Fulbright scholarships for teaching and study abroad. Among them are Howard Hughes Medical Institute (HHMI) investigators—each in biophysics, biochemistry, clinical medicine, and physiology and biophysics.

The University reaches out to all segments of society. It makes students who are high achievers, yet at the same time it serves a broad cross-section of students.

Approximately 29,000 students enroll at Iowa each fall and spring semester. Nearly 77 percent come from Iowa, 12 percent from adjoining states, and 4.5 percent from the remaining states. Foreign students from 46 foreign countries make up 5.5 percent of the University's enrollment.

Wealth and Diversity of Programs, Services

The University's Iowa Center for the Arts provides the stimulus and setting for professional-caliber theatre, dance, and musical performances by students and faculty, as well as for visiting artists and groups around the world. The Museum of Art displays outstanding permanent collections, works by faculty and students, and traveling exhibits year around, 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.

As the nation's largest university-owned teaching hospital, the University of Iowa Hospitals and Clinics serves more than 691,000 people from Iowa and other states every year. Specialized care is provided by more than 1,450 physicians and dentists, 1,500 registered nurses, and 4,300 professional and support staff. teams of faculty, clinical support specialists, and students study and learn as they care for patients. University Hospitals and Clinics keep 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 loyalty as leaders in intramural, basketball, wrestling, field hockey, swimming, and gymnastics. A member of the Big Ten athletic conference, Iowa offers ten intercollegiate sports for women and ten for men.

The University's 906-acre campus includes more than 100 major buildings, most within walking distance from each other and all fully accessible to persons with disabilities. Overviewing the Iowa River is Old Capitol, the central landmark of the campus, built in Greek Revival style during the early 1860s. Old Main served as the last capital building for Iowa's territorial government from 1842 and 1846, and then housed the legislature and government offices for the state of Iowa until 1847. 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 1979.

A major attraction and educational facility at the University is Iowa Hall, a 12-story building housing the Graduate College, the College of Education, the College of Pharmacy, the Biomedical Engineering Program, and the University's information technology center.

Iowa City

Iowa City: a forward-looking community provides a special setting for The University of Iowa. Iowa City is a multi-cultural, cosmopolitan city, 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 some 110,000 people, Iowa City lies within 30 miles of Chicago, Minneapolis, and St. Louis. The city is accessible by air through the Cedar Rapids-Iowa City airport, by major bus lines, and by I-80 major highways.
Learning at Iowa

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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 1,500 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 in a number of multidisciplinary courses, in the College of Liberal Arts.

The University's undergraduate and graduate 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 48 states and more than 60 foreign countries. About 73 percent of the University's freshman enrollees are 18 or younger. Approximately 46 percent of the upper half of their high school class and about 34 percent rank in the upper tenth. The University of Iowa offers a comprehensive program of student financial aid. Half of the University's students have some form of employment, one-third have educational loans, one in ten undergraduates and one in five freshmen have scholarships. Most UI scholarships are awarded on the basis of demonstrated academic merit and academic excellence, with a small number of scholarships awarded strictly 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. New learning opportunities include courses, conferences, workshops, continuing education programs for professionals, summer 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, inaugurated a new 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 this Catalog.

- Bachelor of Arts, B.S. Bachelor of Fine Arts
- Bachelor of Science, B.S.
- Bachelor of Science in Education, B.S.
- Bachelor of Science in Nursing, B.S.
- Bachelor of Science in Business Administration, B.B.A.
- Bachelor of Science in Engineering, B.S.
- Bachelor of Science in Pharmacy, B.S.

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 NorthWestern, Indiana, Purdue, Ohio State, and Michigan State universities and the Universities of Illinois, Minnesota, Wisconsin, and Michigan in the Big Ten Conference. Among the Big Ten universities, it is also associated with The University of Chicago, Cornell University, and 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 Council of College Schools of Business Education—American Medical Association, Council on Dental Education—National Council for Accreditation of Teacher Education—American Association of Law Schools
- Medical-Luxembourg Committee on Medical Education, representing the American Medical Association (AMA) and the American Medical Colleges (AMC)
- Nursing—National League for Nursing, Iowa Board of Nursing
- Pharmacy—American Council on Pharmaceutical Education

Schools

- Journalism and Mass Communication
- American Council on Education
- International Studies
- 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 Biomedical, Civil, Electrical, Informal, and Mechanical Engineering—Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET)

Chemistry—American Chemical Society
- Dental Hygiene—Commission on Dental Accreditation of the American Dental Association
- Dentistry—American Dental Association
- Hospital and Health Administration—Accrediting Commission on Education for Health Service Administration
- Leisure Studies—Council on Accreditation of the National Recreation and Park Association
- 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 of the American Medical Association and the American Medical Association
- Psychology—American Psychological Association
- Speech Pathology and Audiology—Educational and Standards Board of the American Speech and Hearing Association

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, beginning in fall 1977, 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 academic achievement for all college degree 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—one of the highest 5 percent
College of Pharmacy
Highest distinction—grade-point average of 3.55 or above
High distinction—grade-point average of 3.50 to 3.54
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 or 3.50 or more semester hours of grade work and who have no hours of final grades are recognized 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 on 12 or more semester hours of grade work and who have no hours of final grades are recognized on the President's List.

Undergraduate Scholarships
For students who rank in the top one percent at the University. Undergraduate Scholarships provide undergraduate scholarships. Including scholarships, a chance to do scholarly work with faculty members from any area of the University as projects that range from art to Spanish, from music to medicine.

Depending on the interest and field of study, undergraduate students might help in classrooms, do research in libraries, work in the field, perform laboratory experiments; gather and analyze data, program computers, or edit manuscript.

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

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

University Marking System
Grade (Definition) Grade points
A+ 4.33
A 4.00
A- 3.67
B+ 3.33
B 3.00
B- (average) 2.67
C+ 2.33
C 2.00
C- (average) 1.67
D+ 1.33
D 1.00
D- 0.67
F (failing) 0
*No honors
*Incomplete
*No pass
*D no grade
*Passing
*R audit
*A satisfactory (Graduate College only)
*W withdrawn
*Not used in computing grade-point average

Grade-point averages displayed at the bottom of students' grade reports are truncated so as not to exceed 4.00.

The College of Law uses a numeric grading system.

Numbering of Courses
Each course in the regular University curriculum has an identifying number, preceded by the number of the college, department, or program that administers the course. For example, "311" is the code for the course numbered 1 in the Department of Botany (2) entitled "Introduction to Botany." Course numbers below 100 designate courses primarily for undergraduates, numbers 101 to 199 designate courses for undergraduates and graduates, and numbers 200 and above designate courses primarily for graduates.

College of Business Administration
SA Accounting
SA Business Administration
SC Economics
SF Finance
SM Management and Organization
SM Management Science
SM Marketing
SM M.B.A. Programs

College of Dentistry
SD Operative Dentistry
SE Endodontics
SP Prosthodontics
SU Oral Pathology and Diagnosis
SU Oral and Maxillofacial Surgery
SD Dental Hygiene
SP Orthodontics
SD Pediatric Dentistry
SH Periodontics
SU Preprofessional and Community Dentistry
SD Dental Hygiene (nondegree)

College of Education
TC Counselor Education
TD Educational Administration
TE Elementary Education
TF Special Education
TH Higher Education
TP Educational Psychology, Measurement, and Statistics
TS Secondary Education
TU Special Education
TW Instructional Design and Technology
TX Instructional Technology

College of Engineering
BI Biomedical Engineering
BC Biomedical and Chemical Engineering
CB Civil and Environmental Engineering
CE Electrical and Computer Engineering
CM Industrial Engineering
CM Engineering Core
CM Mechanical Engineering

College of Law
College of Liberal Arts
500 Interdisciplinary courses
AAdmissions ● Learning at Iowa 11

BGS Bachelor of General Studies
BLS Bachelor of Liberal Studies courses
L Lakeside Laboratory
IA Fundamentals of Art
IB Elements of Art
IC Ceramics
ID Design
IE Art Education
IF Drawing
IC Metallurgical and Jewelry
IH Art History
IJ Multimedia and Video Art
IK Painting
IL Photography
IM Printmaking
IN Sculpture
IP Art Interdisciplinary
IX Papermaking
IV Study
3 Honors
1 Speech Pathology and Audiology
4 Chemistry
6 Prebaccalaureate courses
8 English
8G English General Education courses
8L English Language and Linguistics
8P English Professional
8W English Writing
9 French
10 Basic Skills
11 Interdisciplinary courses
12 Geology
13 German
13D Dutch
14 Greek
15 Open Major courses
16 History
15A American History
15E European History
17 Home Economics
18 Italian
19 Journalism and Mass Communication
20 Latin
21 Library and Information Science
22A Applied Mathematical Sciences
22C Computer Science
22M Mathematics
22S Statistics and Actuarial Science
23 Military Science
24 Aerospace-Military Studies
25 Museum Training
26 Music
27 Philosophy
28 Exercise Science
29 Physical Education and Sports Studies
30 Physics and Astronomy
31 Political Science
32 Psychology
33 Religion
34 Philosophy, Science, and the Arts
35 Spanish
36 Communication Studies
37 Broadcasting and Film
38 Communication
39 Rhetorical Studies
40 Biology
41 Portuguese
42 Aramaic Languages and Literature
43 Japanese
44 Russian
45 German and East European Studies
46 Social Work
47 Geography
48 American Studies
49 Global Studies
50 Comparative Literature
51 Theatre Arts
52 Microbiology
53 Science Education
54 Social Studies
55 Biochemistry
56 Urban and Regional Planning
57 Linguistics
58 Letters
59 Anthropology
60 Genetics
61 African-American World Studies
62 Latin American Studies
63 Women's Studies
64 Dance
65 Physical Education, Teacher Preparation Program
66 Studio Program
67 African Studies
68 Holors
69 Philosophies and Ethics of Politics, Law, and Economics
70 Interdepartmental Studies

College of Medicine
50 Medicine Interdepartmental
60 Anatomy
61 Microbiology
62 Dermatology
63 Preventive Medicine and Environmental Health
64 Neurology
65 Human Nutrition
66 Obstetrics and Gynecology
67 Ophthalmology
68 Otolaryngology—Head and Neck Surgery
69 Pathology
70 Pediatrics
71 Pharmacology
72 Physiology and Biophysics
73 Psychiatry
74 Radiology
75 Surgery
76 Orthopedic Surgery
77 Radiation Biology
78 Internal Medicine
79 Urology
80 Hospital and Health Administration
81 Biochemistry
101 Physical Therapy
115 Family Practice
116 Anesthesiology
117 Physician Assistant Program
132 Neuroscience
142 Molecular Biology
96 College of Nursing
46 College of Pharmacy

ADMISSIONS

High School Preparation

Appropriate academic preparation for college-level studies is very important. University course work is designed with the assumption that students have the necessary background and proficiency to perform successfully. Effective with the fall semester 1993, students entering the University must have
completed the following set of high school courses (units) or their equivalent. These high-school unit requirements apply to entering freshmen who graduated from high school after 1985. Liberal arts transfer students must have at least 24 semester hours of transferable credit who graduated from high school after 1985, and liberal arts transfer students must have at least 24 semester hours of transferable credit who graduate from high school after 1985. Certain requirements vary for students enrolling in the College of Engineering (listed in italics).

Four years of English/language arts, with emphasis on writing, speaking, and reading as well as understanding and appreciation of the literature. At least two years (but preferably four) of a single foreign language.

At least three years of mathematics, including two years of algebra and one year of geometry; 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.

At least three years of science, including biology or two of three areas: biology, chemistry, and physics; the third course can be from any area, including others not specifically listed as general science, physical science, geology, meteorology. 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, computer programming. At least one year of study in the performing arts, visual arts, or human kinetics is recommended but not required.

Applying for Admission

Prospective students interested in enrolling in any of the ten colleges at The University of Iowa should contact the Office of Admissions, 210 N. Gilbert Hall, The University of Iowa, Iowa City, Iowa 52242, to request application forms and application instructions for both admission and University housing. All applicants must submit formal applications, official transcripts, and other supporting material to the Office of Admissions. For specific admission standards of the respective colleges, please refer to the appropriate college sections of the Catalog.

ACT and SAT Scores

All entering freshmen and undergraduate transfer students who present fewer than 24 semester hours of transferable credit required to complete the American College Test (ACT) or the Scholastic Assessment Test (SAT) and have their scores reported to the University before they register for classes. The Office of Admissions recommends that students complete the ACT or SAT during the fall prior to their anticipated enrollment. The scores from these exams are used as a criterion for admission, for placement purposes, for scholarships, and for awarding University-administered scholarships and loans.

Graduate and Professional College Examinations

Prospective Graduate College applicants should take the Graduate Record Examination (GRE) General Test or, if applying for admission to a department of 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 exams of the respective colleges.

Application Fees

A $20 application fee must accompany applications submitted by prospective students not previously enrolled for full-time study at the University. The application fee for foreign students is $30. Graduate College applicants must pay the fee unless they have earned a degree from The University of Iowa. Application fees are not refundable for foreign residents who are denied admission.

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 semester in which they plan to enroll. All application materials are due in the Office of Admissions by the deadlines listed below. Foreign students usually have earlier application deadlines (see "Foreign Students" section). 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—November 15, fall semester only; preliminary applications should be on file with the American Association of Dental Schools Application Service by this date. Notification of acceptance will begin 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 for any admission of the beginning of classes. Graduate College—General Graduate College deadlines: 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 departments and programs 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—March 1 for summer session or fall semester. College of Medicine—December 1, fall semester only. Early Decision Plan: January 1 for the following year; preliminary applications must be submitted to the American Medical College Application Service by these dates. College of Nursing—March 1 for summer session, May 1 for fall semester; preprofessional programs, December 1 for spring semester. College of Pharmacy—March 1, fall semester only. Dental Hygiene Program—March 1, fall semester only. Pharmacy Program—January 15, spring semester only. Physicist Assistant Program—January 15, spring semester only. Teacher Education Program—May 1 preceding the academic year in which the student wishes to begin in professional education courses.

Foreign Students

Foreign students should begin the process of applying at least 12 months prior to enrollment. Applicants must submit application materials and submit their complete application file to the Office of Admissions by the following dates: Graduate College—Students applying to The University of Iowa for financial assistance (scholarships, fellowships, assistantships) February 1 for summer session, April 15 for fall semester, October 1 for spring semester. Students applying to the Graduate College who will not receive University financial assistance, March 1 for summer session, April 15 for fall semester, October 1 for spring semester. Students applying to the 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—November 15, fall semester only; preliminary applications should be on file with the American Association of Dental Schools Application Service by this date. Notification of acceptance will begin December 1.
should be reviewed carefully for information about early deadlines.

**Admissions**

**College of Business Administration**—March 1 for summer semester, March 1 for fall semester, September 1 for spring semester.

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

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

**College of Pharmacy**—March 1 for fall semester.

**Determined Residence**

For admission, residence, and to secure the University registrar classifies as students residing in the University's or residents of states according to criteria established by the State Board of Regents and 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 requirements guarantee that non-native speakers know English well enough to study without being hindered by language problems. To understand lectures, and participate successfully in class discussions. All applicants to the University whose native language is not English are required to receive scores on the Test of English as a Foreign Language (TOEFL) along with their applications for admission and supporting academic documents. Automation scores from this standardized test for students who have already received a bachelor's or equivalent degree from a university in the United States, the United Kingdom, Canada (excluding French-speaking), Africa (English-speaking), Australia, or New Zealand.

**U.S. Citizens and Permanent Residents**

U.S. citizens and permanent residents whose native language is not English are not required to submit scores above 24 on the TOEFL (80 on the Internet English as a Foreign Language). Non-native students who score 25 or above (SAT 490) are accepted.

**Medical Information**

The Student Health Service provides health care for registered students. After students are admitted, the University requires a medical history form, which must be completed, including all information about immunizations. Proof of immunity to measles is 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 new students receive a report from a recent health service so that continuing care can be provided.

**Campsites**

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 include a visit with an admissions counselor, a group information session; a campus tour, and an appointment with a faculty member or academic advisor in a particular field. A campus tour includes a library tour, housing, and the most subject services available at the University. Students may explore UI museums, libraries, and downtown Iowa City.

The campus visit starts at the John G. Bowen House Admissions Visitors Center located at 250 North Liberty. The center is open from 8:30 a.m. to 4:30 p.m. Monday through Friday and from 9 to 11 a.m. on selected Saturdays.

**Orientation Services**

With the aid of representative student, Orientation Services are designed to help new freshmen, transfer students, and foreign students make a transition to University life. Once admitted to the University, students are expected to attend an orientation/registration program before they begin classes. During orientation, new students learn about academic policies and procedures, future plans, tuition, and financial aid. Pre-placed students tour the campus, meet with their academic advisors, complete their registration, and become acquainted with University staff, and other students. Parents are encouraged to attend special parent orientation sessions conducted concurrently with the student programs.

Freshmen and transfer students admitted for the fall semester attend an orientation/registration program during the summer or prior to the start of classes. Students who attend the summer orientation attended a session in December or during the weeks preceding the start of the semester. Students attending the summer orientation attend an orientation/registration program the Sunday before classes begin in June.
Services for Transfer Students

The Office of Admissions provides a variety of services to encourage outgoing and incoming students. Students can meet to discuss attendance criteria, programs of interest, and course equivalencies.

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

The admissions office also maintains a transfer course equivalency system that provides accurate and complete 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 other universities and receive credit toward their degree. Credit toward the baccalaureate degree is granted for courses that meet University of Iowa undergraduate credit standards.

Applicants to the Regents Exchange Program must: (1) be University of Iowa students who have completed two semesters and have earned a minimum of 30 credit hours; (2) have a cumulative grade point average of 2.5 or better in the two most recent semesters; and (3) have completed the application process for the Regents Exchange Program.

TUITION AND FEES

The University's schedule of tuition and fees for both in-state and out-of-state students is available online. Fees for graduate and professional students, as well as those who are nonresidents, are subject to change. Current rates are listed on the University's website. Students are responsible for any changes in tuition and fees. Any changes in tuition and fees are effective at the beginning of the fall semester.
Financial Aid • Learning at Iowa

Scholarships

Presidential, Alumni Association, and Dean's Scholarships

The University annually awards Presidential Scholarships to 50 high-school students in recognition of their outstanding high school achievements. The scholarships include full-time tuition, as well as room and board, and are renewable for four years. The office of Alumni Association and Dean's Scholarships are awarded to selected seniors at the University. They provide full-time resident tuition for four years. Alumni Association Scholarships are awarded to selected seniors on the basis of their outstanding leadership qualities. These are renewable, year-by-year, and are based on the amount of funds available.

For further information, students should contact their high school guidance counselor or the Office of Admissions.

The Iowa Center for the Arts Scholarship

The Iowa Center for the Arts is a private, non-profit organization that awards scholarships to students who have demonstrated a high level of artistic excellence. The scholarships are available to students in the following areas: music, drama, dance, and visual arts.

The Iowa State University Scholarship

The Iowa State University Scholarship is awarded to incoming freshmen and transfer students who demonstrate exceptional academic achievement. The scholarship is based on a combination of high school grades, standardized test scores, and a personal essay. The scholarship is renewable for up to four years, and may be renewed based on academic performance.

National Merit Scholarships

The National Merit Scholarship Program is a national academic competition that awards scholarships to the most outstanding students in the United States. The scholarships are awarded based on a combination of academic achievement, leadership qualities, and extracurricular activities. The scholarship is renewable for up to four years, and may be renewed based on academic performance.

Freshman Honors Tuition Grants

The University of Iowa Honors Program provides grants to incoming freshmen who demonstrate exceptional academic achievement. The grants are awarded based on a combination of high school grades, standardized test scores, and a personal essay. The grants are renewable for up to four years, and may be renewed based on academic performance.

Community College Transfer Grants

The University of Iowa provides grants to incoming transfer students who have completed an associate degree at a community college. The grants are awarded based on a combination of academic achievement and a personal essay. The grants are renewable for up to four years, and may be renewed based on academic performance.

Departmental Scholarships

The University of Iowa provides departmental scholarships to incoming freshmen and transfer students who demonstrate exceptional academic achievement in a specific area of study. The scholarships are awarded based on a combination of high school grades, standardized test scores, and a personal essay. The scholarships are renewable for up to four years, and may be renewed based on academic performance.

LaVerne Noyes Scholarships

LaVerne Noyes Scholarships are awarded to incoming freshmen who demonstrate exceptional academic achievement and a commitment to community service. The scholarships are awarded based on a combination of high school grades, standardized test scores, and a personal essay. The scholarships are renewable for up to four years, and may be renewed based on academic performance.

University of Iowa Fare Scholarships

The University of Iowa provides scholarships to incoming students who demonstrate exceptional academic achievement and a commitment to community service. The scholarships are awarded based on a combination of high school grades, standardized test scores, and a personal essay. The scholarships are renewable for up to four years, and may be renewed based on academic performance.
Grants

Pell Grants

Undergraduate students without Inactor's degrees may apply for Pell Grants. The awards range from $2070 to $3230 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. Students may use the FAF or FIS to apply for Pell Grants.

Supplemental Educational Opportunity Grants (SEOG)

The 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 FAF or FFS determines eligibility for this program.

Educational Opportunity Program (EOP) Grants

Institutional funds are awarded to minority students with exceptional financial need. Parental income and assets information must be reported. The FAF or FIS determines eligibility for this program.

Graduate Tuition Grants

Graduate Tuition Grants are institutional funds for graduate students in degree programs. The amount of grants is based on financial need and are applied during each tuition. The FAF or FFS determines eligibility for these grants.

Loans

Perkins Loans

Perkins Loans are long-term federal loans based on financial need. The annual loan award varies depending on federal funding. Students must be enrolled at least half-time in a degree program. Repayment starts 9 months after recipients cease to be at least half-time. The FAF or FIS determines eligibility for these loans.

Stafford Loans

Stafford Loans are low-interest loans made to students by lenders such as banks, credit unions, or state and loan associations. These loans are issued by a guaranteed agency in each state and are released by the federal government. Recipients must be enrolled at least half-time. The interest rate is 7.9 percent, and repayment begins when recipients cease to be at least half-time students. The FAF or FIS determines eligibility for these loans. Applicants must submit a Stafford Loan application, which is available from the lending institution.

PLUS Loans and Supplemental Loans for Students (SLS)

PLUS loans are for parent borrowers; the SLS is for students. Te PLUS loans provide additional funds for educational expenses. PLUS and SLS applications are available from banks, credit unions, and savings and loan associations. The loans have a variable interest rate that is reset each year. SLS borrowers must file the FAF or FFS.

Health Professions Student Loans

Health Professions Student Loans are long-term federal loans for students enrolled full-time in the Colleges of Medicine, Dentistry, or Pharmacy. Amounts available depend on federal funding. The interest rate is 5 percent. The FAF or FIS determines eligibility for this program.

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 at least half-time. The interest rate is 5 percent. The FAF or FIS determines eligibility for these loans.

Jobs

Part-Time Jobs

Student part-time employment can provide a valuable work experience as well as assistance in meeting educational expenses. The University of Iowa employs over 11,000 students in a variety of positions. Ranging from food service workers to maintenance workers, 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 $3.05 per hour. Students employed on a hourly basis are paid by check once every two weeks. Jobs are advertised via computer terminals across campus.

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

Other Sources of Aid

A guidance counselor or high school principal may have information on local scholarships. Individual schools or public libraries are excellent sources for publications about financial aid. Many places of employment, both public and private, also have programs to help pay the need of education for children of employees or retirees. Other sources include foundations, religious organizations, fraternal organizations, local 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 physically handicapped students is available from the University Office of Services for Persons with Disabilities.

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

Information about Education Aid to War Orphans is available from the Iowa Orphans Fund (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 Assistantships, and Graduate Opportunity Fellowships. Fellowships, scholarships, and part-time employment are also available. Further information is available from academic departments or programs.

The resources of the University's Division of Sponsored Programs have information on student aid available from non-University sources, such as foundations and professional associations.
ACADEMIC SERVICES

Academic Advising Offices

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, some declared majors, are assigned advisers in the Undergraduate Academic Advising Center. Other entering freshmen and 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 students and refer those with special needs to appropriate support services.

Undergraduate Academic Advising Center
The Undergraduate Academic Advising Center serves primarily freshmen and sophomores. Professional advisers provide extensive advising support, maintaining systematic and frequent contact with their advisees. They help students select a program of study and learn about career options that relate to their academic programs. They also refer students to appropriate resources for assistance in academic personal and career counseling, academic skill development, and financial aid. The Advising Center’s offices are located on the second floor of the Union Street student residence halls.

Collegiate Academic Offices
Each of the University’s undergraduate colleges maintains an student/advisor office. These offices are available to all students in the respective colleges to assist them with graduation requirements, academic majors, course requirements, grading options, career and degree plans, and other matters. They assist students who wish to change academic majors, and they maintain student complaint procedures.

International Education and Services (IES)
The IES is the focal point of the University’s international activities. It has administrative responsibility for the University’s foreign student/teacher program, and for an abroad program. It also has developmental responsibilities in international education, international studies, and technical cooperation activities. The IES works to enrich the campus by developing and promoting all aspects of its international dimension.

The IES promotes development of international educational exchange and international studies and promotes technical cooperation. It also assists faculty and students who seek grants or fellowships for study or research with an international perspective.

Through technical cooperation and faculty exchange programs, the IES encourages the development of formal links between the University of Iowa departments and programs and their counterparts in foreign institutions.

The liaison officer for the Midwest Universities Consortium for International Activities (MUCIA) is located in the IES, encouraging involvement 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 student agencies. They sponsor or support educational programs, such as the Friends of International Students; the International Student Services (ISS), and the International Student Center; and function as coordinators to foster constructive relations between foreign students and scholars from other countries and their domestic counterparts. In short, they help with problems and questions in most areas except academic advising.

In addition, the IES organizes and finances multicultural programs for both foreign and domestic students and faculty. It maintains a library with references on study, work, and travel abroad. In addition to providing overall information about foreign universities and study abroad programs open to UI students, the office helps students select study abroad programs to complement their campus academic programs and helps ensure that they receive the correct credit for such activities.

It also helps students obtain information about and applications for the following scholarships: Fulbright, Marshall, DAAD (German Academic Exchange Service), Inter-American Foundation, International Student Service CAF, International Exchange, Presidential Scholarships for Study Abroad, and the Stanley Fellowships for Graduate Student Research Abroad.

Students considering study abroad should contact the Office of International Education and Services. The following are University of Iowa study-abroad programs. Depending on the program, some may be created as semester-based or as transfer credit.

Placement Services
Professional staff of the Business and Laboratory Placement Office (BLAP) help students and graduates at every stage of the career planning process. With the guidance of BLAP advisers, students discover what they do want and enjoy, explore career options, and develop strategies for finding career pathways efficiently and successfully.

The Office provides programs and services for seniors and graduate students seeking employment in business, industry, government, and nonprofit agencies. Students and alumni can attend on-campus interviews and take part in the fall and spring, and can register for a subscription program that offers exclusive opportunities.
to a weekly ioe Bulletin (theseus referral) and is a replaceable file service.

In cooperation with the Alumni Association, the Career Information Network provides Alumni, a resource for alumni and other services that call on the help of alumni.

The office also provides programs on resume preparation, job hunting, and interviewing skills. In Employer Literature Room offers information on employers, salaries, and employment trends. Offices are located in 24 Phillips Hall and a Public Affairs Information Center is located in 280 Iowa Memorial Union.

In addition to parent services for Liberal Arts and Humanities students, the office also coordinates placement information among the other colleges and placement centers across campus.

Career Days, a cooperative effort, is held each fall and offers students the opportunity to meet with hundreds of employers. A separate graduate and professional school fair is held each fall. A Summer Job Fair in the spring semester is also an annual event.

Career Information Services
The Career Information Services office is located on 2006 of the Iowa Memorial Union. It provides information advising and career exploration programs to help students from a wide variety of fields identify their interests, abilities, values, and work and leisure aspirations. In a comprehensive career decision-making program, it provides students match depressed preferences with various career opportunities.

Career Information Center
This self-help resource houses hundreds of books and pamphlets on career and job market trends, career options, academic requirements for specific careers, work environments, places of employment, salary ranges, advancement opportunities, and geographical regions of the country. The center also maintains information on developing strategies for finding jobs, researching organizations and competitive agencies, defining job objectives and evaluating resumes and cover letters, and improving interviewing skills. The center is open 8:30-A by 3:00 p.m. to help students use the material. No appointments are necessary.

The Career Information Center is located at 280 Iowa Memorial Union.

Cooperative Education

The UI Office of Cooperative Education, located in 340 Admin Bldg, is the primary campus resource for students interested in obtaining educational work experiences before they graduate. Undergraduate and graduate students may seek positions related to their academic and professional interests. Cooperative education assignments coincide with fall, spring, or summer semesters, with opportunities existing through Iowa, across the United States, and overseas.

Cooperative education opportunities give students opportunities to gain responsibility, apply their studies in a supervised work situation, and receive compensation. Students also benefit from an inside look at different organizations, a chance to work in their field of study, and experience the sights, sounds, and smells of the workplace.

In cooperation with the Cooperative Education opportunities are available through the Office of Cooperative Education and through the Career Information Center, 280 Iowa Memorial Union.

Ideally, students interested in this educational opportunity should visit the Office of Cooperative Education during their first year at the University.

Tutorial Labs

Mathematics Tutorial Lab

The Mathematics Tutorial Laboratory is integral to instruction in basic precalculus and advanced mathematics courses. Students are encouraged to use the math lab's programs and facilities, which include private and small group tutoring, self-instructional materials, computer-assisted instruction, and diagnostic testing and advising.

The math lab holds tutoring hours throughout the day and evening; no appointments are necessary. Students are encouraged to stop by the lab for help as an alternative to using the lab as a resource for supplemental material, or as study in the lab's testing environment, and to consult with their TAs concerning problems related to their math courses.

Reading Lab

The Reading Program is a Reading Lab provides computer-assisted instruction for University students who want to improve their reading and study skills. At the lab, students work with reading specialists as classifiers that is difficult for them or on elective reading, based on their own needs.

Students schedule two hours per week in the lab, usually Monday and Wednesday or Tuesday and Thursday, to work on their reading and study skills. At the lab, students work with reading specialists as classifiers that is difficult for them or on elective reading, based on their own needs.

Students may register for the lab at 2 or 3 English 101-120 and 120-140, by calling the lab or the English Program.

Writing Lab

The Writing Lab provides individualized writing experiences for Union students who need assistance in preparing for college writing. Lab students discuss their work in informal conferences with teachers, who offer comments and suggestions to help students become proficient, critical readers of their own writing as they learn how to develop their ideas clearly and cogently.

Students can enroll in 4 credit hours in the lab throughout the summer or fall. They can register for the course (109) in the morning, no credit (919) in the afternoon, or after taking a required rhetoric course, or transfer to 310 Rhetoric from another institution on a mutual agreement.

Registar

The Office of the Registrar determines the residence status of each student, issues University identification cards, maintains registration procedures and coordinates commencement and academic special events programs. It assesses fees and the attendance of students, all academic records, and on-campus transcripts and verifications.

Transcripts

Students who have completed work at The University of Iowa can obtain an official transcript of their work upon request. The office of the Registrar. Fees are $2 for the first copy and $1 for each successive copy on the same order. For an additional $2 charge, students with proper identification can obtain an accelerated transcript service. The official transcript cannot be issued if a past student has a past due University account.

Services for Persons with Disabilities

The University of Iowa is committed to making its facilities, services, and programs fully accessible to people with disabilities. The Office of Services for Persons with Disabilities, 130 Main Admin Bldg, is located in Main Admin (305), by calling the University's assistive services to students with the wide range of visual and auditory disabilities, including hearing.
and speech impairments, learning disabilities, mobility impairments, visual impairments, and obesity. 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 of Special Support Services works closely with University faculty and staff to provide assistance with admissions, orientation, academic and career planning, academic support services, financial aid, housing, transportation and parking, safe and affordable care, and health services. The Office works with students individually to locate the type of assistance appropriate to their needs, from tutors or personal attendants to tape recordings in emergency-food situations.

### Special Support Services

The Office of Special Support Services, located at 708 E. 14th St., enforces the University's commitment to increase social diversity in the student body and provide eligible students with academic, social, and financial support.

Special Support Services includes the Upward Bound Project and New Dimensions in Learning.

### GENERAL SERVICES

#### Campus Information Center

Located in the south tower lobby of the Iowa Memorial Union, the Campus Information Center provides information on campus and community activities and University services and operations. The center offers information to appropriate campus and community resources and coordinates master-calendars and special events. It also coordinates a roam-home matching service and maintains the Housing Clearinghouse, which provides up-to-date listings of available rental units. City and campus maps, lists of Realtors, motels, and apartment centers are available.

The center open seven days a week.

#### Campus Programs and Student Activities

The Office of Campus Programs and 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. It helps students and student organizations design, build, and maintain educational environments that enhance their growth.

Students are welcome to seek guidance from professional advisors in the OCPSA about how they can find and become involved in organizations suited to their interests. There are special needs who want to form new groups or organizations can request guidance from the OCPSA staff.

The Office presents workshops on enhancing leadership ability to students' organizations and works closely upon request. It also sponsors the Student Volunteer Clearinghouse, a program designed to incorporate local volunteer agencies with University students interested in Volunteer Service.

Cultural programming and special event planning are ongoing tasks for the Office. Other traditional events such as Homecoming and winter activities and international events and festivals and new campus programs. It programs major concerts and is responsible for the Arts, Coffe, and Recreation areas. The Student Activities Center, the University Box Office, Campus Program and Service (SCPS), Fine Arts Council, Union Board, the Indian-American Cultural Center, and the Omaha-Midwest American Cultural Center.

### Cultural Centers

#### Afro-American Cultural Center and Chicano/Indian-American Cultural Center

The University operates the Afro-American Cultural Center and the Chicano/Indian-American Cultural Center under the auspices of the Office of Afro-American Programs and Student Activities. Students meet at the center to develop programs and to develop social programs, all in an atmosphere that emphasizes their cultural heritage.

The Afro-American Cultural Center sponsors discussion groups, orientation programs, movies, and class sessions. The center is decorated with art by African and African-American and Indian artists and has an annual art exhibition. It also houses a library of African, Afro-American, and Third World authors.

The Chicano/Indian-American Cultural Center sponsors conferences, lectures, and workshops on cultural themes. The center also maintains a library of special interest books and periodicals and displays and exhibits prepared 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 from 8 a.m. to 5 p.m. Monday through Friday. The lounge is open to the University and Iowa City individuals interested in groups sponsored by an International Center unit.

### Sports and Recreation

#### Intercollegiate Athletics for Men

The University of Iowa is a member of the Intercollegiate Conference of Men's Intercollegiate Athletics (ICMIA) and the women's programs in basketball, baseball, track, and field, softball, swimming, golf, wrestling, tennis, cross-country, and gymnastics. Operating policies are determined by the Board in Control of Athletics, which is composed of 12 members from the University's teaching and administrative staff, the University alumni, and two representatives from the University's student body, and two students.

#### Intercollegiate Athletics for Women

The University of Iowa operates nationally competitive intercollegiate athletic teams for women in basketball, cross-country, field hockey, golf, gymnastics, softball, swimming and diving, tennis, track and field, and volleyball. It competes in a member of the Big Ten Conference and the National Collegiate Athletic Association (NCAA). The women's intercollegiate athletics are governed by the Board in Control of Athletics.

#### Recreational Services

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

#### The Intramural Program

More than 30 different intramural sports are offered, including both regular and regular sports such as basketball and flag football in individual and team activities such as tennis, track, and field.

#### Sports Clubs

Recreational services advises and funds more than 20 sports clubs organized by individuals to further their interest in a sport or recreational activity. Clubs range from competitive sports clubs such as soccer and rugby to recreational clubs such as sailing and 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 registration fee for each program. Typical lesson programs include:

- Basketball
- Baseball
- Volleyball
- Tennis
- Swimming
- Softball
- Cross-Country
- Gymnastics

The Office of Special Support Services enforces the University's commitment to increase social diversity in the student body and provide eligible students with academic, social, and financial support. Special Support Services includes the Upward Bound Project and New Dimensions in Learning.
include gymnastics, golf, tennis, swimming, racquetball, and various martial arts classes. The division also offers fitness programs that stress endurance and muscular development for people of all ages and fitness levels.

Informal Recreation
An informal drop-in recreation program is available for winter sports, including basketball, racquetball, handball, volleyball, tennis, weight training, and jogging.

Outdoor Recreation
The division operates the Macbride Square Recreation Area, one of the finest university-managed outdoor programs in the country. The 43-acre area, located 15 miles north of Iowa City on Lake Macbride and the Coralville Reservoir, offers picnic and camping sites, nature trails, an outdoor theater, a 20-sport center, and some of the finest cross-country ski trails in the Midwest. It also has the 60-day camp 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 70 South Clinton Street, offers all types of outdoor equipment, including cross-country skis, picnic equipment, canoes, backpacks, skis, and snowboards.

Persons with Disabilities
Recreational and intramural sports equipment and exercise room equipment are available especially for persons with disabilities. In addition, recreation staff members are available to help disabled athletes who want to be mainstreamed into 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 camp programs in the Midwest. All popular team sports are offered, such as soccer and baseball, softball, cross-country skiing, and snowboarding. Swimming, tennis, track and field, golf, boys and girls, gymnastics, soccer, badminton, and bowling. All are unique camping trips in activities such as cheerleading, and sport reorientation.

Iowa Memorial Union
The Iowa Memorial Union is the hub of student life in facilities include a coffee center, the Campus Information Center, the University Box Office and check cashing services, the Office of Campus Programs and Student Activities, the Wheeledog, which offers live entertainment, a variety of food services, a recreation area with billiards and electronic games, a bar/restaurant, an arts and crafts resource center, a bookstore, rooms for lectures, concerts, meetings, and social events, and art and sculpture display areas. The adjoining Iowas House has 110 guest rooms for parents, alumni, conference participants, and other visitors to the campus.

Also housed in the union are the Student Activities Center and student organization offices, the Business and Liberal Arts Placement Office, the Career Information Services office, and the Center for Conferences and Institutes.

Student Health Service
Student Health Service is located in the Steadman Building on the University health center campus. All students registered at the University, with the exception of those residing in off-campus housing, are eligible for comprehensive care at the Student Health Clinic. Fees are free, but charges are made for laboratory procedures, x-rays, accident examinations, minor surgery, and some special procedures.

All students are required to have health and accident insurance. A University-sponsored group insurance is available for students' individual or family plans. The insurance policy must be obtained prior to or during the registration period and is available through the Business Office in Jesse Hall.

University Counseling Service
The University Counseling Service (UCS) is committed to fostering a multicultural environment. It staffs professional psychologists, social workers, and advanced doctoral students offers learning disability assessment and career and personal counseling and therapy. The Center is open Monday to Friday, 8 a.m. to 5 p.m. Telephone 319-335-1011, and has a limited number of time 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 women 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. The WRAC advocates the removal of all barriers to equal access and self-determination. The WRAC offers workshops and classes as well as core based on physical, sexual, and psychological abuse for women. Through its financial and community programs, the WRAC 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, offering evening and weekend workshops, lectures, films, and classes; provides a wide variety of support and discussion groups for women of all ages, including women of color; and publishes a newsletter nine times a year.

The WRAC hosts the Summer 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 informational and educational 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 no person shall be denied the use of the facilities of the University on the basis of their individual merits or status, without discrimination on the basis of race, creed, color, or national origin.

Iowa City has a fair housing ordinance prohibiting equal opportunity to secure housing without discrimination based on race, religion, or ancestry, except in certain instances involving owner-operated 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 professional support for 6,000 single students. 789 families reside in apartments operated by the Department of Residence Services.

University residence hall furnishings, facilities, and services are designed to...
provide a pleasant atmosphere conducive to effective study.

Single, double, triple, and quadruple rooms are available in the Great-West Residence Halls (east campus), which includes Killen, McGraw, Morgan, and State halls, and in the Clinton Street Residence Halls (east campus), which include Budge, Currier, Dean, Mayflower and Stanley halls. There are lounges, study areas, recreation rooms, game rooms, fur- nished facilties, and small stores in or available to each residence hall. Computer terminals, reference materials, news libraries, and pre-press rooms for group study sessions are available in four monitored learning centers.

Each residence hall is divided into small living units. Each building has a live-in hall coordinator, and there is a student resident assistant living on each floor. All students are encouraged to participate in residence hall government to plan programs and discuss issues.

Student body initiated and sponsored programs and activities provide opportunities for students to pursue social, recreational, cultural, and educational interests. Many academic classes are taught in residence halls. An academic advising center is located in Budge Hall and tutorial services also 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 meals. Students who do not live in residence halls may purchase full or part-time contracts.

Applications and Assignments

Prospective undergraduate students should receive application forms to apply for residence hall accommodations. Students applying for residence hall accommodations should read the terms and conditions of the contract in the move-in information received on the application form. Sign the contract portion, and return the completed application/contract with a check for $200 to the University Housing Assignment Office, Budge Hall.

Applicants who want to room together should enter each other’s name and social security number under “Roommate Request” on the application for residence hall accommodation. They also should list the same preferences—room type, building, guest policies, special housing options—and list “roommates” as their first priority preference on the application.

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

The residence-hall application contract and $100 advance payment constitute a contract offer. Applicants may withdraw by notifying the University Housing Assignment Office in writing before their application becomes a binding contract. The application becomes binding approximately ten days after the University Housing Assignment Office receives notice of acceptance of the contract and assignment of accommodations.

Upon written request, the $100 advance payment is refunded to applicants who are not admitted to the University or who cancel their residence hall contracts in accordance with the terms and conditions set forth in the contract.

Rates

Basic rates for University residence hall accommodations for the 1989-90 academic year are $2,580 for a double room and $3,000 for a 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

There are 74 University-operated apartments for married students or legally defined family units in the Doubletree Drive, Haskell Court, and Parkview complexes. Monthly rents for 1099-1100 academic year were $1,215 for efficiency, $1,408 for a one-bedroom unit, and $2,727 for a two-bedroom unit. Rent includes utilities, use of on-campus and local service, but gas or electricity. All units are furnished. Rates are subject to change annually.

Family housing is assigned according to the order in which applications are received. Applicants must meet all University admission requirements before assignments can be made. Applications may be filed at any time; however, the College of Education, Department of Human Development, has first priority on housing accommodations available. Applications may be filed at any time; however, the College of Education, Department of Human Development, has first priority on housing accommodations available.

Off-Campus Housing

The Office of Student Housing is located at the Campus Information Center in the Iowa Memorial Union 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 University Housing Office also provides resources and families for new students, but they are not to be used more than once a year in advance.

University Policy on Human Rights

The University of Iowa brings together in common pursuit of its educational goals persons of many nationalities, races, and creeds. The University is guided by the precept that in no aspect of its programs shall there be discrimination or the treatment of persons because of race, creed, color, national origin, age, sex, disability, and other classifications that deprive the person of consideration as an individual person shall be afforded to all. Among the classifications that deprive the person of consideration as an individual person shall be afforded to all. Among the classifications that are used by the University to screen persons for consideration as an individual person shall be afforded to all. Among the classifications that are used by the University to screen persons for consideration as an individual person shall be afforded to all. Among the classifications that are used by the University to screen persons for consideration as an individual person shall be afforded to all. Among the classifications that are used by the University to screen persons for consideration as an individual person shall be afforded to all. Among the classifications that are used by the University to screen persons for consideration as an individual person shall be afforded to all. Among the classifications that are used by the University to screen persons for consideration as an individual person shall be afforded to all.
observed in the internal policies and practices of the university, specifically in the admission, housing, and selection of students to policy 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 are pursued first through the internal procedures 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 faculty member involved.
- If the student fails to resolve the issue, he or she may file a complaint with the dean of the college housing the faculty member.
- A decision will be reached.

If a satisfactory outcome is not obtained, the student may take the matter to the university level. In addition, graduate students should consult with the associate dean for graduate affairs in the Graduate College concerning ways to resolve complaints.

Students (Dissertation, Engineering, Law, Medicine, Nursing, and the Graduate College) also have established an ombudsman system as an alternative mechanism for resolving faculty student complaints. Information concerning the informal mechanisms established in specific colleges is available in the dean of the college’s office at The University of Iowa Student Association (USA).

If a student complaint concerning faculty actions 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 Ethics and Academic Responsibilities," as specified in section 8.60 of the University Operating Principles. A description of these formal procedures, found in section 20.260 of the University Operating Principles, may be obtained from the office of the ombudsman in any of the colleges or in the ombudsperson's office. The Liberal Arts Office of Academic Programs; the Undergraduate Academic Advising Center; and the office of the Academic Associations Council.

University Ombudsman

The office of the University Ombudsman responds to problems and disputes brought forward by all members of the University community—students, staff, and faculty—that appear unreasonable through existing channels. The ombudsman investigates claims of unfair treatment or excessive procedure or the functioning of an administrative and advisory role. The ombudsman considers the wide range of issues a question of an impartial and objective way.

The ombudsman's office is independent. It is not part of and does not report to the University administration. It treats all requests and concerns in strict confidence. It may negotiate a client's name or the nature of his or her concern without the client's consent.

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

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

The ombudsman has the power to order changes in rules, regulations, policies, procedures, or the behavior of others. Solutions reached through the Office of the University Ombudsman are binding. 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 handbook Policies and Regulations Affected 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 all students, faculty, and the academic community as a whole. When, through fear or repulsion, a student, student, member, or faculty member subsides or is prevented from continuing work, sexual harassment is an unwelcome situation, the University's ability to carry out its mission is compromised.

(b) Sexual harassment is especially serious when it threatens relationships between teacher and student or supervisor and subordinate. In such situations, sexual harassment often has a greater impact than in a faculty member's or supervisor's position. Through grades, assignments, recommendations for graduate school, promotion, and, if the teacher or supervisor is a person of power in a faculty member's position, sex, the University will not tolerate behavior between a student, a faculty member's, or a faculty member's life at the university or beyond.

(c) While sexual harassment often occurs when a potential relationship between persons involved, the University also recognizes that sexual harassment may occur between persons of the same sex. 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, verbal or nonverbal harassment of a sexual nature when

(a) Submission to such conduct is made explicitly or implicitly a term or condition of an individual's work or student status.

(b) Submission to or rejection of such conduct is used as a basis for 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 Setting

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 ACTIVITIES

The University recognizes that its creative activity is indispensable if its teaching is to have the necessary intellectual vigor, tradition, and ethos-renewal expected of a distinguished institution of higher learning.

The University hopes that the term "research" applies to activity in all fields, intellectual or practical, whether in the fine arts or in science, 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 institute and actively promotes the research mission of the University in many ways. It

- assesses the development of new knowledge;
- develops and maintains the infrastructure for proper conduct of research;
- helps individuals, groups, and organizational units study 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 internal 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 pertinent to those needs and acts in development of a University agenda to meet those needs;
- affects federal legislation and regulations enhancing the University's position as a major 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;
- promotes the Oakdale Research Park as a vehicle for technology-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 principal involvements in basic research or creative activity, one representative of the University staff, and two student members. Faculty members include two each from the biological, medical, 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

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

Interdisciplinary Research Assistantship Program

Support is available to faculty for hiring graduate student research assistants who help conduct interdisciplinary research in certain contexts. Eligible faculty members include tenure-track professors involved in interdisciplinary research programs not authorized to award graduate degrees. These individuals engage in interdisciplinary research where seeking funds to support research assistants in disciplines different from their own, and those involved in research with one or more faculty members, where the research spans their respective units.

Junior Faculty Research Support

A limited amount of money is available each year from the National Institutes of Health for the support of the initial research efforts of junior faculty (other than those in the colleges of Dentistry, Medicine, and Pharmacy) who want to do health-related research. To qualify, the faculty member must hold a full-time appointment as instructor or assistant professor. The funds may be used for any purpose that will assist the faculty member in conducting an initial exploration of a hypothesis that he or she believes may lead to the development of a full-funded program of research.

Incidental Grants

Limited funds are also available to the Office for the Vice President for Research for small grants to faculty members to cover the costs of materials, supplies, equipment, proposal writing, and related and related assistance for specific research projects; for faculty 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 some University-wide services required by faculty members to conduct 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 are available to all interested graduate students and faculty and on a time-available, fee-for-service basis to those outside the University community. Some financial support is available from the Office of the Vice President for Research for use of the facilities by graduate students. Currently these facilities include the following:

Computer-Assisted Image Analysis Facility

The Image Analysis Facility, located in the Ekenren Medical Research Building, provides instrumentation and technical assistance for research programs involving digital image processing and analysis, three-dimensional modeling, molecular modeling, wave-_processing, and computer animation.

The facility has two silicon graphics Irix workstations and two Gould TRSM image processing systems that handle most graphics and imaging applications. Other hardware includes two Vax I11 minicomputer systems, a Macintosh network, a Tektronix 4000 videoste printer, and various mass storage peripherals.

The Irix workstations provide a powerful means to display graphic data. There is microscopic software for creation of real-time, three-dimensional animations and View Softway for display of real transparency from three-dimensional data sets such as CT and MRI scans.

The facility has the capacity to digitize images from microscopic slides, medical images, television signals, and video tapes. Mass storage peripherals allow for the transfer of images that have been digitized elsewhere. Once digitized, images may be processed in a number of ways, including pseudo-color coding, edge detection, and grayscale enhancement techniques.

Two full-time staff engineers and one research assistant perform image analysis techniques, develop new image processing and graphics modeling applications, serve as research consultants, train novice or experienced users in the operation of facility systems, and develop new and
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

Two superconducting spectrometers form the base 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 observation. Very high spectral resolution and sensitivity are achieved for structural determination of complex molecules. Both instruments are fully multidimensional and have variable temperature capabilities. Virtually any multiparameter two-dimensional experiment can be performed on the spectrometers. Both hard disk and floppy disk systems provide data storage. Either high-or standard-X-Y plotters are available. Protein NMR data are recorded in 5 mm tubes. Carbon-13 and other heteronuclear spectra are recorded in 5 mm, 4 mm, or 2 mm tubes. Carbon-13 observation is possible with a combination of proton and other 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. Installation of a Bruker AMX-400 spectrometer is scheduled for early 1989. For the casual user, spectra are recorded by a technician, using 100 or 200 scans. For an experienced user, a 24-hour reservation is an option. The facility is located in the northeast ground floor area of the Chemistry-Biology Building.

High Resolution Mass Spectrometry Facility

The High Resolution Mass Spectrometry Facility, located in the Chemistry-Biology Building, provides a mass spectrometer 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, inorganic, and organic molecules can be obtained (to 6,000 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 (GC/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 (FABMS) permits the analysis of very large, poor, and/or involatile compounds that cannot usually be studied by other mass spectrometric methods. FABMS is particularly useful for biologically important compounds such as polypeptides, amino acids, oligosaccharides, and steroids. High resolution mass spectrometry (HRMS) 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 consists of a VG ZAB-2F high-resolution field ionization mass spectrometer with a Hewlett-Packard (HP) high-capacity GC and an HP 601 A data system. The instrument is equipped with a positive and negative ion analysis capabilities in the electron impact (EI), chemical ionization (CI), GC/MS, and FAB ionization modes. High resolution mass measurements can be made in all of these modes of operation. The capabilities of the Mass Spectrometry Facility were substantially expanded in the Spring of 1989 with the addition of two new instruments. The first, a VG TRIO 3 triple quadrupole mass spectrometer interfaced to a Waters 600 M high-performance liquid chromatography (HPLC), an HP 5890 GC, and an HP 5980 A data system, permits GC/MS as well as CI, GC/MS, and FAB experiments. The TOF/TOF quadrupole mass spectrometer, interfaced to an HP 5890 GC and an HP 9996A/390 computer, is used for routine, low resolution CI, GC/MS, and FAB experiments on the metabolites of the VG 1 data system which permits hands-on sample analysis after a brief training period.

Large Scale Fermentation Facility

The Large Scale Fermentation Facility, located in the Brown Science Building, was designed to support the large-scale growth and recovery of microbial organisms as years and large-scale fermentations in the United States that are able to grow some metabolic bacteria and is one of only five or six such facilities able to grow extremely thermophilic bacteria at 70-70 70.

With its new, sophisticated growth, monitoring, control, and harvesting systems, the facility is capable of supporting large-scale fermentations ranging from 200 to 1,000 liters of culture broth, with hourly control sample collection by microorganisms in fermenters. Further services are provided in areas of growth, harvesting, medium preparation, sterilization, process optimization, knowledge gain in monitoring (if required), and harvesting.

The facility is currently used to support the following research projects:

1. **Optimization of Laboratory Equipment:** The facility is equipped with state-of-the-art laboratory equipment to support research projects. The equipment includes high-performance liquid chromatography (HPLC), gas chromatography/mass spectrometry (GC/MS), and high-resolution mass spectrometry (HRMS). These instruments are used to analyze complex mixtures and determine molecular weights and elemental compositions. The facility is also equipped with a field ionization mass spectrometer (FABMS) to study involatile or poor compounds that are difficult to analyze by other methods.

2. **Biocatalytic Reactions:** The facility is used to study biocatalytic reactions, which are important in the production of biologically active compounds. The facility is equipped with systems for monitoring and controlling the temperature, pH, and other parameters during biocatalytic reactions. The facility is also equipped with a high-performance liquid chromatography (HPLC) system to analyze the products of biocatalytic reactions.

3. **Environmental Studies:** The facility is used to study environmental samples, such as soil and water, to determine the presence of pollutants and other contaminants. The facility is equipped with a high-performance liquid chromatography (HPLC) system to analyze the samples.

4. **Drug Discovery:** The facility is used to support drug discovery projects. The facility is equipped with systems for monitoring and controlling the temperature, pH, and other parameters during drug discovery projects. The facility is also equipped with a high-performance liquid chromatography (HPLC) system to analyze the compounds.

5. **Metabolic Engineering:** The facility is used to study metabolic engineering, which involves modifying the metabolic pathways of microorganisms to produce desired products. The facility is equipped with systems for monitoring and controlling the temperature, pH, and other parameters during metabolic engineering projects. The facility is also equipped with a high-performance liquid chromatography (HPLC) system to analyze the products.
Laser Facility

The Laser Facility consists of a wide variety of modern laser instrumentation. In particular, state-of-the-art CW argon ion and krypton ion lasers (with ultraviolet capabilities) are employed. Either small or to pump two tunable dye laser systems throughout the visible and near-infrared regions of the spectrum. Each CW Laser is routinely operated single mode with a line width of one tenth-thousandth of a reciprocal centimeter. Other CW lasers, including low power argon ion, InAs phosphor-doped cadmium, and Alexandrite (turquoise), are also available.

Major pulsed laser systems include a less than or equal to 30 pulse per second Nd:YAG laser system with harmonic generation (2x, 3x, 4x), which pumps two pulsed tunable dye laser systems and includes doubling and Raman shifting capabilities to completely cover the spectrum from vacuum ultraviolet to mid-infrared. An additional pulsed dye laser system can be pumped by a pulsed excimer laser (less than or equal to 100 pulses per second) or a pulsed repetter Q-switch laser. A 30 Watt Ne:YAG laser (Nd:YAG) computer-controlled stage for laser microfabrication applications also is available. In addition, the facility is equipped with a variety of spectroscopic, electron microscopic, and vacuum devices.

This instrumentation is installed in a single large laboratory in the northeast wing of the Chemistry-Biology Building. It includes a mechanically and thermally stable 4-foot-long enclosed optical bench with a variety of workstations for users. Helpful technical support is available in a separate laboratory in the College of Engineering.

A separate Microfabrication Facility in the Chemistry-Biology Building includes a range of lasers and laser systems and diagnostic equipment, including a tunable, pulsed Nd:YAG laser system; similar to the Nd:YAG laser in the infrared; two CW CO2 lasers; one tunable; electronically pulsed 120 watt and one 10.6 micrometer 400 watt; a 28 watt CW argon ion laser with double intra-cavity with computer-controlled translation and a xenon arc lamp system; electron probe system; scanning electron microscope; X-ray diffractometer; stylus profilometer; metallographic microscope; scanning electron microscope; optical measuring equipment; and several high-speed digital oscilloscopes and computers for experiment control.

An ultraviolet and electronic science facility is being installed on the Oakdale Research Campus. It will include capabilities for studying phenomena with pulsed lasers on a picosecond time scale.

Protein Structure Facility

The Protein Structure Facility provides instrumentation and expertise to assist investigators in all aspects of protein chemistry. The facility is equipped to carry out protein/peptide sequencing, peptide synthesis, and amino acid analysis for compositional information or physiological fluid profiling. Other services such as protein or peptide purification and peptide mapping are also available.

A number of instruments are available for use by investigators. Included in this group is an automated HPLC, a capillary electrophoresis instrument, a high-sensitivity fluorometer for fluorescence, and polarisation and lifetime measurements, a circular dichroism spectrometer, and a high-resolution visible spectrophotometer. These stopped flow instruments also are available for studying fast kinetics.

The director and staff are available for consultation on protein purification or analysis and for training users in the operation of facility instruments. Users are encouraged to take an active role in the use of the facility. The Protein Structure Facility is located in the Boeck Science Building.

Social Science Institute

The University of Iowa Social Science Institute (SSI) 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 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 system include automatic dialing, automatic execution of complex questionnaire skip patterns and logic branches, call attempt disposition processing, and reporting of numeric and verbal responses in machine-readable form.

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

The Institute maintains an extensive Social Science Data Archive and acts as the co-ordinated 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 SSI, enabling members of the University community to obtain a vast array of social science data for secondary analysis. The archive presently includes more than 2,000 datasets and continues to grow each year.

SSI 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 instrument design, data collection, and data analysis. It also may conduct entire survey research projects 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. Faculty and advanced graduate students in the Department of Statistics and Actuarial Science provide professional statistical consulting to Le faculty, staff, and students, as well as to the broader state and regional community.

Drop-in consulting services are available free of charge for graduate students and also at the Center for Research. More extensive consulting is offered on a cost-recovery basis.

Sponsored Programs

Located in Gilmore Hall, the Division of Sponsored Programs maintains a repository of information on external and federal sources of support and assists in the development of proposals by faculty, staff, and graduate students. The division searches and potential sources of support and students take advantage of finding opportunities in both the sponsored and student projects to potentially interested funding agencies. Its staff members specialize in major disciplinary areas.

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

The division's resource center, also located in Gilmore Hall, maintains extensive files on private foundations and corporations that support college and university programs. Among the many resources of the center are directories of available grants, fellowships, and scholarships; directories of atlases and indexes; directories and annual reports of private foundations; and descriptions of nonfederal agencies and foundations with guidelines and application forms for program support. The center maintains its own comprehensive database of information on more than 1,400 nonfederal programs of interest to University investigators. Customized searches can be performed on databases for programs of interest.
funding opportunities, and changes in program regulations, policies, and perspectives through:

- Individual contact, either by telephone, mailing, or e-mail
- "Research and Graduate News (RGN)," published in The University’s faculty/staff newsletter
- Twice-weekly bulletin from the University Business Daily, which lists all government support for proposals (RFPs) and requests for qualifications (RFQs); the division also obtains copies of RFPs in response to special requests from individual researchers, etc.
- Faculty interest profiles developed through surveys of the purpose of contacting opportunities and potential collaborators with faculty members' interests; profiles remain current via periodic updating. Development of proposals, monitoring the progress of projects, and reporting results are important steps in the support process. While much of the responsibility is on the hands of faculty, staff, and students who originate proposals, the division helps make the process work efficiently and effectively.

Sponsored programs staff members guide investigators through the development process and, upon request, help establish budgets, review proposed 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 responsibilities for monitoring clearance documentation regarding the use of human or animal in research. The staff's understanding of relevant regulations helps ensure full compliance with established rules.

University of Iowa Research Foundation

The University of Iowa Research Foundation (UIRF) was established in 1975 to provide support for intellectual property and inventions generated at The University of Iowa that might have commercial applications, and to license such property and inventions to industry. When the federal government adopted a uniform government patent policy in 1980, allowing universities to retain ownership of patents based on federally funded research, the process of technology transfer at the University was greatly simplified. Communications between industry and the inventor were enhanced as sponsors of sponsored research contracts could be assured the opportunity to license resulting technologies from the University, even if federal funding had also been received on the project.

The Office of Technology License was established in the UIRF in January 1988 to help faculty and staff identify marketable technologies. Historically the UIRF had relied primarily on outside agents and firms to promote and license University-generated technologies to industry. Reflecting the University's increased commitment to commercialization of its technologies and economic development, the UIRF in July 1989 expanded its activities to include internally controlled marketing and licensing of its technologies to industry. Upon request, the UIRF provides to industry representatives a summary of all technologies currently or potentially available for licensing, and when appropriate, assists in the exploration of joint-venture or venture capital opportunities from University-generated technologies.

Oakdale Research Campus

The Oakdale Research Campus is administered by the Office of the Vice President for Research. Its 500 acres of land and 51 buildings are located within the corporate limits of Coralville, approximately seven miles north-east of the main University campus. The Oakdale campus is accessible by interstake and maintained as two-way traffic. Approximately 500 researchers, students, patients, staff, tenants, conference, and visitors use the campus daily.

During the past decade, the campus has evolved from a provider of a patient care to a diversified research and educational campus. Most of the campus is composed of relatively small buildings that are either subsidiaries or satellite programs of University colleges and major departments. Among these are the Clinical Depression Center, Dentistry Clinical Practice Management, Institute of Agricultural and Occupational Health, Institute of Child Behavior and Development, Regional Genetic Counseling Services, Iowa Geographical Survey, KONZ, Iowa Humane Board, Labor Center, Small Business Development Center, Legislative Extended Assistance Program, Computer and Information Services, Pedestrians and Cyclists, Laboratory, and Animal Care Research Facilities.

New programs added during the past several years include the Institute of Public Affairs, Iowa Center for the Book, Center for Health Effects of Environmental Contamination, Biomedical Engineering Research, Center for Laser Science and Engineering, Genetic Counseling Program, Iowa Drug Information Service, Iowa Liberal Research Program, National Research Center on Family-Based Services, and Health Protection Office.

Also located on the research campus are the Technology Innovation Center, University House, and the State 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 industries engaged in basic and developmental research, product development, and production links to research and development the opportunity to establish a working relationship with academic researchers.

Located on a 75-acre parcel of land on the Oakdale Research Campus, the park includes a multi-use 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 also leases land at the park to organizations that want to construct and occupy separate facilities. Sites of varying size and proximity are available to meet individual corporate needs.

For more information contact the Office of the Vice President for Research.

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 businesses—particularly those that make use of advanced technology. Many services at the TIC are tailored to the needs of early-stage ventures just starting up. However, the TIC also serves established companies eager to grow in new directions.

The strength of the center lies in its ability to couple the scientific and technical capabilities of the University with the entrepreneurial spirit of the Western community. Located on the University’s Oakdale Research Campus, TIC provides a conglomerate, innovative work space where collaborations between academic scientists and those in business can flourish. It often ready access to the University’s computing facilities, research equipment, and laboratories, as well as the history of counseling services on crucial issues, such as management, marketing, and finance.

University House

University House, established in 1977, is a place and program dedicated to the support of independent and collaborative scholarship. Occupying 25 offices and meeting rooms in Oak Hall on the University’s Oakdale Research Campus, University House provides a productive environment where faculty members can work on scholarly tasks and meet in easy interchange. Many University House scholars are supported by University faculty development awards or by grants and fellowships from foundations and federal agencies.

Faculty members in all disciplines and institutions are eligible to request
appointments at University House. University of Iowa professors enjoy the relative seclusion of University House and the opportunity to meet faculty from other disciplines. Visiting professors come to University House to gain easy access to University Library resources and to meet University scholars working in related areas of research. Collaborations from different departments and institutions find University House a productive environment.

University House has a particular interest in promoting collaborative efforts. The interdisciplinary Research Grant program, unique in the nation, supports scholarly projects conducted by two or more University faculty members from different disciplines. University House also frequently sponsors research and curriculum development projects of faculty members from liberal arts colleges in the Midwest, who often collaborate in collaboration with University faculty members.

More informal opportunities for collaboration are offered by University House seminars and lunches in the cafeterias.

In addition to promoting faculty development in general, University House seeks to bring together University faculties, institutions, communities, and other groups in a continuous interdisciplinary arrangement that fosters the acquisition of support for research and educational development.

All scholars at University House are provided with a furnished apartment, a personal computer, and secretarial assistance, and have access to computer rooms, a kitchen, and a lounge. Also available in Oakdale Hall are a copy center, a cafeteria, and a library and study area. Parking is free, as is the frequent Campus bus service that connects University House with the main campus. All visiting scholars enjoy full borrowing privileges at University Libraries and access to University recreational facilities.

Center for Biocatalysis and Bioprocessing

The widely recognized work of the University of Iowa Biocatalysis Research Group—the first such group in the United States to focus attention on biocatalysis research—gave rise to the new Center for Biocatalysis and Bioprocessing. The center fosters interdisciplinary, intradepartmental, and intercollegiate research. Its primary aim is to attract industrial attention to the state of Iowa, particularly in the widely applied area of biocatalysis.

Center for Global and Regional Environmental Research

The Center for Global and Regional Environmental Research (GREGER) is being developed to expand current knowledge of the effects and interactions of global change. The center fosters interdisciplinary study of the physical, chemical, and biological processes that influence the earth's climate and trends by bringing together the University's special strengths in the health sciences, biogeochemical cycles, hydrologic and climatic systems, and ecological systems and dynamics. It interacts with other University research groups, such as the Public Policy Center.

Center for Health Effects of Environmental Contamination

The Center for Health Effects of Environmental Contamination determines levels of environmental contamination that can be associated specifically with human health effects. The center's activities encompass a wide variety of research involving exposure and risk assessments, including assembling pertinent laboratory data; using data from the existing statewide cancer and birth defect recording systems; developing registries of persons known to be exposed to environmental hazards; developing highly sensitive biomedical assays; performing epidemiologic studies; fostering relationships and ensuring the exchange of information with other teaching institutions or laboratories in the state; implementing programs of professional education and training; and implementing public education programs.

Public Policy Center

The Public Policy Center conducts interdisciplinary research on public policy issues and options in areas such as transportation, environmental quality, health care, and economic growth and development. It helps faculty secure funds for research on public interest topics and organizes symposia on public policy issues.

Research and Development Consortium

Composed of academic- and corporate-sponsored members, the Research and Development Consortium acts in an advisory capacity to the University in the following areas:

- Development of a plan for University participation in Iowa's economic growth;
- Planning for selected technology transfer projects;
- Development of marketing strategies for attracting businesses to the area and the campus; and
- Creation of a program to make information about University research readily available to Iowa State University and the University of Northern Iowa, as well as those in the private sector. The consortium is part of an interinstitutional network of similar groups at Iowa State University and the University of Northern Iowa.

Office of the State Archaeologist

The Office of the State Archaeologist (OSA) conducts archaeological work that leads to development, conservation, and preservation of knowledge about Iowa's prehistory and history. OSA is responsible under Iowa statutes for discovering, excavating, and preserving archaeological remains in Iowa. Protection of ancient burial sites and human remains is one of its major functions.

OSA conducts research educational, and service activities throughout the state and provides consulting services for agencies, municipalities, and firms that need archaeological expertise. OSA emphasizes the acquisition 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 and field work.

Joint programs of OSA and the state's College of Education on research projects with the Departments of Anthropology and Geology and with their colleagues in the Iowa Quaternary Studies Group. Several have advanced faculty appointments and teach courses in the anthropology department.

OSA resources include more than two thousand accessioned artifact collections from sites around the state; comparative and type collections that aid in identifying archaeological material; extensive and document holdings on Iowa archaeology and related subjects; and field equipment that supports large-scale archaeological field work. Members of the University community and the public are invited to visit the OSA. OSA offices, located on campus, are in the Fine Arts Main Building.
WCU maintains systems capable of an extremely wide variety of applications. These facilities are accessible through network terminals and work stations distributed around the campus. WCU's campus and external network connections provide University users with convenient access to national computing and information resources. On the campus of the University, WCU maintains membership in the CENET, MIRNET, and RENET networks.

WCU's Network Services Group offers planning, consulting, installation, and management services for departmental networks. It also provides consulting and training services for campus-wide networked applications.

WCU's Personal Computing Support Center provides device demonstration of microcomputer equipment, workshops the Faculty/Staff and Student Microcomputer Purchase Program, and provides hardware and software support to campus microcomputer users.

Personal computers are available for use by University students, faculty, and staff at several Instructional Technology Centers on campus. These are jointly supported by WCU and by academic and service departments.

Noncredit educational seminars and consultation on general computer use are available on an ongoing basis. Specialized consultation is also provided for equipment and software networking. Database, and instructional design applications.

Detailed information on computing facilities and services is available from the Information and Educational Computing Center.

Evolutionary Ecology and Behavior

Chad Stephen Horvitz

Professor: Richard C. Baker (Calvary); Robert W. Ooster (Bowling); John T. Schwabisch (Ohio); Holmes A. sidewalk (College), David Winter (Cornell)

Majors: Russell L. Cochran (Anthropology); Ann B. Bejan (Cornell); Stephen Horvitz (Bowling); Travis Horton (Notre Dame); George Reisner (Geology)

Assistant professor: Joe Elmer (Chemistry)

Programs and Facilities

The Department of Biology and Botany 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 developmental biology, plant-mental 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 populations and community dynamics.

Opportunities for field research are provided primarily by the Machame Nature Recreation Area just outside Iguazu City, with islands, temperate forest area, and old fields. The Iguazu LaLiade Laboratory on Lake Ocho, with year-round laboratory facilities, housing, and a research vessel, provides the opportunity to study undisturbed prairie, marshland, and lake ecosystems.

Field work 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 Mohave Desert, the American Rocky Mountains, and the Florida Keys.

Institute Laboratory on Barro Colorado Island in Panama and the Pantanal Nature 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 Medellin, Venezuela.

Institute 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, GC-MS, and a PDS-12 computer. There is ample space for housing a variety of organisms, and a recently constructed 3,800 square-foot greenhouse provides research space for research projects. The botanical greenhouse contains a large collection of desert, aquatic, marine, and economic flora. The botanical herbarium contains more than 20,000 specimens. The Museum of Natural History, an institutional member of the American Association of Systematic Collections, houses more than 100,000 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 coopervisitorship opportunities with members of departments such as Biology, Botany, Chemistry, Computer Science, Geography, Geology, Mathematics, Microbiology, Physiology and Biophysics, and Statistics and Actuarial Science.

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

Financial Support

All graduate students are offered financial support. Teaching assistantships, research assistantships, internship scholarships, and graduate fellowship opportunities are available.

The Ford Fund assists students travel for study. Institutions students may apply for the Ford Foundation Assistant-ship Program or the Ford Fellowship for students in behavior, and may compete for need money from the University.

Computer labs are available for graduate students, postdoctoral researchers, and faculty members.

Iowa Quaternary Studies Group

Professor: Richard L. Baker (Calvary); Lora D. Brown (Calvary); Irvin F. Drennan (Calvary)

Associate professor: Andrew B. Bush (Calvary), Ronald Funkhouser (Anthropology), Diane C. Wilson (Botany), George P. Molinaro (Geology), Frank W. Wiens (Geography), Burt C. Broadhead (Biology)

Assistant professor: Mary Whelan (Anthropology)

Adjunct professors: William Green (Anthropology), George B. Hallburg (Calvary)

Adjunct assistant professor: R. Sanders (Ecology), Donald F. Schneck (Calvary)

Program and Facilities

Students working towards master's and doctoral degrees in the Department of Archaeology, Botany, Geography, and Statistics and Actuarial Science may develop or take advantage of one or all aspects of Quaternary studies. Students with interests in Quaternary studies are encouraged to broaden their programming with courses from other natural sciences as they progress toward a degree in their chosen field.

Research by faculty and students includes paleoecological and palaeontological studies using palins, vascular-plant macrofossils, bryophytes, molluscs, and insects, and vertebrates; studies of glacial geology, geomorphology, and stratigraphy; glacial geochronology, paleoecology, and stratigraphy; and paleoecology and geomorphology; palyno-archaeology of reeds and shorelines; studies in wetland distribution, phylogeny, and ecology, studies of hunter-gatherer societies and their environments, and studies of cultural development and its relation to environmental changes.

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-held operating devices, laboratories for sedimentological analyses, pollen preparation, vegetation preparation, artifactual preparation, X-ray equipment, optical microscopy, and scanning electron microscopy. Both microcomputers and the University's Wreg
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 Palearctic Repository (two million specimens including both vertebrates and invertebrates) and the Herbarium (over 200,000 specimens in various plants and about 45,000 specimens of Bryophytes). The Office of the State Archivist houses the State Archival Repository, with over half a million specimens. Other specialized collections of more than 2,000 birds and flowers 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 botany, zoology, and geology departments, and the Office of the State Archivist has a library as well. Students may design programs that result in a degree from one of the cooperating departments but that involve considerable coursework, research, and consultation with one or more other departments. A weekly seminar, the Quaternary Brown Bag, provides a forum for discussion of research topics in Quaternary studies.

Financial Support
Teaching and non-teaching research assistantships are available on a competitive basis from each of the departments involved. T-Stor and facilities are available for postdoctoral students. Some funding, available for individual departments for field expenses. Computing facilities are available for graduate students, postdoctoral students, and faculty. For further information, write directly to the Department of Geology, Biology, Chemistry, Education, or the Office of the Department of Biology.

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.

Institutes
Downs Institute for Dental Research Contact the College of Dentistry for information.
Financial Markets Institute Contact the College of Business Administration for information.
Industrial Relations Institute See the College of Business Administration for information.
Institute for Economic Research See the College of Business Administration for information.
Institute for Insurance Education and Research See the College of Business Administration for information.
Institute of Agricultural and Occupational Health See "Preventive Medicine and Environmental Health" in the College of Medicine section of the Catalog.
Institute of Hydraulic Research See the College of Engineering section of the Catalog.
Institute of Public Affairs See the Continuing Education section of the Catalog.
Institute of Toxicology Institute of Accounting Research Contact the Department of Accounting in the College of Business Administration for information.

Centers
Alzheimer's Disease Research Center Contact the College of Medicine for information.
AIDS and Allied Disease Center Contact the College of Medicine for information.
Cancer Center See the College of Medicine section of the Catalog.
Cardiovascular Research Center See the College of Medicine section of the Catalog.
Center for Health Services Research See the College of Medicine section of the Catalog.
Center for International and Comparative Studies See the Graduate College section of the Catalog.
Center for Laser Science and Engineering Contact the College of Engineering for information.
Center for Materials Research Contact the Department of Biomedical Engineering in the College of Engineering for information.
Center for New Music See "Music" in the College of Liberal Arts section of the Catalog.
Center for the Book Contact the Office of the Associate Vice President for Cultural Affairs for information.
Center for the Study of Recent History of the United States Contact the Department of History in the College of Liberal Arts for information.
Centers for Computer Aided Engineering See the College of Engineering section of the Catalog.
Cocktail Palace Research Center Contact the College of Medicine for information.
Clinical Research Center See the College of Medicine section of the Catalog.

Cochlear Implant Research Center Contact the College of Medicine for information.
Comparative Legislative Research Center See "Political Science" in the College of Liberal Arts section of the Catalog.
Cosmic Rays National Center for Gifted Education Contact the College of Education for information.
Core Center: Diabetes and Endocrinology See the College of Medicine section of the Catalog.
Craniofacial Anatomical Research Center Contact the College of Medicine for information.
Cystic Fibrosis Research Center Contact the College of Medicine for information.
Diseases of the Respiratory System Contact the College of Medicine for information.
Iowa Center for Communication Study See "Journalism and Mass Communication" in the College of Liberal Arts section of the Catalog.
Iowa Geriatric Education Center Contact the College of Medicine for information.
Iowa Urban Community Research Center See "Geology" in the College of Liberal Arts section of the Catalog.
Manufacturing Productivity Center Contact the College of Business Administration for information.
Medical Health Clinical Research Center Contact the College of Medicine for information.
Midwest AIDS Training and Education Center Contact the College of Medicine for information.
National Maternal and Child Health Resource Center Contact the College of Law for information.
National Resource Center on Family Based Services Contact the School of Social Work in the College of Liberal Arts for information.
Oral and Maxillofacial Implant Center Contact the College of Medicine for information.
Science Education Center Contact the College of Education for information.
Small Business Development Center Contact the College of Business Administration for information.
PROJECT ON RHETORIC OF INQUIRY

Project creators: Donald N. McCloskey, John S. Weimann.

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

PORQI's executive committee coordinates the project, initiating, working with faculty in the University of Iowa colleges. In addition, an international board of distinguished scholars advises the committee about the project's programs, which include the Faculty Rhetoric Seminar, conference and symposia, publications, and fellowships for Iowa participants and visitors.

The biweekly Rhetoric Seminar was founded in 1999 by a small group of Iowa faculty. The group grew to include some one hundred colleagues, who participate in a year-round interdisciplinary advisory and other seminars in philosophy and engineering. Before each session, PORQI distributes discussion papers to faculty from many University of Iowa departments and from other colleges in Iowa.

The National Endowment for the Humanities has funded a series of five workshops for 1999-2000, and other workshops are planned to suit as suited as statistical theory and academic instruction.

PORQI directs two book series, from The University of Wisconsin Press (some 15 volumes in print) and the University of Chicago Press.

The project also sponsors lectures and research projects by local and visiting faculty, Iowa faculty associated with PORQI's various book series. Other papers are oral and graduate courses inspired by these activities. A graduate certificate program is being planned. More information, including seminar course lists, is available from the Office of the Project on Rhetoric of Inquiry.

UNIVERSITY LIBRARY

University libraries: Dana C. Clark

University Library: Barbara J. Denney, Wayne Raudy, C. Libby Stremmel.


Consulting: Catherine Laverne, R.G. Uland, Librarian.


Dewey classification: Dewey 000-099.

Cataloging: Donald N. McCloskey, John S. Weimann.


The library's holdings are of use to many disciplines and departments, particularly in the fields of social science, humanities, and the arts.

The library's collections include rare books, manuscripts, maps, and prints that span a wide range of subject areas, including literature, history, art, and photography. The library also features a significant collection of periodicals and microforms, providing access to a wide range of current and historical academic journals.

The library's extensive holdings in special collections include materials on early American history, Middle Eastern studies, and American literature. With its wide range of resources, the library plays a vital role in supporting teaching, research, and learning activities at the University of Iowa.
library use for student nurses. The Hardin Library for the Health Sciences provides Medical training for individuals who wish
do their own computer searches.

In addition to its holdings of books, journals, and access to numerous electronic
databases, the Libraries provide some 4 microfilm (microforme, microfilms, and microfiche) as
well as various other formats, including
maps, video recordings, and sound
recordings. Also available are information
resources in compact disc form, six CD-ROM computerized databases, and
faculty can do computer searches on a wide range of books, journals, and online
database searching is available by appointment.

The Musc Library serves as the primary
repository for the social sciences and
the humanities. Located within this building are various special collections. The
Government Publications Department holds
nearly 4 million printed pieces and more
than 2 million microform items. At a
full U.S. Government Depository Library, it
automatically receives thousands of items published by the federal government. This
department is also a state of Iowa depositary, a European Communities
(Common Market) depository, and a United Nations depository. The Map Collection
contains over 150,000 bound maps and
100,000 aerial photographs.

and 10,000 cataloged manuscript centers. This department also manages the
University Libraries system wide. The
Special Collections Department cares for
a wide variety of subject collections, including works on the
culinary arts, a major collection of
Lincoln material, a rare collection of
the history of hydrostatics, and a large collection of
cookbooks.

The Health Sciences Libraries house a
special collection of rare and classic
medical works in the British Medical
Book Room, named after the principal
donor to the medical field, the
collections. Martin, a retired librarian
foundations for the United States.

The University Libraries and the Law
Library have implemented an automated
library catalog and automated
processors. The online catalog, SAILS, contains
800,000 records representing approximately
75 percent of the cataloged collections of the
libraries.

Known as SAILS (Online Access System For
Information, Libraries), this system greatly
enhances teaching and research for
Iowa. When the system is fully implemented, faculty and students will have
a sophisticated tool for accessing information on library materials. From this database
the user will be able to determine whether a particular book has been ordered. It is
an automatically cataloged, whether it is in
circulation, on reserve, or otherwise
unavailable for check out. The University telecommunication networks make much
of this information available from terminals
in the libraries and from laboratories,
effices, dormitories, and homes.

Traditionally, the strength of a library system has been based primarily on the
number of volumes in a field. The future of the substantial, seemingly geometric growth in
recorded information, and because of
our understanding 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 or to locate
locally and to borrow material in a
feasible fashion.

The University of Iowa Libraries is a
member of several consortia, 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 OCLC 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.

THE UNIVERSITY OF IOWA HEALTH CENTER

The University of Iowa plays a major role in the
preparation of health professionals for Iowa and the nation. Its health center is
located in the academic health center, the
University of Iowa Hospitals and Clinics,
facilities, and service agencies to prepare
physicians and practitioners to serve a wide
spectrum of human health needs—ranging from
basic care and health promotion to the
most advanced diagnostic and treatment procedures—and
to search for entirely new knowledge.

As soon as they have acquired broad
knowledge in their fields, health professionals
students begin to learn by doing. Following
the examples and directions of skilled
practitioners who teach what professionals
must do to provide:

• health care to thousands of patients from
the community, state, and region.
• The University of Iowa Health Center is
simultaneously a center of healing and of
service. It is one of the most advanced,
comprehensive health science centers in the
United States.

It shares many skills of campus through
colleges and community health care.
through a variety of continuing education
programs for health practitioners—many
of these are open to the campus community
and through the network of health care
providers, also to the community
throughout the state.

Programs, activities, and courses of the
Colleges of Dentistry, Medicine, Nursing,
and Pharmacy are described in other
sections of this Guide. Other health center
services and related programs are described below.

The University of Iowa Hospitals and Clinics

Director and assistant in the president for
medical health services: Nona J. Colwell Administration: William D. Petersen
Deputy administrator: John H. Kelley
Senior assistant director: William W. Hauss, William E. S. Rankin, Jr.
Executive assistant to the director: Amy B. Zalack

Asst. Directors: [Redacted]
to care for approximately 2,200 patients each day. The hospital’s clinical staff includes 515 faculty physicians and dentists, and the house staff numbers 615 resident and fellow physicians and dentists. The hospital’s Department of Nursing is staffed by more than 1,500 professional nurses.

Other hospital staff members annually provide more than 200,000 X-ray examinations and treatments; conduct nearly 5 million laboratory tests; fill more than 2.5 million prescription orders; provide more than 65,000 physical therapy treatments, and prepare more than 33,000 meals and component transfusions.

Recent modernization provided new intensive care, cardiology, cataract, and urology units. The inventory, 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 Mr. Carver, provides facilities for a multispecialty trauma and emergency treatment center; physical therapy department; orthopedic, urologic, and neurosurgery inpatient units; clinic, and faculty office; surgery and internal medicine inpatient units; cardiology and psychiatry clinics; and laboratories of the Department of Pathology.

The John W. Collett Pavilion—named for the hospital’s current director—opened in 1982. It consolidates services of the Department of Pediatrics in the Iowa Children’s Health Care Center and provides clinical and administrative facilities for the Department of Surgery. The Collett Pavilion also houses a cardiac care unit, center of cardiology and arrhythmias; diabetes center; heart disease center; cardiac care center, and coronary care unit.

In 1989, a Patient and Visitor Activities Center, including a library, medical museum, and an area for group accommodations, began services. A phase of the Collett Pavilion renovation and construction will provide new surgical suites.

The John Pappajohn Pavilion, currently under construction, will provide adult and child psychiatric care accommodations as well as a nursing unit to provide inpatient care; a diagnostic and treatment center, and a diagnostic and treatment center.

The new building will also house the John and Mary Pappajohn Endocrinology Center, an ambulatory patient clinic and inpatient accommodations for some 275 cancer patients daily.

Clinical departments of the University Hospitals and Clinics collaborate in conducting, accredited health professional education programs in dentistry, radiology, medicine, medical technology, radiologic and nuclear medicine technology, hospital pharmacy, physical therapy, occupational therapy, and cytotechnology. University Hospitals and Clinics also provide a broad and varied clinical settings for Kentwood Community College programs in radiologic technology, radiologic physics, and radiation therapy. University Hospitals and Clinics also work closely with the University of Iowa College of Medicine and the Divisions of Radiological Sciences and Radiologic Physics to provide educational programs in radiologic physics and the University of Iowa’s Master of Science in Radiologic Physics.

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.

**01001 Radiology Technologist Program 9-1.s.h.**
Twenty-four consecutive months; eight hours a week in courses including radiographic technology, physics, chemistry, anatomy and physiology, radiographic techniques, computer technology, radiology research, radiological physics, and computerized radiography. Includes clinical experience in radiology, diagnostic and treatment services, and a radiology internship.

**01002 Orthoptics Program 9-1.s.h.**
Clinical practice is available in visual acuity; visual field; and optometric services. In the Program, clinical experience is included and one practical national boards examination required at end of 24 months of training.

**01003 Radiation Therapy I 9-1.s.h.**
Theory and techniques of radiation therapy techniques. Emphasis on areas of treatment planning, radiation, and care of radiation-exposed personnel to radiation. Includes clinical experience in radiation treatment, one-year program, national certification examination required at completion of course, one practical national boards examination required at end of 24 months of training.

**01004 Ultrasonology Technologist Program 9-1.s.h.**
Principles and methods in utilizing ultrasound as an imaging modality. Includes clinical experience in imaging techniques and applications of equipment in various medical and surgical problems. Includes computerized radiography. Includes one practical national boards examination required at completion of course, one one-year program, national certification examination required at completion of course, and one clinical experience examination required at completion of course.

**01005 Ultrasonology Clinical Course 1.0 s.h.**

**01006 Magnetic Resonance Imaging Technology 14-3 s.h.**
Course work in computer technology, physical, electronic, medical physics, clinical practice, and clinical practice. Includes one practical national board examination required at completion of course, and one one-year program, national certification examination required at completion of course.

**01007 Magnetic Resonance Imaging Clinical 16-3.0 s.h.**

**Council on Speech Pathology and Audiology**
The council coordinates clinical services and training in speech-language pathology and audiology offered by The University of Iowa Hospitals and Clinics (Division of Developmental Disabilities, Department of Pediatrics, Child Health Specialty Clinic, 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 Dental Health Bureau is sponsored jointly by the Iowa Department of Public Health, which provides personnel, materials, and office supplies, and the University, which provides space and equipment. The bureau’s primary purpose is to promote a program of dental health education and disease prevention in the public and parochial schools of the state. Special dental hygiene student volunteers from the University conduct team programs with the public health dental hygienists of the Iowa Department of Public Health. These programs include instruction in oral hygiene, good dental health practices, fluoride technology, and nutrition as related to dental health. The bureau also supplies dental referral cards to schools to remind parents of the need for regular dental care for children.

**Dental Service**
The College of Dentistry Dental Clinics provide comprehensive dental care in conjunction with dental education and research. Private care by faculty and graduate students is available in addition to clinic care. Anyone, including employees and students at the University, may receive dental treatment at the college. However, the College of Dentistry is not affiliated with the University Student Health Service and does not render services under the student health hospitalization fund.

The Dental Clinics operate on a fee-for-service basis payable at each visit. Payment can be made by cash, check, or credit card. Because clinic treatment takes longer than private treatment, the patient’s contribution in time is appreciated, and the fees have been adjusted downward accordingly.

**Health Occupations Education**

Through this program, the University collaborates with the State Board of Education to provide counseling and advisory services, educate teachers, coordinate classroom curriculum and instructional material for health occupations programs conducted for the most part by Iowa’s area community colleges, but also by a growing number of high schools. The Health Occupations Education staff also assists these institutions in their important role in continuing education.

**Hardin Library for the Health Sciences**
The Hardin Library for the Health Sciences serves the combined queries 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 220,000 volumes and receives more than 2,200 periodicals. In addition to providing ample space for these collections, the interior allows for enough reading and study space to accommodate approximately 1,100 people. Special features of the library range from comprehensive programs in health sciences literature, via self-service terminals and librarian-mediated searches of
University (State) Hygienic Laboratory

As the state of Iowa's environmental and public health laboratory, the University Hygienic Laboratory offers diagnostic, surveillance, analytic, testing, and consulting services in hundreds of areas, including immunology, parasitology, industrial hygiene, environmental health, public health, mycology, and radiation. It provides comprehensive laboratory programs to state, county, and local health agencies, and other institutions.

In the environmental area, the laboratory provides a wide variety of services, including air quality monitoring and analysis; pesticide and herbicide analyses; mineral and metal analyses.

The Hygienic Laboratory serves as Iowa's primary laboratory for drinking water analysis and is one of only 30 laboratories in the nation certified to perform analyses for hazardous waste sites under the USEPA Superfund Program. It is an accredited industrial hygiene laboratory and holds an extensive license for the diagnostic services involved in blood lead screening and screening for other metal toxicities in the newborn and for the AIDS virus.

Within the University of Iowa, the Hygienic Laboratory provides instruction and training in diagnostic microbiology and virology as part of regular academic courses, as well as in specialized graduate courses. In addition, the laboratory's consulting division conducts a broad range of research and training programs in molecular and applied research.

The Hygienic Laboratory provides instruction and training in diagnostic microbiology and virology as part of regular academic courses, as well as in specialized graduate courses. In addition, the laboratory's consulting division conducts a broad range of research and training programs in molecular and applied research.

Ronald McDonald House

In July 1985, a 16-bedroom Ronald McDonald House was opened to provide temporary housing for families who are caring for medical treatment at the University of Iowa Hospitals and Clinics or at Mercy Hospital in Iowa City. 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, and Ronald McDonald's restaurant owners established the House. The Ronald McDonald House is a non-profit, family-oriented facility that provides temporary housing for families of patients being treated at the University of Iowa Hospitals and Clinics.

Specialized Child Health Services

The Iowa Specialized Child Health Services is an organization that administers several statewide health services programs. Among these are the Genetic Consultation Service, Cerebral Palsy Prevention Program, Cystic Fibrosis Program, Childhood Cancer Diagnostic and Treatment Program, Pediatric Cardiac Care Program, and Statewide Perinatal Care Program.

The Child Health Center Program provides nursing care for children in the community, and is a program of the Regional Child Health Specialty Clinics.

At Regional Child Health Specialty Clinics (RCHSC) residency training and educational programs are for residents who are training in pediatrics and pathology, including pathology, pediatrics, and public health. The program is supported by the National Institutes of Health and the American Academy of Pediatrics.

University Hospital School

A University-affiliated program that deals with the problems of developmentally disabled children and young adults, the University Hospital School provides the center of activity for the Division of Developmental Disabilities within the Department of Pediatrics. It is an integral part of the tertiary-level health services available through the University of Iowa Hospitals and Clinics.

The multidisciplinary team approach provides services involving the fields of medicine, pediatrics, nutrition, social work, speech and language pathology, physical and occupational therapy, and child psychology.

Outpatient services provide comprehensive evaluation and follow-up of infants, children, and young adults who have problems and disabilities that affect their development. Programs or education and therapy are planned in conjunction with the patient, when appropriate, and with the parent or guardian. The program is administered by high school and college providers. The outpatient services include a number of special clinics (Child Developmental Disabilities Clinic, Mental Retardation Clinic, Infant and Young Child Clinic, Child and Young Adult Clinic) that are usually staffed by specific professionals.

Infants, children, and young adults may be admitted to the inpatient unit as a result of recommendations from one of the outpatients' clinics. Out-patient services and programs are for individuals who are highly specialized and that can best be accomplished on an inpatient basis. The staff coordinates educational services with the child's home school system in order to maintain continuity of services while the children are in the unit.

Training activities include pre- and in-service lectures, workshops, conferences, and seminars for a variety of care providers working in other health and community programs. These activities take place in the University Community and University Hospital School.

University Hospital School cooperates closely with the state Developmental Disabilities Council and other state agencies to provide training and technical assistance to these programs.

Laboratories of the divisions of genetics and biochemistry of the Department of Pediatrics are used extensively in University Hospital School research, training, and service programs.
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, hearing, and reading problems; habilitation or rehabilitation programs for persons who can come to the clinic for such service; a reader-student program for children with speech, language, hearing, and reading problems; and clinical practicum training for students in speech-language pathology and audiology. Iowa University of Iowa students may receive services without charge. Products (e.g., hearing aids and 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 evaluation, and referrals to other clinics as needed.

Veterans Affairs Medical Center

Medical students and residents receive much of their clinical training in the 327-bed medical center, a comprehensive health care facility in Iowa City, Veterans Affairs Medical Center facilities utilized by The University of Iowa Health Center include, but are not limited to, laboratories for the transplantation program, highly specialized laboratories in many medical centers, and facilities for the study of metabolic and gastrointestinal diseases. The Veterans Affairs Medical Center, which is closely affiliated with all four University Health Sciences centers, provides training opportunities in clinical pharmacology, gastroenterology, cardiology, nephrology, oncology, and applied immunology.

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 venue not only for the University community, but for the people of the state and region. 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 center's facilities include many of the academic arts units in the College of Liberal Arts, together with performance and exhibition space in the Theatre Building, Museum Building, School of Art and Art History, Museum of Art, and Heider Auditorium, the center's largest performing arts venue. In addition to activities housed in these facilities, various educational programs in other parts of the arts campus reflect the University's strong commitment to artistic creativity.

Financial support from many sources, both public and private, is reflected in the physical structure and educational-cultural offerings of the Iowa Center for the Arts. In addition to major gifts from the state of Iowa and the federal government, private contributions from Iowa's growing number of corporate and individual patrons play an important role in the quality and diversity of the center's services 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 1938. Major additions were added in 1968-69, greatly extending classroom and studio space 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 Joe Dreswial, who in 1941 became the first recipient of the Master of Arts degree in studio art at The University of Iowa.

The school's Corbin Museum, multimedia studio, and video art studio are located in the International Center. New and experimental works are presented through exhibitions, lectures, live theater, and performances that emphasize new concepts and directions in contemporary art. Visiting artists and critics bring a wide range of ideas to students and visitors.

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, the museum's exhibitions and educational activities attract a national and international audience as well as visitors and young people from across the state.

The UIMA collection of more than 8,000 objects has three minute strengths: late-nineteenth- and twentieth-century European and American paintings and sculpture, works on paper, and African art. Paintings and sculptures number some 650, including Pollock's 'Mocni', Beckman's 'Elkwnt', and Miro's '1939 (Group of Dead Flying from the Wings of a Bird). The Kehinde Wiley collection of African art consists of African masks, other African objects, and a small but significant collection of African art.

The museum presents an average of 15 special exhibitions per year as well as continuous rotation of the permanent collection. At any one time, the galleries provide a variety of informative and educational experiences for visitors of all ages offering shows that range from the scholarly and serious to the popular.

Museum special events include slide-luncheons by visiting artists, scholars, and collectors; "Music in the Museum," a Tuesday-evening concert series; and "Museumnotes," a weekly program of performances, demonstrations, discussions, and debates. Museum docents lead groups on guided tours of the museum's exhibitions, and catalogs of many exhibitions are available for purchase. Frequent events are offered by a private support group, sponsors receptions, openings of exhibitions, and special prints, drawing, and etching symposiums.

The University of Iowa Museum of Art provides an outstanding example of enrichment of the arts through generous private support.

In the early 1960s, Owen and Louise Eichler of Cornfield, Iowa, offered Iowa the University their extensive collection of nineteenth- and twentieth-century paintings, prints, antique furniture, and rare books. With 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 to the museum's construction cost. The museum opened in 1969 and quickly earned recognition as one of the nation's finest university museums. A gift from the late industrialist Henry Moore provided the construction of a major addition opened in 1975.

Other important gifts include prints by the early-20th-century printmaker Egnar, and a crucial donation of arts and artifacts by Egnar and his wife of the Museum of Art.
University Theatres

University Theatres is the production unit 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.

University Theatres welcomes all persons who have some knowledge or interest 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 three theatres and state-of-the-art facilities for instruction, research, laboratory, shop, and performance. The E.C. Miller Theatre, a contemporary-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 235, permitting quick modification of scène-audience relationships. The third theatre, seating 144, is an open-stage theatre dedicated primarily to the production of new and experimental works from the Playwrights Workshop.

All three theatres are equipped with state-of-the-art automatic 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 finest, is an integral part of the Theatre Department. The department presents an annual festival of new works from the workshop, and four full-scale productions close ties with the Iowa Writers' Workshop.

School of Music

Opened in 1917-18, the IWU School of Music is spacious and convenient. For your convenience, the restrooms are located on the main level. The main entrance is on Main Street. In addition to the main entrance, the School of Music is also accessible via the adjoining parking garage.

Clive Racial Hall, with hardwood floors and a hardwood stage, is a main performance space. It seats 275 for concerts and work-related events. The School of Music also offers a variety of spaces for smaller events, including the Gwynn Recital Hall and the Grand Ballroom. These spaces can accommodate up to 200 guests each. The Gwynn Recital Hall features state-of-the-art acoustics and lighting, making it ideal for concerts, lectures, and formal events.

Dance Theatre

The Dance Theatre, housed in the Old Building, is known for its innovative productions and world-class performers. The theatre is equipped with state-of-the-art technology, including lighting, sound, and video equipment. The theatre's design and function are tailored to meet the needs of dance productions, ensuring a seamless experience for both performers and audiences.
responsible by seven full-time faculty and four to six teaching assistants. Twenty percent of the technique classes are accompanied by a staff of two full-time and four part-time teaching assistants. An 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’s touring company Dance to Go (in collaboration with the Arts Education/Outreach Program), the yearly Dance Gala held in Hancher Auditorium, faculty, student and staff concerts in the Dance Department’s SpacePlace, theater in the School of Music spring opera, summer musical theater in cooperation with the University of Iowa Department of Theatre Arts, and community performances. Teaching opportunities for graduate and undergraduate students can be found within the Arts 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 rehearsal, and take master classes from touring companies.

For the past eleven years, the department has participated in the American College Dance Festival Association (ACDFA) Biennial and hosted them in 1981 and 1986. The following year was held on the home of the U.S.-China Exchange Program, which brings Chinese dancers and dance artists to the campus, and for those years has been hosted by the Iowa State Chorographic Competition for Emerging Midwest Choreographer.

Broadcasting and Film
A division of the Department of Communication and Film, Broadcasting and Film fosters creative work in the video arts. Its instruction with the Department of Theater in other units of the Iowa Center for the Arts, and they enjoy a national audience. For example, a music video based on the Social of Music production of Sondheim’s Mustered Seed has been shown on the Bravo cable television channel, other video have been produced with jur.

Writing Programs
A long lineage of special distinction is the English Department, the Writers’ Workshop provides opportunities for talented writers to work and learn with established poets and novelists. 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 home to wide support from private support from foundations, corporations, individuals, and the U.S. State Department.

Windhover Press
The skills of bookmaking looks with hand—using handmade paper, hand—laid illustrations, hand—set type, and hand—operated press—may be learned in the workshop of Windhover Press.

The Windhover Press in the nation’s small company of distinguished hand presses. Its limited edition poetry are created on behalf of the American Institute of Graphic Arts, whose prestigious competitions include all of the major publishers in the country.

MUSEUM OF NATURAL HISTORY
The museum, located in Macriss Hall, is an outgrowth of the Cabinet of Natural History, established in 1809 by act of the Iowa General Assembly. It is the oldest university museum west 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 for gift or through the efforts of its own collections. These collections, with primary focus on Iowa and the Midwest region, 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 exhibitions and interpretation.

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

The museum’s Iowa Hall gallery features forty multilineary exhibits limited by space, theme, and time, illustrating Iowa’s natural heritage—its pre—history, native culture, and ecotopy. Exhibits highlight of Iowa Hall include the Bergen—Des Moines, Iowa territory, and a life—size reconstruction of an Ice Age giant ground sloth.

In First Hall, the Laying bird cyclorama is a large and well-known bird exhibit comprising a complete representation of a bird island in the Hawaiian group. Other habitat exhibits include the Besing Sea, Louisianas Swamp, Key migration, and cranes and the South Dakota prairie. The crane exhibit includes both the migratory crane and the green whooping crane as they appear on the prairie during migration. The Missouri Hall exhibit features waterfowl, beach, rocktopo, southwestern bo, mouse, and giant panda. Also displayed is a birding—sketching of the rare Atlantic right whale.

Several temporary displays are represented in several exhibits and include familiar groups such as insects and animals, insects and spiders, and crustaceans, shells and crustaceans, shells, and crustaceans.

Natural history exhibits in the museum present artifacts from many parts of the world, with Fabian and Dakota materials, including beaver and ivory received in the late nineteenth century, are exhibited. The history of the museum through 175 million years of time is portrayed in a display illustrating replicas of fossil plants and flowers from Africa, Asia, and Europe.

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 Capital, a National Historic Landmark, is on the central university campus. It was the capital of the Territory of Iowa from April 1846 to 1848 and the capital of the state of Iowa from 1848 until 1877, when the government moved to Des Moines and gave Old Capital to the University as its first permanent building.

Various University offices and departments have been located in Old Capital through the years, and it housed the office of the University president continuously from 1860 to 1925, when the president’s office was restructured for the new building of Old Capital as a historic site.

The restoration returned the structure to the three periods of its use: the territorial government period; the state governmental period, and the University’s long use of the building, represented in rooms of 1920s decor. Old Capital was reopened in 1970 as a “living museum.” Guided tours and a special presentation are offered daily without change. Reservations are required for group tours.

OTHER SERVICES
Evaluation and Examination Service
The Evaluation and Examination Service performs examination placement and certification exams designed to assist entering students in course selection. The Exam Service also provides registration information and administration of local and national test programs including the American College Testing Program (ACT), College Level Examination Program (CLEP), Medical College Admission Test (MCAT), Graduate Record Examination (GRE) Aptitude Test, and
Graduate Management Admission Test (GMAT), Law School Admission Test (LSAT), Test of English as a Foreign Language (TOEFL), and the National Teacher's Exam (NTE).

The Exam Service duplicates, scores, and analyzes classroom tests, writes in planning and processing course evaluations, conducts institutional research, prepares reports and technical bulletins pertaining to test development, grading, questionnaire design, and student profiles; and provides consultation on questionnaire development and use.

Printing Department

The Printing Department is the University's in-house printer, serving faculty, staff, and students. This high-production facility offers design, editorial, composition, typesetting, pasteup, platemaking, copying, duplicating, printing, and binding services. The department's ten copy centers, located throughout the campus, offer quick printing.

A variety of services are available to desktop publishers. For those who prefer conventional typesetting, state-of-the-art computers allow customers to communicate electronically or submit floppy disks.

The Printing Department is responsible for University compliance with the printing regulations of Iowa, including the process for obtaining competitive bids on printing purchased outside the University.

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 and homecoming, the association provides alumni enrichment programs, sponsors a network of alumni clubs that link the University to alumni throughout the state and nation, recognizes distinguished alumni, and publishes a bimonthly magazine, the Iowa Alumni Review. To its nearly forty thousand members up-to-date on University news and alumni achievements.

The Alumni Association also serves the University through its ABST program, in which alumni help conversation prospective students get acquainted with the University. It provides financial assistance to academically talented students through the Alumni Scholars Program and works to bring students, their parents, and their faculty together through programs such as the annual fall parent 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 main channel for private gifts to The University of Iowa through annual giving programs andiversified ways. Gifts include planned gifts such as bequests and annuities, and capital and other special purpose campaigns.

The foundation is a private, non-profit corporation empowered to solicit and receive gifts and bequests; to accept money subject to the conditions imposed on them; and to hold, administer, manage, or distribute gifts, bequests, and trusts—all for the benefit of The University of Iowa. The foundation is constantly at work to provide funds for student financial aid, faculty support research, library and equipment acquisitions, and other needs throughout the University.

The foundation is currently promoting a statewide media campaign, Iowa Endowment 2005: A Commitment with Quality, to raise $150 million by the year 2000 in support of human resources. Endowed faculty chairs, fellowships, and student scholarships, academic excellence funds for the University's colleges, and The University of Iowa Libraries all will benefit from the campaign.

University of Iowa Press

The University of Iowa Press was established to publish significant works of original scholarly research and outstanding criticism in the arts. It is supported by the University's endowment, the Arts Council of Iowa, and private grants and gifts. The Press is run by the Press Director, who is assisted by a Press Advisory Board.

University of Iowa Press has published over fifty books on a variety of topics, including literature, art, and music. It also publishes a bimonthly newsletter, the Press News, which provides updates on new releases and upcoming events.

Office of University Relations

The Office of University Relations (OUR) works to promote the University's reputation and to foster public understanding of the University's mission and activities. The Office is committed to providing accurate and timely information about the University to a diverse audience, including the media, the general public, and the University community. The Office also works to promote the University's role as a leader in higher education and to enhance the University's reputation as a dynamic and innovative institution.

University Relations publications include the University of Iowa News Service (UNS) and the Office of University Relations Public Relations (ORPR). Uns provides daily news stories about the University and its activities, and ORPR produces brochures, newsletters, and other materials to promote the University's mission and values.
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Dean: Gerard Luekenberg
Associate Dean for Academic Programs: James R. Luekenberg
Associate Dean for Development and Research: Paul S. Mandy
Associate Dean for Faculty: Judith P. Akins
Director of Housing: Iowa P. Lewis
The educational programs offered in the College of Liberal Arts provide the necessary foundation for the specialized education or training necessary for various occupations and professions. They form the basis for graduate work and provide prerequisites for professional study in dentistry, medicine, nursing, pharmacy, business, law, and education. They also provide a general education, which by itself provides a broad range of occupations.

Liberal education is general in the breadth of intellectual development that it affords; it is not superficial. The College of Liberal Arts offers full academic degree programs, including requiring extensive study in a particular academic discipline or set of related disciplines. The array of educational opportunities available in the college gives students a wide choice of major and minor fields of study.

Regardless of the major or minors selected, the curricula of the college prepares all students for work in mathematics, logic or quantitative reasoning, and a foreign language and requires a course in reading, writing, and speaking. Further, all students must become acquainted with the study of history, the natural sciences, the social sciences, and the humanities, as well as with civilizations and cultures remote in time or space.

These General Education Requirements 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 the civilizations they have inherited. They help students to understand the creative work of artists and writers in this country, greatly expanding our knowledge of natural and social phenomena and have broadened our aesthetic sensibilities. The complexity of the modern world is matched by our increased ability to understand it. That understanding, however, depends more than ever on acquiring a general education.

It is the mission of the College of Liberal Arts to around that general education available and to guide students through the necessary requirements of obtaining it. A liberal education compensates for the restrictiveness and narrowness of the in the field of specialization. It develops the capacity to raise significant questions, to find answers, to repudiate dogma, to be free of superstition, and to adapt to change.

College Organization

The internal organization of the College of Liberal Arts reflects its multidisciplinary character. The college is divided into units of major academic units: divisions, schools, departments, programs, and graduate units. There are three divisions in the college: The Division of Fine Arts, the School of Art and Art History, the School of Music, and the Department of Communication Studies, Dance, and Theatre Arts. The Departments of Computer Science, Mathematics, and Statistics and Actuarial Science comprise the Division of Mathematical Sciences. The Division of Physical Education includes the Department of Exercise Science, Leisure Studies, and Physical Education and Sports Studies. Within the college there are six schools. In addition to the Schools of Art and Art History and Music, there are Schools of Journalism and Mass Communication, Library and Information Science, Religion, and Social Work. More than forty formally organized departments and programs provide instruction in the college and offer majors leading to one or more degrees, minors, or certification in a particular field.

The College of Liberal Arts is closely linked with the University's professional colleges. Some departments in other colleges offer degree and minor programs in the liberal arts; similarly, other colleges may award minors for work done in liberal arts. (For example, students admitted to the four-year education program in the College of Education are degree candidates in the College of Liberal Arts. The College of Liberal Arts also provides instruction for premedical students in the Colleges of Business Administration, Engineering, Medicine, Nursing, and Pharmacy.)

Degrees, minors, certificates, and programs of the College of Liberal Arts are described in full under separate entries in the Catalogue.

Liberal Arts Office of Academic Programs

The Liberal Arts Office of Academic Programs is an integral part of the Office of the Dean. Located in J. J. Schaeffer Hall, it serves students who are undecided about academic majors, helps in selecting courses, makes suggestions about appropriate academic majors, assists in changing majors, and provides second-year-only options and special permission for a student's signature or administrative actions such as late registration, late adding or dropping of courses, and withdrawal from registration.

Staff members answer questions about the General Education Requirements, graduation requirements, and college policies affecting students; coordinate the activity of student advising programs; and the Bachelor of General Studies (B.G.S.), conduct interviews with students on academic probation; conduct reviews of students on academic probation and take dismissal actions; and report to the students on academic probation.

The Office of Academic Programs also considers evidence and recommends appropriate disciplinary action for student plagiarists, 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.

Honors Program

The College of Liberal Arts Honors Program offers special academic and extracurricular opportunities to outstanding students. Freshmen and sophomores may take advantage of special honors sections that are offered in some general education courses. At the junior and senior levels, most departments offer honors seminars, independent research, and the opportunity to pursue a senior project under the guidance of a faculty sponsor. Successful completion of a senior hon's project leads to a baccalaureate degree "with honors" in the major (see "Graduation with Honors" in this section of the Catalogue).

The Stouffer House Honors Center is a housing place and study center for students in the honors program. It houses a reference library, study rooms, and computer terminals. Each year the Association Iowa Honors Students plans a variety of activities—recreational, social, cultural, and academic—ranging from strong academic record students are invited to join the honors program, but any student whose grade point average meets the required minimum (3.50) may join at any time. For further information, contact the College of Liberal Arts Honors Program, Stouffer 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 General Studies (B.G.S.), Bachelor of Liberal Studies (B.L.S.), and Bachelor of Music (B.M.) degrees.

Major Fields

The college centers degrees as indicated in the following areas: A.B., B.S., and B.G.S. degrees are awarded with no major designations.

African-American—B.S.*

African-American Art—B.A.

African-American Literature—B.A.

African-American Studies—B.A.

African-American Studies and Literature—B.A.

African Studies—B.A.

African-American Studies—B.A.

Asian Studies—B.A.

Astronomy—B.A., B.S.

Biochemistry—B.A., B.S.

Biology—B.A., B.S.

Biotechnology—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.
Dental hygiene—B.S.
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.
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.A., 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.
Science education—B.S.
Social studies—B.A.
Social work—B.A.*
Sociology—B.A., B.S.
Soviet and East European studies—B.A.
Spanish and Portuguese—B.A., B.S.
Statistics—M.S.
Theatre—B.A.*

*Students who wish to major in actuarial science, athletic training (as option within the B.S. in physical education), communication studies, computer science, elementary education, exercise science, journalism and mass communication, leisure studies, or social work must complete an application procedure before they are admitted to the major. Admission to these programs is based on grades in specified prerequisite courses, the cumulative grade-point average, and other criteria.

**Majors in Education and Secondary Certification**

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 certification, 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 2.30. Transfer students who 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 Students Services 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, broadcasting and film is offered in the Department of Communication Studies, and urban and regional planning is offered in the Department of Geography. Specializations in Chinese (Hokkien, Indonesian), or Sanskrit are available to students seeking a B.A. in Asian languages and literature. The School of Art and Art History and the School of Music have many different tracks leading to bachelor’s degrees. Studio emphasis, art history emphasis, and art education, performance, composition/theory, music history, jazz studies, music education, and music therapy. These are only a few examples of the many options within degree programs. Other specializations can be developed with consultation 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; photography and graphic design specialization, with courses taken in the School of Art and Art History and the School of Journalism and Mass Communication; 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 advisories in the appropriate departments.

**Certificates**

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

Certificates require from 18 to 27 semester hours of prescribed course work. Specific requirements are listed in the departmental sections of the Catalog.

**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 general requirements for minors are described in the course work. Specific requirements for majors are described in the annual catalog. 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), African-American world studies (B.A. or minor), aging studies (minor or certificate), American studies (B.A. or minor), ancient civilizations (B.A. or minor), anthropology (B.A. or minor), global studies (minor, certificate, or honors), interdisciplinary major, interdepartmental studies (B.A.), international business (certificate), Latin American studies (minor or certificate), literature, science, and the arts (B.A.), philosophy and ethics of politics, law, and economics (certificate), science education (B.S.), Soviet and East European studies (B.A.) and women’s studies (minor).

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

Honors Interdisciplinary Major

Honors students may pursue an individually planned major in an area of study that draws on courses from different departments, as approved by the honors advisor from the department concerned and the director of the College of Liberal Arts Honors Program. The major consists of 36 semester hours of credit, including 6 semester hours of departmental honors registration and completion of an honors project. It leads to the degree "with interdisciplinary honors."

Students must submit a plan of study for approval during their junior year. Examples of interdisciplinary programs developed by honors students are environmental studies; European studies; international development studies; literature, history, and philosophy; and methodological social sciences.

Baccalaureate with Early Admission to Medicine or Dentistry

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

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 colleges, students must have

+ Satisfied the General Education Requirements;
+ Completed the requirements for a major, Earned at least 90 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 and have accumulated 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 Colleges of Medicine or Dentistry and who wish to receive a baccalaureate degree from the College of Liberal Arts must request a graduation analysis from the Office of the Registrar before their final semester in the College of Liberal Arts.

Combined Degree Program: Engineering and Liberal Arts

Students may earn two University of Iowa baccalaureate degrees in a combined program in the College 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 advisors, one by 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 in the dean's office of the College of Engineering. Students must be approved for candidacy in the combined degree program by the College of Engineering and may 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. It is crucial that students enroll in the proper mathematics and engineering courses early in their junior year to establish the completion of their program. The specific engineering courses taken by students vary according to the engineering major selected. Students who are interested in natural sciences, mathematics, humanities, and social sciences are accepted regularly for credit by both colleges. Students may be able to satisfy the requirements of both colleges by taking a particular course.

To qualify for both degrees in the combined degree program, students must complete an overall total of 150 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 Degree Program: Medicine and Liberal Arts

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. Candidates are required to complete a general science core requirement, including courses in health science technology, nuclear medicine technology, or physician assistant.

Students who enter 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 advisors, one in their major department at the College of Medicine and the other in their major department at 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 chair of the baccalaureate program of their choice in the College of Medicine.

Two Bachelor's 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 122 required for a single degree, for a total of 144 semester hours, besides satisfying the requirements for both degrees. The B.G.S. and B.L.S. may not be conferred simultaneously with another 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. The student must be admitted to the major and must complete at least 30 additional consecutive hours of study in the college beyond the first degree.

Student may not earn a second B.A. if they already have a B.A. from the College of Liberal Arts. If.user already have a 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," below).

Holders of B.A. or B.S. degrees in liberal arts disciplines are considered to have satisfied all General Education Requirements except foreign language. Holders of other degrees must satisfy the General Education Requirements.

Students who hold bachelor's degrees from other colleges or universities may earn a baccalaureate degree from the College of Liberal Arts by meeting the requirements specified above.

Total Hours Earned

Students who enter as beginning freshmen shall earn a minimum of 124 semester hours of credit. The number required of a transfer student is indicated on the student's admission graduation progress report.

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 requirement for graduation by earning a minimum grade-point average of 2.0 (C) in all college work attempted, all work completed at The University of Iowa, and all work attempted in the major field, including 2.0 in all University of Iowa major work.

Candidates for the B.G.S. or B.I.A. in interdisciplinary studies satisfy the qualitative requirements for graduation by earning a grade-point average of at least 2.0 in all college work attempted, all work undertaken at The University of Iowa, and all advanced courses attempted.

Candidates for the B.I.S. degree must earn a grade-point average of at least 2.0 in all college work supplied toward the degree, including 2.0 in residence courses.

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 80 semester hours in residence.

Nonresident instruction includes courses taught at other colleges and universities, work done while the student is enrolled as a nonresident student at The University of Iowa, and all work by correspondence, including courses taken at the University of Iowa in the Guided Correspondence Study program.

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.

Students in the combined degree programs in the Colleges of Engineering and Liberal Arts must complete at least 30 semester hours of courses offered by the College of Liberal Arts.

Students in the combined degree programs in the Colleges of Medicine and Liberal Arts must complete at least 30 semester hours of courses offered by the College of Liberal Arts.

General Education Requirements

Students must complete the following General Education Requirements for the B.A., B.S., B.F.A., B.G.S., B.L.S., and B.M. degrees. Unit systems are indicated for prescribed courses of study that fulfill most General Education requirements. See "Unified Program," below.

Rhetoric: one or two COMPS (4-8 s.h.);
Mathematics: for students who first enrolled at the University before Fall 1990, see "Mathematics," below.
Physical education: four courses (4 s.h.); B.L.S. students are exempt from this requirement.
Foreign language: fourth-semester level or college language or fourth-year level of high school language (0-18 s.h.).
Foreign civilization and culture: one approved course (3-4 s.h.).
Historical perspectives: two approved courses (6 s.h.).
Humanities: 101 The Interpretation of Literature and two approved courses (9 s.h.).
Natural sciences: two approved courses, one of which must have a laboratory component (7 s.h.).
Quantitative or formal reasoning: one approved course (3-4 s.h.).
Social sciences: two approved courses (6 s.h.).

The Unified Program

The Unified Program (UP) is a four-semester system of integrated general education courses for a small group of students who choose the program when they are freshmen. UP satisfies all of the College of Liberal Arts General Education Requirements except one foreign language and physical education requirement, and each UP course is equivalent to an equivalent approved course. All students in UP 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 UP. See "Unified Program" in this section of the Catalog.

Rhetoric

All students must register for their assigned rhetoric course at their first or second registration, as required, and continue to attend the course 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 rhetoric requirement must be completed in one of the following ways:

By passing 101 and 102 Rhetoric (8 s.h.);
By passing 105 Rhetoric (4 s.h.), by passing the speech test and 105 Rhetoric (3 s.h.);
By passing the essay test and 161 Principles of Speech Communication (3 s.h.) or;
By passing both the speech and essay tests.

Procedures and Examinations

Placement and exemption tests are given during the first week of classes for students required in rhetoric courses. Exemption from any 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.

Students with Documented Learning Disabilities

Students who have undergone formal evaluation by the Office of Services for Persons with Disabilities and who are found to be learning disabled may have reasonable accommodations in order to complete the rhetoric requirement satisfactorily. Such accommodations must be arranged by the Office of Services for Persons with Disabilities and approved by the Department of Rhetoric.

Mathematics

Students who enrolled at The University of Iowa for the fall semester before August 1959 also must satisfy a mathematics requirement. The requirement may be met by two years of high school algebra and one year of high school geometry. By satisfactory test scores, or by courses taken at The University of Iowa or another institution. Complete information is available in the Office of Academic Programs, 110 Schoellkopf Hall.

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 (104 or 1042), for a total of 4 semester hours;

By completing 104-15 (2 s.h.) and two 1-semester-hour courses in physical...
education skills, for a total of 4 semester hours.

Students also may earn exemptions from part or all of the requirement by passing Iowa in specific physical education units (5th semester).

Only courses 10-4, 10-42, and 1045 may be used to satisfy the requirement. Each course is graded satisfactorily/unsatisfactorily. In 10-4 and 10-42, skill courses, and sections under these numbers from activity or sports titles and levels of proficiency, 10-1 designates courses that meet for the first half of the semester or for the second week of the semester: 10-45 Fitness and Wellness for Life (1 ch.), a lecture-discussion course, meets for the entire semester. Students who take 10-45 must satisfy the remainder of the requirement by taking two 1-semester-hour skill courses or exemption tests.

If a student repeats the same skill course or takes a skill in elementary school, the Office of the Registrar may assess a penalty for either duplication or repetition. In receiving exemptions or completing the second-grade-only option, students must complete or retain 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 earned, only exemption. To qualify, please see "Physical Education Skills" in the current Schedule of Classes.

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 (physical education course work credit transfers from other colleges).

By achieving junior standing (60 ch.) before admission to The University of Iowa.

By earning enough credit in physical education at love to make up a total of 4 semester hours combined with physical education course work transferred from other colleges.

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 exempt from the physical education requirement.

Veterans

Veterans may be exempted from this requirement by petition to the Office of the Registrar officer evidence of having completed a basic training program in one branch of the armed forces.

B.I.S. Students

Candidates for the B.I.S. degree may exempt from the physical education requirement.

Foreign Language

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

All degree candidates who enter the University in fall semester 1990 and after shall 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-year level of college language at The University of Iowa, at another college or university, or during study abroad.

By completing sequential years of a language in high school followed by sequential advancement 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-year level of college language to satisfy the requirement; or

By passing an achievement test measuring proficiency equivalent to that usually obtained after four semesters of college study.

B.I.S, B.F.A., B.G.S., and B.M. candidates who entered the University before fall semester 1990 and who will graduate by August 1994 may satisfy either the fourth-year level requirement described above or a second-semester requirement, second-semester requirement is available in the Office of Academic Programs, 116 Schaeffer Hall. B.I.S. candidates who entered at The University of Iowa for the first time before fall semester 1990 and who will graduate by August 1983 are exempt from the foreign language requirement.

Foreign Language Placement

Entering freshmen are required to take a University of Iowa foreign language placement test in high school; we exempt from the requirement unless they wish to participate in the Foreign Language Placement Program (see below).

Results from the placement test are used to determine the level at which students begin their language studies at the University of Iowa. In determining placement, academic advisors may consider number of years studied in high school, grades earned, experience abroad, ability to read native speakers and length of title elapsed since the language was last studied, if such information would result in a higher placement.

Effective Fall Semester 1991

Entering freshmen who place at the second-semester level or higher may continue study in that language for full credit or begin study of a different language for full credit. Those who place below the second-semester level are required to complete the first semester of language study for a letter grade but without credit toward graduation.

Effective Fall Semester 1993

Entering students who place at the third-semester level or higher may continue study in that language for full credit or begin study of a different language for full credit. Those who place below the third-semester level are required to complete the first year of language study for a letter grade but without credit toward graduation.

Foreign Language Incentive Program

Eligible 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 upgraded but counts toward the hours required for graduation. Incentive credit is not awarded for transfer credit when they register or during the first three weeks of the semester in which they are taking the course in the Office of Academic Programs, 116 Schwartz Hall. Students who take the course in the fourth semester must take the first one and half-weeks of the semester. Incentive credit is considered credit by examination.

Proficiency Examinations in Foreign Languages

Students proficient in a language for which they have received no formal instruction may validate their proficiency by examination. Students proficient in French, German, or Spanish should take one of the placement examinations during the summer orientation programs and each semester prior to the beginning of classes. Proficiency examinations in other languages may be arranged by contacting the appropriate department. Academic credit will not be awarded for satisfactory completion of these examinations.

Satisfactory test results on Advanced Placement Examinations for French, Latin, or Spanish satisfy the foreign language requirement. In many cases, academic credit is awarded. Complete
Historical Perspectives
Students must complete at least one semester hour from the courses listed below.

41.55 Western Art and Culture Before 1490 3 s.h.
41.53 Islamic Art and Culture After 1490 3 s.h.
51.10 Victorian Art 3 s.h.
51.15 Modern Art 3 s.h.
51.17 African Art 3 s.h.
51.55 Asian Art 3 s.h.
13.15 The History of Latin America 3 s.h.
12.12 Latin American History and Society 3 s.h.
12.10 African History 3 s.h.
11.10 African Art History 3 s.h.
12.46 African Development 3 s.h.
12.47 The Politics of Southern Africa 3 s.h.

Humanities
Students must complete NG:1 The Interpretation of Literature (3 s.h.) and at least an additional semester hour from the course listed below.

13.15 Understanding the Visual Arts 3 s.h.
13.12 The Art of Tribal Cultures 3 s.h.
13.18 Masterpieces of World Art 3 s.h.
13.49 Major Works in World Literature 3 s.h.
13.51 Major Works of World Literature 3 s.h.
13.12 Biblical and Classical Literature 3 s.h.
13.66 Medieval and Renaissance Literature 3 s.h.
13.65 Epic and Tragic Literature 3 s.h.
13.64 The Forms of Comic Vision 3 s.h.
13.66 Narrative Literature 3 s.h.
13.67 Lyric Poetry 3 s.h.
13.67 Literature of the Theater 3 s.h.
13.68 American Literature 3 s.h.
13.71 The Personal Voice 3 s.h.
13.68 Comic and Tragic Literature 3 s.h.
13.68 African Literatures of the African Peoples 3 s.h.
13.68 Women's Literature 3 s.h.
13.77 German Romantic and Gothic Literature of the Middle Ages 3 s.h.
13.68 Introduction to Modern German Literature 3 s.h.
13.72 Four Blocks of Modern Literature 3 s.h.
13.68 The Russian Novel 3 s.h.
13.68 Shakespeare and Modern Drama 3 s.h.
13.68 Native American Literature and the Impact of Science 2-4 s.h.
13.68 The Classical World 3 s.h.
13.68 Ancient Views of Justice 3 s.h.
13.68 Greek Drama in Translation 3 s.h.
13.68 Classical Mythology 3 s.h.
13.68 The Roman World 3 s.h.
13.68 Modern Drama 3 s.h.
13.68 Medieval and Renaissance Literature 3 s.h.
13.68 African Literature 3 s.h.
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13.68 The Classical World 3 s.h.
13.68 Ancient Views of Justice 3 s.h.
13.68 Greek Drama in Translation 3 s.h.
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 following requirements: Academic credit is not awarded.

Exemption—major academic credit may be awarded for successful achievement on examinations administered by the Advanced Placement Program (AP) or the College-Level Examination Program (CLEP) in the following General Education Requirement areas: dental, foreign language, historical perspectives, humanities, natural science, quantitative or formal reasoning, and social studies. Specific information about duplication of credit for AP and CLEP is available from the Evaluation and Examination Services.

Transfer Students

Transfer students who have taken courses elsewhere that are similar to those approved for general education at Iowa may apply those courses toward the General Education Requirements. Acceptance of these courses is shown on the student's admission or graduation degree program. 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 an A.A. degree, from one of the Iowa Community CollegeRegents Articulation Agreement are considered to have met all the General Education Requirements. However, the program of study for which the A.A. degree was awarded must include the following:

A minimum of 69 semester hours (90 quarter hours) toward graduation; mathematics courses complete 22M1, Basic Algebra I, 22M2 Basic Algebra II, and 22M3 Basic Geometry are not accepted toward graduation.

Completion of the agreed-upon group of courses at the community college.

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 credit from all sources toward the 124 semester hours required for a bachelor's degree at Iowa. A student who takes more than 62 semester hours of credit in completing the A.A. degree, the credits are used as completing the grade-point average and may be used to satisfy course requirements, but the 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 D (pass) and 16 with a grade of C (satisfactory) is accepted toward the 124 semester hours required for graduation.

Students who completed at the University of Iowa for the first time in spring semester 1987 may count a maximum of 16 semester hours of credit through the sophomore year only toward graduation, but only through May 1992. After that, they will be limited to a maximum of three courses.

Students who completed at The University of Iowa for the first time in summer session 1987 may count a maximum of 16 semester hours of credit through the sophomore year only toward graduation, but only through May 1992. After that, they will be limited 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.S. students are not subject to this restriction.

A maximum of 52 semester hours of credit by examination are accepted toward the 124 semester hours required for graduation. B.S. students are not subject to this restriction.

A maximum of 30 semester hours of credit earned in other colleges of the University may be accepted toward the 124 semester hours required for graduation from the College of Liberal Arts. Undergraduate courses in the College of Education are exempt from this rule.

A student who has earned 62 semester hours of college credit from all sources, no more credit is accepted by transfer from a two-year college toward meeting the 124 semester hours required for graduation. If a student has transferred more than 62 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, 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., 52 toward B.P.E., and 48 toward the B.G.S. or B.A. in interdisciplinary studies. This includes credit of Iowa and transfer course work.

Conditions for the B.G.S. or B.A. in interdisciplinary studies may consist of more than 16 semester hours of advanced course work from any one department toward the 30-semester-hour advanced course requirement.

A maximum of 20 semester hours of B.S.C. credit is accepted toward the 124 semester hours required for graduation.

Courses without Degree Credit

Courses 108, 109, 110, 114, 22M.1, 22M.2, and 22M.3 carry no degree credit. Students who take these courses must complete the additional semester hours beyond the 124 required for graduation. In addition, courses used to make up deficiencies in the unit (addition) requirements carry no degree credit.

Although some courses carry no degree credit, they are used in computing grade-point averages, and the hours count toward semester loads for all official purposes (e.g., full-time and halftime status, maximum schedule, minimum semester-hour requirement, responsible academic progress, dean's list eligibility, and to beho).

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 advisors 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.P.E., and 48 toward the B.G.S. or B.A. in interdisciplinary studies. This includes credit of both University of Iowa and transfer course work. Courses required for the major in cognitive or related areas may be taken pass/fail. These available, at the discretion of the major department. 3 (elective) courses may be chosen in any area.

A maximum of 16 semester hours of credit by examination may be awarded in the major.

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 (e.g., physics and astronomy in Spanish and Portuguese), students may earn a major in one area and a minor in the other. Students must earn at least 52 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 50 semester hours in courses taken outside the College of Education.

Returning for a Second Major

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

Students who return to the University to complete the requirements for a second major must first meet only the requirements of that second major; they need not fulfill the residence requirements. It is the student’s responsibility to apply to graduate programs in the College of Liberal Arts upon completion of the requirements for the second major so that a notation can be placed on the permanent record.

Students may return to the University to complete the requirements for a second major developed out of 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 areas must be adjacent to the major or may allow a student to follow an interest entirely different and separate from the major.

Requirements

The requirements outlined 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 in the academic units 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 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/fail/unsatisfactory.

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 departmental office.

Space programs in the college that do not offer a bachelor's degree offer minors. For example, minors may be earned in aging studies, global studies, Latin American studies, and women's studies.

Students inform the Office of the Registrar of 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 have not completed the requirements for 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 may also be used to satisfy the general Education Requirements.

Course work applied toward the minor also may be used to satisfy the Cognitive requirements. These courses outside of the major department that are required as part of the major.

University of Iowa Guided Correspondence Study courses are acceptable 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 Latin American Studies are an exception to this rule. They may count up to 6 semester hours from their major department towards the minor.)

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

Candidates for the B.G.S., B.A. in interdepartmental studies, or B.S. are not eligible to earn minors.

The following degree-granting programs do not award minors: African and Afro-American Studies, art education, art history, business administration, chemical engineering, chemistry, classical studies, cinema studies, computer science, creative writing, criminology and justice, dance, decision sciences, design, dietetics, divinity, east and west studies, economics, education, elementary education, health services education, interdepartmental studies, Latin American studies, liberal arts, mass communication, mathematics, music, nautical sciences, nutrition sciences, philosophy, physical education, physics, political science, psychology, public health, public relations, religious studies, sociology, speech, and theater.

Liberal Arts Minors for Students in Business Administration, Engineering, Medicine, and Nursing

Undergraduate students in the Colleges of Business Administration, Engineering, Medicine, and Nursing may earn liberal arts minors by satisfying College of Liberal Arts requirements for minors. Engineering students interested in minors in physics, chemistry, or environmental engineering must meet the same course requirements in the engineering curricula to satisfy the minor requirements in these areas. (For other restrictions, see appropriate college sections of the Catalog.)

Minor in Business Administration

Students in the College of Liberal Arts may earn a minor in business administration. The course listed below satisfy all requirements for the minor. At least 15 semester hours in courses for the minor must be completed at The University of Iowa. Students must earn a grade of at least 2.00 in all courses taken for the minor and in all of these courses taken at Iowa.

A computer programming course

497.30, 297.29, 297.f2, 297.34, 297.37, 297.38, 297.44

1 s.h.

Business calculus

297.15, 297.16, 297.25, 297.55

2 s.h.

Statistics

797.14, 297.26, 297.29, 297.30, 297.31, 297.41, 297.42, 297.47

2 s.h.

662 Principles of Macroeconomics

2 s.h.

662 Principles of Microeconomics

3 s.h.

464 Introduction to Financial Accounting

3 s.h.

681 Managerial Cost Accounting

3 s.h.

691 Advanced Financial Accounting

3 s.h.

8810 Introduction to Marketing

3 s.h.

1010 Introduction to Financial Management (4 or 5 s.h.)

3 or 4 s.h.

1310 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.) degree at The University of Iowa, the accelerated professional track offers an alternative to the business minor. Students pursue an undergraduate degree in a field of business in three years while taking M.B.A. foundation courses. Upon receiving the bachelor's degree, students enter the Graduate College to complete the M.B.A.
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. For specific requirements, call or visit the Office of Student Services in the College of Education.

Registration

Registration Period

The final two weeks of the fall and spring semesters are the designated periods for registration. Students register according to a rotation based on the last three digits of their identification number and on the number of semester hours earned. The first four days of the rotation are reserved for students who have earned 72 or more semester hours; students with fewer than 72 semester hours earned register during the remainder of the period.

Late Registration

Students are not permitted to register after the Add/Drop date of the first one-and-one-half weeks of the summer session.

Classification of Students

Semester Rank Hours Earned Code

Freshman 0-29 A1
Sophomore 30-59 A2
Junior 60-89 A3
Senior 90 or more A4

Special (nondegree) student AS

Changes in Registration Initiated by the Student

Adding and Dropping Courses

During the registration period, students need only an advisor's approval to change courses selected earlier in the registration period. Once classes have begun, courses may be added during the first three weeks of the semester (or first one-and-one-half weeks of the summer session) with the signature of either the advisor and instructor on a Change of Registration form. 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 advisor and the instructor. Specific courses that meet on a different schedule than that start or end at times other than the beginning and end of the semester, and are listed in the Schedule of Courses, may be added with the advisor's signature at any time during the first one-and-one-half of the course's duration and dropped at any time during the first three-fourths of the course's duration. Proportionally similar deadlines operate during the annual eight-week summer sessions and for other special session courses.

Withdrawn (W)

Undergraduate students are assigned the grade of W (withdraw) for any course in any college dropped after the third week of the semester (or first one and one-half weeks of the summer session).

For courses that start at end or times other than the beginning and end of the semester, students may drop the course any time within the first one-fourth of the course's duration without being assigned a W.

Limits on Withdrawing from Courses

Liberal arts students may withdraw from the same course with the grade of W more than twice. Those who do so are placed on disciplinary probation.

Liberal arts students entering the University Fall 1991 and after will be limited to an overall maximum of five Ws. All other liberal arts students will be limited to a maximum of five Ws beginning with their fall semester 1994 registration.

Freshmen entering the University directly from high school with no prior full-time college experience are permitted to exclude two courses from dropping during the first two sessions of enrollment from the maximum allowed.

Students who have a legitimate reason for dropping a course (e.g., physical illness, death of an immediate family member) and can document that reason are permitted to exclude that drop from the maximum. Requests for such exclusions must be made in the Office of Academic Programs, 118 Schaeffer Hall.

Adding and Dropping Courses Late

Students who wish to add or drop courses after the Add/Drop date may do so only with the signature of the associate dean for academic programs in addition to the signature of the academic dean. Students may request permission for the dean's signature in the Office of Academic Programs, 118 Schaeffer Hall. Approval to add or drop courses late is granted only in extraordinary circumstances not only with appropriate documentation.

Changes in Variable and Arranged Courses

Students who have registered for courses excluded for variable or arranged credit may change the number of variable 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 five 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 wins it the desired hours.

Withdrawal of Registration

Students may withdraw registration at any time before the last three weeks 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 semester. Withdrawal cards may be obtained in the Office of the Registrar.

Student Responsibility

Students must initiate changes in registration, obtain the proper signatures on the proper forms, and deliver the forms to the Registration Center before the deadline. The confirmation that changes have been made is the revised Catalog page presented at the Registration Center.

Instructor's Option to Drop for Nonattendance

To provide vacancies to enrolled classes, instructors may drop students who have not attended any class session during the first eight cumulative days of the semester (or first five cumulative days of the summer session), unless the students have offered acceptable reasons for beginning the course late. The burden is for the benefit of students who otherwise would be unable to enroll in certain crowded classes. It should not be used when these circumstances do not exist. The drop is made at the discretion of the instructor and must be made in the Office of Academic Programs, 118 Schaeffer Hall.

Auditing Courses

Students in the College of Liberal Arts may audit a course without paying the regular cost of departmental courses during the first five weeks of the semester (or first five weeks of the summer session), but they are not awarded credit for the course. Students may audit a course, with instructor approval, for a letter grade of INW (incomplete withdrawals). Auditors must continue with the course and withdraw at the end of the semester. The grade of INW does not count toward graduation requirements and cannot be counted toward graduation requirements.
Students may register as auditors only at the Registrar's Office.

During early registration: Students file the course on the registration form and pay the tuition fee; the course is included on the student's semester course load, and the instructor signs in the special permission section on the back of the registration form; or students may add the course for zero credit on a Change of Registration form with the signature of the instructor.

Once classes have begun: Students add the course for zero credit on a Change of Registration form with the signatures of the instructor and the dean. Changes from credit to audit or from audit to credit must be made within the first three weeks of the semester (or last 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.

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 than the maximum allowed in the Office of Academic Programs, 116 Scheffer Hall.

To qualify for full-time status for purposes of tuition assessment, and to be eligible for federal aid, students must be enrolled for 12 semester hours during a fall or spring semester or 6 semester hours during a summer session. The recommended study load for students who wish to earn a degree is eight semesters (four years) in 15- to 16-semester hours each semester.

Graduation Analysis

A graduation analysis evaluates the program a student is taking toward a particular degree by checking total hours attempted, grade-point averages, hours in residence, and courses completed to satisfy the General Education Requirements and requirements in the major. Students who are currently enrolled in the College of Liberal Arts and who have declared a major receive a graduation analysis during their junior year. Ordinarily, students do not receive another graduation analysis until their final semester.

Graduation progress reports, which are sent to students each semester they are enrolled, assess fulfillment of General Education Requirements, calculate grade-point averages, and provide a summary of courses taken. The reports do not evaluate progress toward the major.

Duplication

Duplication occurs when students take the same course more than once or take a course that duplicates the content of a satisfactorily completed course. Duplication is assessed by the Office of the Registrar at the time of graduation analysis. Hours earned by duplication do not count toward the total number of hours required for graduation. Grades for both courses, however, are used in computing grade-point averages.

Regression

Regression occurs when students take a lower-level or prerequisite course after having satisfactorily completed a more advanced course in the same or related subject. At the time of graduation analysis, the Office of the Registrar determines whether regression has occurred. Hours earned by regression do not count toward the total number of hours required for graduation.

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 (Definition)</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>3.25</td>
</tr>
<tr>
<td>B</td>
<td>3.00</td>
</tr>
<tr>
<td>B-</td>
<td>2.67</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 (failing)</td>
<td>0</td>
</tr>
</tbody>
</table>

*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 in 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 incompletes. 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 incompletes 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 to courses for which the instructor failed to report a grade or reports an invalid grade. The O designation is a student's permanent record and is not changed to indicate a valid grade according to the procedures for incompletion described above. Failure to remove the O before 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-, B+, B, B-, C+, C, and C- are converted to P, D+, D, D-, F, and F, respectively.

The grades of P and N are not used in computing the grade-point average. The grade of N does not count as hours earned towards graduation.

Students may register for P/N beginning the first day of classes through the end of the third week of the semester (not 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 at the time of registering for the course. The signatures of both the instructor and the advisor must be obtained on the P/N form before it is 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 major departments is not evaluable on a P/N basis, except by departmental action for courses that are not to be counted toward the major. This restriction applies to both University of Iowa and transfer 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 major may be taken P/N.

A maximum of 16 semester hours of P grades from all colleges is accepted toward the baccalaureate degree. Transfer students admitted to the University with 40 semester hours or more of course work are limited to a maximum of 16 semester hours of P grades. These students may enroll only in 12 semester hours of P grades.

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 the 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 necessary to register for 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 baccalaureate degree.

Second-Grade-Only Option

Students may repeat courses taken at The University of Iowa, unless obvious improvements are involved, and have only the grade and credit of the transfer 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 for the usual manner for the course they desire 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, 118 Schaeffer Hall. Unless this is done, both grades continue to be counted in the grade-point average.

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 full course be repeated at another institution. The course may be used only once per course.

The option may not be used if obvious improvement has occurred.

If the course was taken for a grade the first time, it must be taken as a grade the second time. If the course was taken pass/fail the first time, it may be taken pass/fail or as a grade the second time. A course taken through regular registration may not be repeated through Correspondence Study (GCS) under the second-grade-only option. A course taken through GCS may be repeated through GCS or regular registration.

Students who enrolled at The University of Iowa for the first time before summer session 1986 may apply this provision to a maximum of 16 semester hours for fall May 1982. After that, they will be limited to a maximum of three courses.

Students who enroll(s) at The University of Iowa for the first time session summer 1987 and after may apply this provision to a maximum of three courses.

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 advisors and to individual students, but dissatisfactory grades are not recorded on the permanent record.

Grading Grievances

Grading grievances should be resolved with the instructor who assigned the dissipated grade. If the student and instructor cannot resolve the matter, the student should discuss it further with the departmental executive officer or faculty advisor, supervising a multisection course.

The departmental executive officer or faculty advisor resolves grading grievances to the associate dean for academic programs. The Office of Academic Programs publishes a handbook on grading grievances, which describes the procedures and restrictions.

Academic Probation and Dismissal

Students in the College of Liberal Arts are expected to maintain satisfactory academic standards and to demonstrate reasonable progress toward a degree. Probation serves as a warning that students will fail graduate unless their academic performance improves.

Probation

Through Summer 1992

Students must achieve the following minimum University of Iowa and total cumulative grade-point averages or they are placed (or continued) on probation.

Freshmen: (10-12 h.) 1.60
Sophomores: (30-39 h.) 1.75
Juniors: (39-49 h.) 1.90
Seniors (10 or more h.) 2.00
Students are placed on probation beginning Fall 1992.

Effective fall semester 1992, all liberal arts students will be held to the following standards:
Freshmen (52-19 s.h.): 1.70
Sophomores (30-09 s.h.): 1.85
Juniors (46-00 s.h.): 2.00
Seniors (90 or more s.h.): 2.00
Special students (ARS): 2.00

Students on academic probation are required 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/fail (P/F) grading option may not be used by students on academic probation; however, 5F courses are allowed.

Excepting freshmen and transfer students may be admitted or readmission if they fail to meet the minimum stated standards for admission (see "Admission Requirements," below).

Dismissal
Freshmen admitted unconditionally (not on probation) are subject to dismissal from the college after one semester on academic probation. Freshmen admitted or probation are subject to dismissal after two consecutive semesters on academic probation. Continuing students are subject to dismissal after two consecutive semesters on academic probation. Very poor academic work in any semesters; however, may result in dismissal at the close of that semester.

Right to Appeal
Students who do not accept that their unsatisfactory academic records were the result of extenuating circumstances may appeal to the committee for a reversal 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 June must appeal in writing no later than June 15. Details of the appeals process can be found in the Office of Academic Policies and Programs. Appeal procedures should be addressed to the Student Appeals Committee, Office of Academic Policies and Programs, 116 Schaeffer Hall. The decision of the committee is final. No appeal is considered for reconsideration 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 reenroll again for one year. Students dismissed a second time are not permitted to register for at least two years. Requests for reinstatement must be made in writing or in person and should be addressed to the academic dean. Office of Academic Programs, 116 Schaeffer Hall. Any reinstatement interview must be made and the interview must take place before July 15 for reinstatement to a fall semester or before 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 after the specified interval 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 academic dean for academic programs. Students admitted or probation have the notation "admitted on probation" entered on their permanent records. The notation "academic probation" is placed on the permanent record 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 chairs, or departments determine the policy on class attendance. Students required to observe the regulations as announced for the course. However, University policy requires that students be permitted to make up examinations absent for reasons of illness, mandatory military obligations, or other unavoidable circumstances or University activities.

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 absence from class of five days or

by completing an "Explanatory Statement of Absence from Class" form available at the Registration Center, and by presenting it to the instructor. Students who are absent for more than five days must report to the Registration Center to submit notice of their absence to each instructor.

Final Examinations
A suitable period for the administration of examinations is set each semester. During 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 on the scheduled days. The dates of 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 and in consultation with the student in the class.

For a more complete discussion of policies covering final examinations, see the college's Classroom Manual.

Student Conduct
Plagiarism and Cheating
All cases of plagiarism and cheating in the college should be reported to the Office of Academic Programs. The Academic Standards Committee, the academic dean, or the committee on Academic Conduct may decide to take disciplinary action against the instructor, even to assign F. The departmental executive officer gives a written report of the facts of the case and the action taken by the instructor and submits a recommendation for disciplinary action.

The associate dean for academic programs or the Committee on Student Academic Conduct may inform, as the offense may warrant, the following or other policies: disciplinary probation, suspension, and dismissal from the college, or recommendation of expulsion from the University by the president.

Forgery
The Code of Student Life prohibits forgery of University documents. Students who use University identification cards. The Office of Academic Programs investigates students suspected of forgery and takes disciplinary action based on the interview and information provided by the victim or instructor.

Misconduct
Students who are disruptive in a classroom or laboratory may be dealt with summarily by the instructor or referred to the dean of students for services. The investigator reports in writing to the dean of students any disciplinary action undertaken against a student.
Recognition for Academic Achievement

Dean’s List

Liberal arts students who achieve grade-point averages of 3.50 or above during a given semester are 12 or more semester hours of graded work (excluding University of Iowa Guided Correspondence Study courses) and who have no hours of I (incomplete) or O (no report) are recognized by inclusion on the Dean’s List for that semester, and a notation to that effect is entered on the student’s permanent record.

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. To be eligible for either form of recognition, students must complete the full 60 semester hours in residence at the College of Liberal Arts of the University of Iowa, of which at least 48 semester hours must have been completed prior to the student’s 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 two highest three percent, and "with distinction" to the next highest five percent. Ranking in bands on students' grade-point averages for all college-level study undertaken prior to the final registration.

Graduation with Honors

The director of the College of Liberal Arts Honors Program certifies to the dean of the college the names of students graduating with honors "with honors." To be eligible, students must be recommended by their major departments and 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 common 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, the cumulative grade-point average, and 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 American College Test (ACT) or the Scholastic Aptitude Test (SAT) before registration for classes. These examinations are used as a criterion for admission, for placement purposes, for scholarship, 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 faculty of the College of Liberal Arts 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 apply to entering freshmen who graduate(s) from high school after 1985, transfer students with fewer than 24 semester hours of transferable credit who graduate(s) from high school after 1985, and transfer students with 24 or more semester hours of transferable credit who graduate from high school in 1980 or after.

Four years of English-language arts, with emphasis on writing, speaking, and reading as well as understanding and appreciating 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 biology, chemistry, and physics).

Three years of social studies (American history, anthropology, economics, geography, government, social history, psychology, and sociology).

The following provision 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 and/or survey courses in the arts and humanities).

A fourth year of mathematics (analytic geometry, trigonometry, or calculus); and

An additional two years of the same foreign language.

Students whose high school curriculum did not provide the courses necessary to meet the requirements for admission or who encountered difficulties in scheduling the required courses may apply to the director of admissions for an exception.

Entering Freshmen

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 test score requirements for admission. As a condition of admission, such students are required to complete specified college-level courses with a grade of C- or better. With prior approval of the Office of Admissions, these courses may be taken at an accredited college, university, or community college. Credit earned in these courses does not count toward graduation from The University of Iowa. If the courses are taken at the University of Iowa, it is usually during the summer session immediately preceding fall registration. To all classes, courses taken to remove deficiencies must 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 test score requirements. They must complete without defects the specified college-level foreign language courses with a grade of C- or better before graduation.

Courses taken to remove deficiencies do not count toward the General Education Requirements, with the exception of rhetoric and foreign language.

In general, one semester of college work in a single three-hour course (3 s.h. or 4 quarter hours) is required to remove a deficiency at one year or less of high school credit.

Transfer Students

Transfer students with A.A. degrees from Iowa community colleges participating in the Iowa Community College Transfer Articulation Agreement are considered to have fulfilled the unit requirements.

Other semester students may use college courses taken elsewhere to make up high school deficiencies. Courses must be completed with a grade of C- or better and the credit does not count toward graduation from The University of Iowa. Courses taken to remove deficiencies do not count toward the General Education Requirements, with the exception 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 may also remove deficiencies in English, mathematics, natural science, or social studies by earning acceptable scores on advanced placement tests.

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 generally are 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 10 and adding the percentile rank in class. A comparable index is used for applicants who submit SAT scores instead of ACT scores. The minimum index for admission is 75 percent for freshmen entering in Fall 2022. Iowa residents it ranges from 90 to 100 and for nonresidents from 100 to 110.

Applicants who do not meet these standards 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 term which includes a preceding summer session, or denied admission.

Graduates of nonaccredited high schools must submit all data 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 data 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 Report of Peer Group by Educational institutions, published by the American Association of Collegiate Registrars and Admission 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 of the College of Liberal Arts may require to support their applications for admission.

Transfer applicants who have a minimum of 24 semester hours of credit from regionally accredited colleges or universities and who have maintained a grade-point average of 2.00 (based on a 4-point system) at 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 the time of suspension has passed since the last date of attendance.

Transfers 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 applicant from a student under suspension, the college must take into account the previous request. Applicants granted admission under these circumstances must be admitted on probation, and their admission is subject to cancellation.

Transfer Students from Nonaccredited Colleges

The College of Liberal Arts may refuse to accept records from a nonaccredited college or may admit the applicant on a conditional basis and provide a means for the validation of some or all of the credit. The validation period may last longer than one semester, ordinarily an entire fall academic year. The college specifies to the student the terms of the validation process at the time of conditional admission. Students from nonaccredited colleges are considered on their own merits, and admission or rejection is at the discretion of the admissions officer.

Non-Native Speakers of English

The University of Iowa has an English proficiency requirement to ensure 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) along 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 Students

Foreign applicants who present TOEFL scores below 50 are not considered for admission to Liberal Arts. Admitted applicants whose TOEFL scores are 550 or higher may begin academic coursework with no restrictions. Applicants whose academic credentials indicate that they should be admitted but whose TOEFL scores fall between 50 and 550 may be offered admission to the College of Liberal Arts. However,placement in regular academic courses is made only after the student's English language proficiency has been determined using on-campus testing.

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 composite score of 1080 or above) whose ACT English subscore is 21 or above (SAT 580 or above) and

Graduates of Iowa whose ACT composite score is 25 or above (SAT composite score of 1090 or above) and whose ACT English subscore is 21 or above (SAT 590 or above).

Admitted applicants whose TOEFL scores are 500 or above may begin academic coursework without restrictions. Those whose TOEFL scores fall below 500 may be required to pass an English language proficiency testing before they register for courses.

Applicants seeking exceptions are directed to the coordinator of English as a Second Language.
English Proficiency Evaluations
On-campus proficiency evaluations are conducted by the Departments of Language Arts. If such evaluation warrants, students are required to enroll in a credit-generating course in English as a Second Language or in the noncredit Iowa Interactive English Program until their language proficiency meets 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 this section of the Catalog.)

Special (Nondegree) Students
Students may be admitted to the college as nondegree candidates. These students are classified as special students (SV) 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. Courses taken by special students may not be used to satisfy the residence requirement for a baccalaureate degree from the College of Liberal Arts.

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 Registrar’s Center to begin the re-entry 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 applications for re-entry. Completed application materials must be received two weeks before the opening of classes. Application 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 at the Office of Academic Programs. See “Reinstatement to the College” under “Academic Probation and Dismissal” in this section of the Catalog.

Credit for Military Service
The admissions officer is authorized to evaluate transcripts from the ministry services according to the recommendations contained in the American Council on Education’s Guide to the Evaluation of Educational 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. Armed 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 must be 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 toward credits in the major or minor. Credit awarded through the Foreign Language Immersion Program is considered credit by examination.

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 (AP) 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 15 semester hours. Credit toward graduation is extended to foreign high school majors only for passing examinations covering the third and fourth-year levels 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 the 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 competency they may have achieved outside of formal college instructional programs. General examinations cover broad content areas such as the humanities, natural sciences, and social science, 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 Requirements 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 the start of the semester so that results can be used to plan their first semester schedule.

Specific credit policies and further information is available from the University’s Evaluation and Examination Service.

Transfer Credit by Examination
The College of Liberal Arts accepts transfer credit that includes APP and CLEP credit awarded through another institution. Although University of Iowa policies on the application of credit by examination may differ from those of the transfer institution, credit is neither added to nor subtracted from a student’s record; however, the way in which the credit is applied may differ.

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

00905 Conditioning for Competition 0 e.h.
00906 Intramural Athletic Participation 1 e.h.
00907 Intramural Athletic Participation 1 e.h.
01010 1010 Physical Activities 1 e.h.

1011 Public Health 1 e.h.
Basic and advanced instruction in the student's choice from a wide array of topics and activities that promote health and wellness.

19-03 Fitness and Wellness for Life 2 e.h.
Unique in the world of fitness and wellness, this course combines physical activity and wellness education to promote a healthy lifestyle.

1011 Human Biology (Lab) [F] 1 e.h.
Human Biology is a fundamental science course that integrates the biological systems with the behavioral, biological, and environmental facets of human health and wellness.

1122 Ecology and Evolution 3 e.h.
Presents an overview of evolutionary process and diversity of living things, their patterns on Earth, their organization in ecosystems, and their relationship to human activities.

AEROSPACE MILITARY STUDIES

Head: Lt. Col. Gary S. Sipay
Professor: Lt. Col. Gary S. Sipay
Assistant professor: Capt. Mark Detti, Capt. John Bowers

The Department of Aerospace Military Studies administers the Air Force Reserve Officer Training Corps (AFROTC) at the University of Iowa. AFROTC educates highly qualified students who are working toward a bachelor's degree and commissions them as officers in the U.S. Air Force.

AFROTC is entirely voluntary, with courses open to all undergraduates and graduate students. AFROTC cadets must maintain a college grade point average of 2.40 for AFROTC academic work that may be applied toward the degree.

In order to receive a commission, AFROTC cadets must complete all University requirements for a degree as well as courses specified by the U.S. Air Force.

Prior to commissioning, all AFROTC cadets must complete a course in mathematics. Courses in AFROTC scholarships who must satisfy a requirement for an English composition course and for two semesters of a major intro-European or Asian language.

The College of Liberal Arts General Education Requirements minimize these requirements.

AFROTC offers two, three-, and four-year programs. Joining the program early gives students the opportunity to try AFROTC without obligations. It also gives them an advantage in the selection process for scholarships and PFC membership.

There are three main AFROTC program components: the professional officer course (POC), field training, and the general military course (GMC).

Professional Officer Course

The professional officer course (POC) consists of four three-hour-hour POC courses. Students accepted into the POC make a commitment to serve a minimum of four years at U.S. Air Force Offices. To enter the POC, students must be selected to attend and must successfully complete field training.

Leadership Laboratory

The leadership laboratory is cadet centered and cadet led. 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 have completed an academic class and in a 25% class title Leadership Laboratory.

Field Training

All AFROTC students 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 six-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, crew, career, and survival orientation training, officer training, physical training, small group training, junior 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.

General Military Course

The general military course (GMC) consists of a 1-hour-hour-hour course and a 25% class title Leadership Laboratory during which cadets attend the leadership laboratory and complete the field training.

Special Activities

The Cadet Corps sponsors many social events, including informal parties, dances, and a military ball.

AFROTC Cadets can join the Iowa State Air Force Reserve Officers' Training Corps (AFROTC) as a sophomore and senior. Many AFROTC programs also offer opportunities for students to participate in the Reserve Officers' Training Corps (ROTC) program.

The advanced training program is a volunteer program in which selected cadets may go on active duty for two or more weeks during the summer following their junior year. Cadets get "hands-on" experience and receive authorized pay and allowances.

Financial Aid

Scholarships are available, based on merit, for first-year cadets, and on abilities, for sophomores and juniors. These scholarships 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 studies.

All cadets in the last two years of AFROTC receive $1,000 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 an advanced degree or professional training program.

Courses

2301 AFROTC Leadership Laboratory (LAB) AS 101-0 0 e.h.
This course requires advanced experience in developing leadership skills. It includes leadership and communication, and professional military training. The course also provides leadership skills in a practical, operationally-based leadership and training environment.

2301 AFROTC Leadership Laboratory (LAB) AS 200-0 0 e.h.
See 2301, offered fall semester. Concurrent: 2301-0.

2301 AFROTC Leadership Laboratory (LAB) AS 300-0 0 e.h.
See 2301, offered spring semester. Concurrent: 2301-0.

2301 AFROTC Leadership Laboratory (LAB) AS 300-0 0 e.h.
See 2301, offered fall semester. Concurrent: 2301-0.

2301 AFROTC Leadership Laboratory (LAB) AS 300-0 0 e.h.
See 2301, offered spring semester. Concurrent: 2301-0.

2301 AFROTC Leadership Laboratory (LAB) AS 300-0 0 e.h.
See 2301, offered fall semester. Concurrent: 2301-0.

2301 AFROTC Leadership Laboratory (LAB) AS 300-0 0 e.h.
See 2301, offered spring semester. Concurrent: 2301-0.

2301 AFROTC Leadership Laboratory (LAB) AS 300-0 0 e.h.
See 2301, offered fall semester. Concurrent: 2301-0.

2301 AFROTC Leadership Laboratory (LAB)AS 300-0 0 e.h.
See 2301, offered spring semester. Concurrent: 2301-0.

2301 AFROTC Leadership Laboratory (LAB)AS 300-0 0 e.h.
See 2301, offered fall semester. Concurrent: 2301-0.

2301 AFROTC Leadership Laboratory (LAB)AS 300-0 0 e.h.
See 2301, offered spring semester. Concurrent: 2301-0.

2301 AFROTC Leadership Laboratory (LAB)AS 300-0 0 e.h.
See 2301, offered fall semester. Concurrent: 2301-0.

2301 AFROTC Leadership Laboratory (LAB)AS 300-0 0 e.h.
See 2301, offered spring semester. Concurrent: 2301-0.

2301 AFROTC Leadership Laboratory (LAB)AS 300-0 0 e.h.
See 2301, offered fall semester. Concurrent: 2301-0.

2301 AFROTC Leadership Laboratory (LAB)AS 300-0 0 e.h.
See 2301, offered spring semester. Concurrent: 2301-0.

2301 AFROTC Leadership Laboratory (LAB)AS 300-0 0 e.h.
See 2301, offered fall semester. Concurrent: 2301-0.

2301 AFROTC Leadership Laboratory (LAB)AS 300-0 0 e.h.
See 2301, offered spring semester. Concurrent: 2301-0.
AFRICAN-AMERICAN WORLD STUDIES

Chair: Dwayne T. Turner
Professorship: Focus Themes (English/African-American World Studies), Dwayne T. Turner (English/African-American World Studies)

Program Advisory Group: Abe Sesay, John A. Johnson (English/African-American World Studies), Alice Roberts (History/African-American World Studies), Françoise Woodard (English/African-American World Studies)

Graduate degree offered: M.A. in African-American World Studies

Graduate degree offered: M.A. in Afro-American Studies (undergraduates leading to B.A., M.A., and Ph.D. in African-American Studies)

The African-American World Studies Program focuses on the study of people of African ancestry in the North American colonies and the United States from the seventeenth century to the present. To provide a comprehensive view of that subject, the program also offers courses examining the African heritage and present relationships of African-Americans in Africa in other lands. Because a thorough understanding of African-American culture cannot be achieved through study restricted to the perspective of a single discipline, all students in the program are required to pursue coursework in humanities and social sciences. Although the program at present emphasizes history and literature, the African-American World Studies Program continually expands program perspectives by developing or cross-listing courses that link the knowledge drawn from many disciplines in the humanities and social sciences.

The program originated in 1969 through courses intended to foster awareness of the role of African-Americans in the development of the United States and designed to promote understanding of the present conditions and concerns of Black Americans. Since then, these courses have been organized into a curriculum that includes a program leading to an undergraduate major in African-American world studies, an undergraduate minor in Afro-American studies, a Master of Arts degree in African-American studies, and concentrations of African-studies courses in programs leading to a B.A., M.A., or Ph.D. in American studies. Students seeking Ph.D. degrees in English or history also can organize courses in Afro-American literature or Afro-American history into a special field or cognate area.

Originally called the African-American Studies Program, the program was renamed the African-American Studies Program in 1986. This new name more accurately describes the philosophy and the breadth of the program. Although most of the students in the Ph.D. program are preparing to work in colleges and universities as teachers and administrators, the B.A. and M.A. programs provide valuable backgrounds for many others seeking to work in community work, public school teaching, religion, government, and political science. In short, the African-American World Studies Program offers training important to any individual whose career will involve understanding and knowledge of Blacks.

Undergraduate Program

Bachelors of Arts

Students earning a Bachelor of Arts degree with a major in African-American world studies will follow either of two programs of study: the African-American studies option (32 semester hours) or the African-American world studies option (25 semester hours). A third program of study, the African studies option—to be published—will be offered.

The African-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. Students must earn a grade-point average of 2.00 or higher in all courses in their major program. The curricula are as follows:

AFRICA-AMERICAN STUDIES OPTION

Total of 30 semester hours

Required Courses

129-010 Introduction to African-American Society 3.0
129-011 Introduction to African-American Culture 3.0

For majors in the program, these two courses are prerequisite to African-American Literature I and II, African-American History II, and Senior Seminar.

129-116 African-American Literature I 3.0
129-117 African-American Literature II 3.0
129-145 African-American History I Before 1865 3.0
129-156 African-American History II, 1865 to Present 3.0
129-80 Critical Skills Seminar 3.0
129-99 Senior Seminar 3.0

Electives

Students must take six semester hours of electives in Afro-studies courses, not including 129-10, 129-175, or 129-176. Students are encouraged to take at least 3 semester hours of these electives in courses focused on Blacks in Africa or in the Caribbean.

Language Requirement

The language requirement for the Afro-American Studies option is the same as the College of Liberal Arts foreign language General Education Requirement for the A.A. degree. See the "College of Liberal Arts" introductory section in the Catalog.

AFRICAN-AMERICAN WORLD STUDIES CON

Total of 39 semester hours

Required Courses

129-010 Introduction to African-American Society 3.0
129-104 Introduction to African-American Culture 3.0
129-106 Social Science Perspectives on Contemporary Africa 3.0

For majors, these courses are prerequisite to the advanced required courses in history and literature and to the Seminar Seminar.

129-116 African-American Literature I 3.0
129-117 African-American Literature II 3.0
129-119 African Literature 3.0
129-145 History of Pre-Colonial Africa 3.0
129-146 History of Colonial Africa 3.0
129-145 African-American History I Before 1865 3.0
129-156 African-American History II, 1865 to Present 3.0
Another course in Afro-American history 3 s.h.
129 90 Critical Skills Seminar 3 s.h.
129 99 Senior Seminar 3 s.h.

Electives
Students must earn 6 semester hours of electives in 129-prefix courses, not including 129-110, 129-115, or 129-116.

Language Requirement
The language requirement for the Afro-American world studies option is four semesters, or 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 French, Portuguese, and Spanish.

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 College of Liberal Arts Honors Program.

Under the guidance of the undergraduate honors advisor, the honors candidate defends 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 an Afro-American faculty member, and may register for up to 6 semester hours in 129-99 Honors Project. Results are presented in a senior essay to a committee of three faculty members, including the supervising faculty member, the honors advisor, and a third faculty member of the student's choice. When the honors advisor is the supervising faculty member, the candidate may select a second and third faculty members. The candidate's committee may choose to hear the 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 a minor in Afro-American studies to undergraduate students. The requirements conform to the general requirements for minors in the College of Liberal Arts. In consultation with their advisor, students select 15 semester hours (five courses) in the following African-American world studies courses. Four of these courses (12 semester hours) must be numbered 100 or above. All five 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. Courses numbered 100 and above may be selected from 129-prefix courses in the selection of sections of the Catalog, but 129-115 and 129-117 may not be counted toward the minor.

Students who wish to pursue a minor in Afro-American studies should consult with an advisor in the African-American World Studies Program as early as possible. It is recommended that they select an introductory course from the following: 129-98, 129-111, 129-117, and 129-331. Advisors also recommend that they choose 129-116 or 129-317, and 129-105 or 129-166 as two of their upper-level courses.

Graduate Programs

Master of Arts

The interdisciplinary curriculum leading to a Master of Arts degree in Afro-American studies provides an intensive, organized, ground-level examination of Afro-American culture and experience. Such a program especially benefits individuals preparing for community college teaching, work with community-service organizations, or other careers in which an understanding of Afro-Americans may be necessary or helpful.

Curriculum Requirements

The Master of Arts Program in Afro-American studies requires 34 postbaccalaureate semester hours. Requirements include 129-211 Introduction to Research in Afro-American Culture (3 s.h.), 129-312 Advanced Research in Afro-American Culture (Biblical Perspectives, 4 s.h.), and 12 semester hours of required courses in Afro-American studies. Most students will be required to earn 12 semester hours in literature/history by taking 129-116 and 129-117 Afro-American Literature I and II, and 129-105 and 129-166 Afro-American History I and II. Students who have earned undergraduate or graduate credit for a year-long survey of either Afro-American literature or Afro-American history may satisfy the literature/history requirement by studying advanced Afro-American studies courses approved by their advisor.

To complete the curriculum, students select 15 semester hours of electives in consultation with their advisors. Recommended are courses in Afro-American music, Afro-American art, or Afro-American film. All 15 semester hours of electives may be selected from the courses numbered above 100 in the course list below. Students should consult an advisor in the program to determine which courses numbered above 100 will be approved for an M.A. degree.

Because the African-American world studies advisory committee wants to encourage doctoral study for those who have the ability, interest, and resources, it recommends that 6 of the 15 semester hours of electives in the Master of Arts program be used to explore doctoral education in their area of study.

Afro-American world studies. Possible fields of study are Afro-American studies, anthropology, education, English, geography, history, and sociology. Students are encouraged to select at least one-half of the courses in the M.A. curriculum from those numbered above 101.

Language/Tool Requirements

No foreign language or tool is required for the Master of Arts program. Neither Afro-American studies, nor students considering doctoral study in another field are encouraged to complete one language/tool requirement for research field study while studying at the master's level.

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 to the African-American World Studies Program faculty. An oral examination may be required as a follow-up to the written one.

Thesis/Project Requirements

A thesis is not required, but an option, for a Master of Arts degree in Afro-American studies. If a student elects to write a thesis, the thesis must explore a topic of Afro-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 advisor, a project related to Afro-American culture and/or experience. When completed, this project must be presented and approved by a committee of faculty members. Credit for the thesis/project is evaluated by the faculty members. 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 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 college credit in Afro-American literature and/or history courses, and a minimum grade-point average of 2.00 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 present 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, identifying 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 African-American World Studies Program and the chair of 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 advisor in African-American world studies.

Co-curricular Activities

Black Kaleidoscope

The African-American World Studies Program sponsors the Kaleidoscope, a series of lectures and demonstrations by scholars and artists distinguished in Black culture.

Institute in Afro-American Culture

From 1968 through 1979, The University of Iowa served as summer host for an Institute in Afro-American World Studies for college and university teachers. The institutes, which brought renowned artists and lecturers to the campus, focused on topics such as the Harlem Renaissance. Richard Wright, W.E.B. Du Bois, Black Americans in theater, and clave narratives. Although students in residence at the University are not eligible to be official members of the institute, they are permitted to enroll in a 3-semester-hour course offered at the same time as the Institute and (or) the current year's topic. The program continues to offer institutes in future summers.

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 education 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 intercultural understanding among all members of the University community. See "Cultural Centers" in the "Student Life at Iowa" section of the Catalog.

Black Genesis Troupe

The African-American World Studies Program also encourages participation in Black Genesis Troupe, a student organization that blends dance, music, poetry, and visual arts in representations of Black culture and history.

Graduate Student Association

The African-American World Studies Graduate Student Association attempts to promote interest in Black culture by sponsoring programs on various topics. Any University of Iowa graduate student interested in African-American world studies is eligible to be a member.

Related Courses

Although they are not included in the basic list of courses in the African-American World Studies Program, the following are recommended for interested students. For course descriptions, see the appropriate sections of the Catalog.

Anthropology
115:351 Sociology of the Third World
3 s.h.

Art and Art History
181:190 Themes in Art History: African Crafts

181:202 Seminar: Problems in African Art
3-4 s.h.

Business Administration
62:522 Collective Bargaining
3 s.h.

Comparative Literature
48:540 Non-Western Literary Traditions
3 s.h.

48:100 Cultural Identity in Caribbean Literature
3 s.h.

Economics
71:104 Employment Policy and Planning in the Third World
2-3 s.h.

71:189 Educational Sociology
2-3 s.h.

71:184 Education, Race, and Ethnicity
2-3 s.h.

71:195 Socialization of the School-Age Child
3 s.h.

70:120 The Culturally Different in Diverse Settings
3 s.h.

Geography
44:107 Third World Development Support
3 s.h.

History
15A:63 American History 1400-1877
3 s.h.

15A:62 American History 1877-1929
3 s.h.

15A:127 American Intellectual History 1776-1830
3 s.h.

15A:125 American Intellectual History from 1830
3 s.h.

15A:103 United States in the Early Republic
3 s.h.

15A:104 Civil War and Reconstruction
3 s.h.

15A:106 The Gilded Age in America
3 s.h.

15A:105 The Progressive Era in America
3 s.h.

15A:107 The New Era and The New Deal 1920-1945
3 s.h.

15A:109 The Contemporary United States 1940-Present
3 s.h.

Physical Education and Sports Studies
28:156 Minorities in Sports
3 s.h.

Political Science
30:146 African Development
3 s.h.

30:142 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.

Courses

For Undergraduates

128:80 Comparative Education Internship
4 s.h.

128:81 Literature of the African Peoples
3 s.h.

Introduction to selected works of 20th century Black authors of the United States, the Caribbean, and Africa. GER, American literature, and women's studies. Prerequisite: 95:111; same as 92:14, 148:14.

128:90 Ethnicity Workshop
3 s.h.

Black American poetry as background and model for student writing. Emphasis on developments and cultures of ethnic groups by students.

For Undergraduates 128:80 Comparative Education Internship 4 s.h.

128:81 Literature of the African Peoples 3 s.h.

Introduction to selected works of 20th century Black authors of the United States, the Caribbean, and Africa. GER, American literature, and women's studies. Prerequisite: 95:111; same as 92:14, 148:14.

128:90 Ethnicity Workshop 3 s.h.

Black American poetry as background and model for student writing. Emphasis on developments and cultures of ethnic groups by students.
130-131 Contemporary Black Experience Focus on the 1960s 3.h.
132-136 Readings in Race of Black Writers African-American literature and criticism from 16th-century slave narratives to contemporary fiction. 3.h.
137-139 Third World Women and Literature Series and novels by Third World women or treating Third World women as multiple authors. Set 1:10.11.
142-144 Introduction to African-American History. Series on women, gender, sexuality, and history. 3.h.
145-146 Introduction to African-American History. Series on women, gender, sexuality, and history. 3.h.
147 Social Science Perspectives on Contemporary Africa Series on the social sciences of contemporary Africa. 3.h.
148-149 Cultural Studies in African-American Literature Series for students interested in race, gender, and culture. 3.h.
151 Cultural Studies in African-American Literature Series for students interested in race, gender, and culture. 3.h.
159 Choice 2. Cultural Studies in African-American Literature Series for students interested in race, gender, and culture. 3.h.
165 Choice 2. Cultural Studies in African-American Literature Series for students interested in race, gender, and culture. 3.h.
175 Choice 2. Cultural Studies in African-American Literature Series for students interested in race, gender, and culture. 3.h.
177 Choice 2. Cultural Studies in African-American Literature Series for students interested in race, gender, and culture. 3.h.
179 Choice 2. Cultural Studies in African-American Literature Series for students interested in race, gender, and culture. 3.h.
183 Choice 2. Cultural Studies in African-American Literature Series for students interested in race, gender, and culture. 3.h.
185 Choice 2. Cultural Studies in African-American Literature Series for students interested in race, gender, and culture. 3.h.
189 Choice 2. Cultural Studies in African-American Literature Series for students interested in race, gender, and culture. 3.h.
AFRICAN STUDIES PROGRAM

Coordinators: Joel Barken (Political Science) and Nicholas van de Walle (Political Science and Government). The African Studies Program offers a broad range of courses designed to provide a comprehensive understanding of the continent and its peoples. The program is open to all students, regardless of major, who have an interest in African studies.

Courses

141:10 Introduction to African Studies 1.0 s.h.
141:444 Liberal Studies (African Perspective) 1.0 s.h.
141:771 Social Science Perspectives on African Affairs 4.0 s.h.
141:900 Introduction to African Studies 1.0 s.h.
141:908 Art of West Africa 1.0 s.h.
141:910 Art of Central Africa 1.0 s.h.
141:913 African Studies 3.0 s.h.
141:920 Thesis in Art History: African Crafts 3.0 s.h.
141:120 Seminar: Problems in African Art 3.0 s.h.
141:125 History of Pre-Colonial Africa 3.0 s.h.
141:126 History of Colonial Africa 3.0 s.h.
141:127 Modern African History 3.0 s.h.
141:140 African Development 3.0 s.h.
141:141 The Politics of Southern Africa 3.0 s.h.
141:142 History of the Economic Development of Africa 3.0 s.h.
141:143 The Economic Development of Africa 3.0 s.h.
141:144 The Political Economy of Africa 3.0 s.h.
141:145 The Politics of Africa 3.0 s.h.
141:146 The Politics of Southern Africa 3.0 s.h.
141:147 Introduction to African Studies 1.0 s.h.
141:148 Introduction to African Studies 1.0 s.h.
141:149 African Studies 3.0 s.h.
141:150 African Studies 3.0 s.h.
141:151 African Studies 3.0 s.h.
141:152 African Studies 3.0 s.h.
141:153 African Studies 3.0 s.h.
141:154 African Studies 3.0 s.h.
141:155 African Studies 3.0 s.h.
141:156 African Studies 3.0 s.h.
141:157 African Studies 3.0 s.h.
141:158 African Studies 3.0 s.h.
141:159 African Studies 3.0 s.h.
141:160 African Studies 3.0 s.h.
141:161 African Studies 3.0 s.h.
141:162 African Studies 3.0 s.h.
141:163 African Studies 3.0 s.h.
141:164 African Studies 3.0 s.h.
141:165 African Studies 3.0 s.h.
141:166 African Studies 3.0 s.h.
141:167 African Studies 3.0 s.h.
141:168 African Studies 3.0 s.h.
AGING STUDIES PROGRAM

Coordination: Noreen McGuire
Advisory committee chair: LaRenee Oetman (Science, Economics)
Advisory committee: Laurence Durkin (Home Economics), Gary Geth (Business Administration), Charles North (Medicine), Al Riedel (Community Education), Neta Hant (Dentistry), James Mohr (Graduate College), Earl Wolfe (Elementary Science), James Liebling (Human Affairs), George Leppo (Continuing Education), Bruce McNeil (Graduate Studies), Lawrence McDermott (Nursing), Mohammed Medini (Medicine), Nemo DeKloek, James E. Kuder, Howard D. Oetman (Psychology), Steven R. Dunkel, Christine H. Ginn (Geography), Richard J. Simon (Psychology), Bernard Seideman (Pharmacy), Mark Tracy (Social Work), Thomas H. Weis (Social Work)

The Aging Studies Program at the University of Iowa is designed to provide undergraduate and graduate students with a multidisciplinary approach to gerontology. The program consists of courses that have been coordinated and sequenced to provide a broad background in aging for students of various disciplines. All students plan their course of study with their academic advisors in close cooperation with the Aging Studies Program coordinator.

Programs

Certificate
The certificate in Aging Studies requires 18 approved semester hours of course work related to aging at the 100 level or above. This age-specific course work is defined as University of Iowa courses that focus principally on older persons, the aging process, or interventive methods or techniques whose target is the elderly or aging.

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 degree. At least 6 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 final 9 semester hours of the program are completed.

Eligibility
The program is open to all interested graduate students, upper-level undergraduates who have completed 45 semester hours, and special course students whose career interests and needs are served by completing the program.

Students in good standing at the above-mentioned levels may establish plans of study with the Aging Studies Program coordinator, who works with them and their advisors to shape a plan of study complementary to their academic program and career interest.

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 completion of the program on the student's transcript.

Minor
Undergraduate students in the Colleges of Liberal Arts, Business Administration, Nursing, Engineering, or Education may complete a minor in aging studies by taking 15 semester hours in courses outside of their major department or college that are approved by the program. The minor must be approved by the student's college or department. Courses included in the 15-semester hour minimum must be taken in advanced courses (3.00 level or above) at the University of Iowa. Students must have a grade-point average of at least 2.00 in all work 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:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>17:106</td>
<td>Basic Aspects of Aging</td>
</tr>
<tr>
<td>34:120</td>
<td>Aging and Society</td>
</tr>
<tr>
<td>42:184</td>
<td>Multidisciplinary Perspectives on Aging</td>
</tr>
<tr>
<td>96:129</td>
<td>Introduction to Gerontology</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>17:100</td>
<td>Cooperative Education Internship</td>
</tr>
<tr>
<td>17:101</td>
<td>Directed Studies</td>
</tr>
<tr>
<td>42:196</td>
<td>Field Work in Gerontology</td>
</tr>
<tr>
<td>96:133</td>
<td>Nursing Practice in Chronic Illness (partial credit)</td>
</tr>
<tr>
<td>96:145</td>
<td>Leadership, Management, and Research in Nursing Practice (partial credit)</td>
</tr>
</tbody>
</table>

Other departmental practicum or research courses are accepted if the focus and intent of the course is aging-specific.

Elective Courses
Students may take elective courses to meet their particular needs and interests. Additional courses fulfill the requirements for the program may be selected from the following.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>113:135</td>
<td>Aging: A Cross-Cultural Perspective</td>
</tr>
<tr>
<td>113:147</td>
<td>Special Topics in Anthropology: Death, Bereavement, and Ethnicity in Later Life</td>
</tr>
<tr>
<td>20:280</td>
<td>Tropical Seminar in Counseling Education</td>
</tr>
</tbody>
</table>

Dentistry
112:145 Introduction to Geriatric Dentistry

Health and Hospital Administration
80:398 Long-Term Care Administration

Home Economics
17:211 Individual and Family Development: Life Span (partial credit)

21:226 Seminar: Family and Consumer Studies (Aging and the Family)

Internal Medicine
76:805 Geriatrics Seminars

Nursing
96:116 Loss and Death in Clinical Nursing Practice
96:130 Normative and Psycho-pathological Aspects of Aging
96:210 Gerontological Nursing I
96:211 Gerontological Nursing II

Physical Education
22:122 Health Promotion and Aging

Recreation Education
104:146 Contemporary Issues in Recreation and Leisure
104:182 Aging and Leisure
104/165 Health Promotion and Wellness for Older Adults 3 s.h.

252 Socialization, Death, and Faith 7 s.h.

32:163 Introduction to Biomedical Ethics (partial credit) 2-3 s.h.
32:192 Social Policy and the Elderly 3 s.h.
42:222 Social Policy and Health Care (partial credit) 3 s.h.

155 135 Social Psychology of Aging 3 s.h.
163 Sociology of the Family (partial credit) 3 s.h.
34:235 Aging and Human Development 3 s.h.

3:165 Communication Disorders and Aging 2 s.h.
3:520 Seminar: Communication Disorders and Aging 2 s.h.

AMERICAN STUDIES PROGRAM

Chair: Richard F. Monroe
Professor: Wayne Frable (English/American Studies), Richard F. Monroe (American Studies), John Eastman (American Studies/English), Albert E. Stowe (American Studies/English)
Associate professor: Laura Rabinowitz (History/Communications Studies)
Undergraduate degree offered: B.A. in American Studies
Graduate degree offered: M.A., Ph.D. in American Studies


In its course work and for its majors, the American Studies Program provides an interdisciplinary introduction to American culture, past and present. The program helps students and critics of culture acquire a broad familiarity with the dynamics of cultural experience. Students may combine related departmental courses in American experience with the interdisciplinary courses and seminars of the American Studies Program to explore aspects of life in the United States, such as popular and fine arts, institutions, values, gender and ethnic relations, art and creativity, life of a diverse citizenry.

Undergraduate Program

Bachelor of Arts

The B.A. degree 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 study in the humanities, the social sciences, theology, or business; or for professional studies in law or medicine. Internships can be arranged.

With the advisor's assistance and approval, a student majoring in American studies develops an individual plan of study, continuing courses from cognate departments and programs with integrative American Studies Program courses to explore a common interest, topic, theme, or problem in American cultural experience. 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 credit hours in American Studies and 45 credit hours in American Cultural Studies. Requirements include:

- American studies core (4 courses, including 45:1 and 45:00) 12 s.h.
- American history (2 courses) 6 s.h.
- Cognate (6 courses in American studies or other departments) 18 s.h.
- Total 36 s.h.

General education courses in historical perspectives, humanities, literature, and social sciences provide relevant preparation for the American studies major. The 56-credit American Studies degree is especially recommended.

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. Students must complete courses 45:100 through 45:165 and above, but 45:00 may also count toward this requirement.

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 College of Liberal Arts Honors Program.

Under the guidance of the undergraduate honors advisor, the honors candidate defines a research project using primary sources. Thesis 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 that count toward the 40 Hours Project. Results of the research project are presented in a senior essay to a committee of the faculty mentors, including the supervising faculty member, the honors advisor, and a third faculty member of the student's choice. When the honors advisor is the supervising faculty mentor, 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.

Graduate Programs

Master of Arts

The M.A. degree 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:

45:200-03 Theory and Practice in American Studies (6 semester hours) plus at least two other courses (6 semester hours) or seminars in American studies.

Five in eight additional courses selected in relation to a topic or period of cultural history; these courses may be grouped to address one or more of the major American studies perspectives. The program is designed to provide 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. degree in American studies and the J.D. degree from the College of Law provides a broad cultural context for the study and practice of law. The program may be arranged in other professional fields, including social work and journalism.

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 along with interdisciplinary methods and substantial course work in three major fields. Requirements include:

Theory and Practice in American Studies (45:200-210) 6 s.h.
First field (6 courses) 18 s.h.
Second field (6 courses) 18 s.h.
Third field (6 courses) 18 s.h.
Electives

67
Although permitted considerable flexibility in planning a program, American studies candidates must meet certain basic requirements. All through course work and reading, and all through the cultural diversity of American life. Since race and gender issues are specifically explored on the oral portion of the comprehensive examination, any 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 one of the most important factors in the center of all doctoral programs. Finally, students must complete a substantial historical research work in American studies itself. Graduate students normally must take 65-201-215 Theory and Practice in American Studies, 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 that is required for the Ph.D. comprehensive examination.

Students must work closely with advisers to be sure each major field is a well-designed dimension of a coherent plan of study.

Admission to Ph.D. Candidacy

A student's plan of study and evaluation by instruction must be presented to the American studies department for approval. After about 30 semester hours of course work have been completed, students must have been admitted to Ph.D. candidacy. The department should certify the courses approved in the plan of study and prepare for comprehensive examinations.

Comprehensive Examinations

Each field must include at least 6 courses (18 hours) of credit. In addition, students must enroll in women's studies and African-American world studies, but also in foreign language, media production skills (e.g., photography, video), and internships.

Comprehensive examination of two of the fields is normally through two two-hour written examinations. The third is tested through an oral presentation and a thesis. The purpose of the comprehensive examination focuses on the position paper, the two written examinations, and the oral presentation and thesis.

Thesis

The first requirement for the Ph.D. in American studies is an original study of an accepted thesis in a topic within the candidate's major field or discipline. The candidate must write and present a creative thesis, such as a novel, 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 Historical Preservation of the University of Iowa Museum of Art, the Iowa Humanities Board, Living History Farms, the Herbert Hoover National Historic Site, and the Pottawattamie County. Other internships in Chicago can be negotiated with Hull House, Newberry Library, Church Council of Chicago, Sports Museum of Chicago, DePaul University, and the National Training Institute. With special permission, candidates conducting research in subject matter, on-site field training may receive academic credit through 450-100 Independent study or 45-150 Material Culture Internships. Other internships in social organizations, government, or business also may be arranged.

Courses

Primary for Undergraduates

45-000 Cooperative Education Internship 9 a.h.
45-100 American Values 3 a.h.
45-200 American Values: A Contemporary Study 3 a.h.
45-300 American Values 3 a.h.
45-400 American Values: A Contemporary Study 3 a.h.
45-500 American Values 3 a.h.
45-600 American Values 3 a.h.
45-700 American Values 3 a.h.
45-800 American Values 3 a.h.

45-600 Cooperative Education Internship 9 a.h.
45-100 American Values 3 a.h.
45-200 American Values: A Contemporary Study 3 a.h.
45-300 American Values 3 a.h.
45-400 American Values: A Contemporary Study 3 a.h.
45-500 American Values 3 a.h.
45-600 American Values 3 a.h.
45-700 American Values 3 a.h.
45-800 American Values 3 a.h.

45-900 Cooperative Education Internship 9 a.h.
Primarily for Graduates

42120 Theory and Practice in American Studies 3 s.h.
Theory, methods, and values in American culture, with special attention to oral history approaches, usually a two-semester sequence.

42121 Theory and Practice in American Studies II 3 s.h.

42122 Introduction to Research in American Culture 3 s.h.
Same as 221 or 222.

42246 Women and Televised Culture in American Culture 3 s.h.
Same as 2246 or 22246.

42556 Seminar in Theories of Culture 3 s.h.

42564 Seminar: History, Literature, and Culture 3 s.h.
Same as 2564.

42955 Seminar: Expertise in Material Culture 4 s.h.
Thematic issues in the study of American culture through material culture.

42966 American Film and American Culture 3 s.h.
Investigation into the evolution of the American film and culture; development within a particular approach, period, or subject. Honors: Sep 42966.

42967 Material Culture and Society 3 s.h.
Material culture as intrinsically political, with an emphasis on the role of school systems in perpetuating cultural change.

42968 American Studies Pedagogy 4 s.h.
Teaching study, a six-hour elective experience of preparation of a basic course.

42970 Writing for Publication 4 s.h.
Independent study writing or revision of a paper to be delivered at a scholarly meeting or presented in a journal.

42985 Human Prehistory 3 s.h.
Independent study; students write two parts of the MA exam. Exam: both to students sitting for MA in American Studies without thesis.

42986 Human Theses 0.5 s.h.

42986 American Studies Position Paper 3 s.h.
Independent study: students present position paper for the MA comprehensive exam.

41969 Phil. Thesis 0 s.h.

Undergraduate Program

A bachelor of Arts in anthropology provides a strong foundation for careers in anthropology and a variety of fields involving work with people from cultures and subsocieties different from one's own. These fields include the health care professions, biological science, law, economics, business, political science and government, social work, international affairs, and education. The major requires at least 30 semester hours of course work in anthropology, including:

120 104 Introduction to Culture and Society 3 s.h.
120 111 Introduction to Prehistory 3 s.h.
120 112 Human Origins 3 s.h.
120 124 Language and Human Behavior 3 s.h.

In addition, students must take one course in archaeology (real or topical), one course in ethnohistory, and one course in social institutions. The remaining semester hours should be selected in consultation with the advisor.

Anthropology electives offer a wide range of choices including courses dealing with language and culture, economic and political anthropology, human education, environmental, and social and urban anthropology.

Specialization is encouraged in the undergraduate program, which is designed to give students the background necessary for a career in cross-cultural background. Course work is encouraged in related areas such as sociological, linguistic, geography, psychology, sociology, and statistics. Students also are encouraged to participate in archaeological and laboratory research and in physical anthropology research.

Honor's Program

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 a seminar or graduate-level course in anthropology or in a related department and an honors research project. For more information, consult the honors advisor in the Department of Anthropology.

Minor

Students must complete 15 semester hours of credit in anthropology with a minimum grade-point average of 3.0, of which at least 12 of which must be taken at The University of Iowa in courses numbered 113/130 and above.

Graduate Programs

Master of Arts

The M.A. program consists of three 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), and feminist anthropology (thesis only).

The M.A. program without thesis precursors consideration for admission to the Ph.D. program.

The number of semester hours of credit required for the M.A. with thesis may vary 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. degree without thesis in anthropology with a concentration in museum training.

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. degree 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 Field Research 3 s.h.
113 240 Seminar: Sociocultural Anthropology 3 s.h.
113 258 Seminar: Archaeological Theory and Method 3 s.h.
113 255 Seminar: Biological Anthropology 3 s.h.

Total 15 s.h.

Students must also take one additional course in each of two of the following areas, for a total of 6 semester hours:

Department of Geography and Department of Sociology

Economic Anthropology

(Thesis only)

113 102 Anthropological Data Analysis 3 s.h.
113 240 Seminar: Sociocultural Anthropology 3 s.h.
113 255 Seminar: Archaeological Theory and Method 3 s.h.

Total 9 s.h.

Economic Anthropology

(Thesis only)

113 102 Anthropological Data Analysis 3 s.h.
113 240 Seminar: Sociocultural Anthropology 3 s.h.
113 255 Seminar: Archaeological Theory and Method 3 s.h.

Total 9 s.h.

Anthropology • Liberal Arts 69
Students must also take one course from each of the three groups below, for a total of 9 semester hours.

113.135 Work and Society
113.134 Economic Anthropology
113.138 Economic and Political Development: Women's Roles
113.351 Sociology of the Third World
113.375 Development Policy and Planning in the Third World
113.343 Environment and Culture
113.198 Environmental Archeology
113.314 Comparative Prehistory

Feminist Anthropology
(Thesis only)
123.240 Seminar: Sociocultural Anthropology
113.190 Feminist Perspectives on Biology and Culture
113.220 Seminar: Feminist Anthropology

Total 9 s.h.

Students must also take three courses from the two groups below, with at least one course from each group, for a total of 9 semester hours:

113.138 Economic and Political Development: Women's Roles
113.156 Women's Roles in Cross-Cultural Perspective
113.205 Seminar: Gender in Chinese Society
113.171 Sociocultural Linguistics
113.412 Language and Culture
113.201 Seminar: Anthropological Theory
113.288 Seminar: Archaeological Theory and Method
113.285 Seminar: Biological Anthropology

M.A. in Anthropology with Concentration in Museology

In cooperation with the Museum of Natural History, the Department of Anthropology offers a program of study leading to the M.A. degree in anthropology with a concentration in museology. Instruction in the organization and management of museums with emphasis on exhibit design, curating, and educational outreach development forms part of the graduate program.

Required Courses

Anthropology
113.240 Seminar Bio-cultural Anthropology 3 s.h.
113.285 Seminar Biological Anthropology 3 s.h.
113.268 Seminar Archaeological Theory and Method 3 s.h.
113.104 Introduction to Anthropology 6 s.h.
Total 15 s.h.

Museum Training
24-35 Museum Laboratory Methods 2 s.h.
24-133 Principles of Exhibit Design 2 s.h.
24-113 Introduction to Museology 2 s.h.

2.8.1 Introduction to Conservation of Museum Objects 2 s.h.
24-114 Directed Studies and Projects 3 s.h.
24-166 Description and Organization of Materials 3 s.h.
24-168 Museum Internship 3 s.h.
Total 14 s.h.

Suggested Electives

24-102 Museum Technique
24-044 Museum Laboratory Methods

Other courses in museum training, science education, instructional design and technology, geology, biology, art and art history, and English (expository 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 may select specializations in all four subfields of anthropology:

1. Prehistory
2. Ethnology
3. Anthropology
4. Rational

In addition to training in a specialization, graduate students in anthropology are expected to have a solid grounding in general anthropology.

The comprehensive examination ordinarily is taken when the student's coursework has been completed or nearly completed, after the language examination has been satisfactorily passed, and before the student begins field work. All doctoral candidates are required to carry out original anthropological research. Ordinarily, students conduct field work 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 the techniques of gathering primary data—archaeological, physical, or linguistic field research.

Field Research

Opportunities are available for students to participate in archaeological field research in Central Mexico or at various sites in the Midwest. Under the direction of University anthropologists, students acquire skills in data recovery and interpretation techniques. Occasionally field work in Southeast Asia is also available to graduates in the paleoanthropology research program.

Admission

Applicants for admission to the graduate program in anthropology are considered regardless of the field of their previous training. An applicant with an M.A. degree in another discipline may be admitted as a first-year graduate student. 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 specified 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. without thesis and a B.A. degree may apply for admission to the Ph.D. program.

Applicants for admission to the graduate program, or to meet the general admissions requirements of the Graduate College (see "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 the candidate's potential for graduate training, scores on the aptitude portion of the Graduate Record Examination (GRE) Applicants who graduated at least one year before application must submit a copy of their most recent transcript. Applicants who earned an M.A. degree from another university must submit a copy of their most recent transcript. Applicants who earned an M.A. without thesis whose thesis is not yet complete should submit written evidence that they have completed courses equivalent to those required in the graduate school.

Students may also take one course from each of the three groups below, for a total of 9 semester hours:

113.135 Work and Society
113.134 Economic Anthropology
113.138 Economic and Political Development: Women's Roles
113.351 Sociology of the Third World
113.375 Development Policy and Planning in the Third World
113.343 Environment and Culture
113.198 Environmental Archeology
113.314 Comparative Prehistory

Feminist Anthropology
(Thesis only)
123.240 Seminar: Sociocultural Anthropology
113.190 Feminist Perspectives on Biology and Culture
113.220 Seminar: Feminist Anthropology

Total 9 s.h.

Students must also take three courses from the two groups below, with at least one course from each group, for a total of 9 semester hours:

113.138 Economic and Political Development: Women's Roles
113.156 Women's Roles in Cross-Cultural Perspective
113.205 Seminar: Gender in Chinese Society
113.171 Sociocultural Linguistics
113.412 Language and Culture
113.201 Seminar: Anthropological Theory
113.288 Seminar: Archaeological Theory and Method
113.285 Seminar: Biological Anthropology

M.A. in Anthropology with Concentration in Museology

In cooperation with the Museum of Natural History, the Department of Anthropology offers a program of study leading to the M.A. degree in anthropology with a concentration in museology. Instruction in the organization and management of museums with emphasis on exhibit design, curating, and educational outreach development forms part of the graduate program.

Required Courses

Anthropology
113.240 Seminar Bio-cultural Anthropology 3 s.h.
113.285 Seminar Biological Anthropology 3 s.h.
113.268 Seminar Archaeological Theory and Method 3 s.h.
113.104 Introduction to Anthropology 6 s.h.
Total 15 s.h.

Museum Training
24-35 Museum Laboratory Methods 2 s.h.
24-133 Principles of Exhibit Design 2 s.h.
24-113 Introduction to Museology 2 s.h.

2.8.1 Introduction to Conservation of Museum Objects 2 s.h.
24-114 Directed Studies and Projects 3 s.h.
24-166 Description and Organization of Materials 3 s.h.
24-168 Museum Internship 3 s.h.
Total 14 s.h.

Suggested Electives

24-102 Museum Technique
24-044 Museum Laboratory Methods

Other courses in museum training, science education, instructional design and technology, geology, biology, art and art history, and English (expository 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 may select specializations in all four subfields of anthropology:

1. Prehistory
2. Ethnology
3. Anthropology
4. Rational

In addition to training in a specialization, graduate students in anthropology are expected to have a solid grounding in general anthropology.

The comprehensive examination ordinarily is taken when the student's coursework has been completed or nearly completed, after the language examination has been satisfactorily passed, and before the student begins field work. All doctoral candidates are required to carry out original anthropological research. Ordinarily, students conduct field work as the basis for their dissertations; occasionally, however, a research proposal may be carried out using only documents, collections, or other source materials.

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Any student with an M.A. with thesis may apply for admission to the Ph.D. program. A student admitted with an M.A. without thesis and a B.A. degree may apply for admission to the Ph.D. program.

Applicants for admission to the graduate program, or to meet the general admissions requirements of the Graduate College (see "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 the candidate's potential for graduate training, scores on the aptitude portion of the Graduate Record Examination (GRE) Applicants who graduated at least one year before application must submit a copy of their most recent transcript. Applicants who earned an M.A. degree from another university must submit a copy of their most recent transcript. Applicants who earned an M.A. without thesis whose thesis is not yet complete should submit written evidence that they have completed courses equivalent to those required in the graduate school.
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 of credit from courses taken outside the School of Art and Art History and 62 semester hours of credit 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 with studio emphasis, a 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 certification requirements as those in the B.A. program. The B.F.A. candidate may waive 6 semester hours of the General Education Requirement in historical perspectives.

Honors
Art majors who are eligible to enroll in the College of Liberal Arts Honors Program must enroll in the program in the School of Art and Art History.

Honors students in art history must maintain a minimum grade-point average of 3.50 in art history courses and must complete 3 semester hours in each of a seminar or a workshop thesis beyond the 18 semester hours of intermediate and advanced art history.

The undergraduate seminar requirement may be met by completion of a graduate seminar or supervised course of directed study. The mechanics of such a course may be set by a research paper produced in a graduate seminar or a course in directed studies judged to be comparable in quality to graduate degree work.

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 student's studio work. This statement may be based on the history of art, history of ideas, and so forth written under the supervision of faculty in the student's studio area concentration. Registration for the course of individual instruction that leads to the exhibition and related statement may be for 3 semester hours of credit.

Minors
A minor in art requires 15 semester hours of art, with a minimum grade-point average of 2.00. At least 12 of these hours must be in advanced studio art courses taken at The University of Iowa.

Advanced courses in the School of Art and Art History are those numbered 300 and above plus I.H. 49, EH 52, and E.H. 117.

Graduate Programs
Master of Arts in Art History
An M.A. student in art history is expected to acquire a broad general knowledge of art history as an academic and humanistic discipline, become familiar with major periods and movements of world art, and gain proficiency in techniques of research within selected areas.

Specific requirements include:
- A B.A. or B.F.A. degree; at least 18 semester hours of undergraduate work in art history is recommended.
- A minimum of 30 semester hours of graduate-level course work, with a grade-point average of 3.00 or higher; students planning to transfer graduate credits from another institution should note that the minimum residence requirement for the M.A. degree is 24 semester hours.
- A final examination at the end of 45 semester hours of at least one one-semester course at a level equivalent to University of Iowa courses numbered 300 or above, taken after receiving the B.A., in each of five of the following areas of art history:
  - Ancient (to 1000 A.D.)
  - Medieval (1000-1500)
  - Renaissance to Baroque (1500-1750)
  - Nineteenth century to modern
  - Asian
  - African, Oceanic, and Pre-Columbian

The following may be substituted for the above course distribution:
- A comprehensive written examination (totaling approximately four hours in length) broadly covering the entire field of study.
- The examination may be given three times per year, at the beginning of each semester and the summer session. Students must take the examination at least within the next two regularly scheduled examination dates following the semester in which they complete 24 semester hours of graduate work. The comprehensive examination may be taken only once.

Course distribution for M.A. in art history is as follows:
- 18-1034 Synthesis: Methodology of Art History and Criticism
- Two other art history seminars (with different instructors)
- Additional art history courses
- Studio
Courses outside the school

"These seminars can be applied toward graduation or if the student has earned a grade of B or higher in an undergraduate course in the area.

Students are required to have a total of 6 semester hours of studio training on either the undergraduate or graduate level. Students with 6 semester hours or more of undergraduate studio training are exempt from the graduate studio requirement. Students preparing to teach in both the art history and studio arts will take 2-10 semester hours of studio course work, with a minimum of 9 semester hours in one subject in addition to the undergraduate requirement for a studio major. They also must satisfy the drawing requirement. Studio courses may be taken satisfactory/un satisfactory.

M.A. candidates with undergraduate majors in art history are encouraged to take courses outside the school.

Within the first 20 semester hours of graduate work, the M.A. Candidate is expected to demonstrate the ability to read and explain historical and theoretical writings in his or her major area of study. For students with significant background in history, art history, or the history of a specific art form, this requirement may be satisfied by the satisfactory completion of the first semester of a Ph.D. language reading course, or satisfactory completion (at least a 3.0 grade-point average) of the fourth semester of a college, or university language course. The student must prepare either a written thesis or an oral examination. A maximum of 60 semester hours of credit may be allowed, or a substantial research paper (approximately 20-40 pages).

Specialized Area Studies Program

The school also offers a specialized area studies program. The M.A. level. Formal approval to enter this program is based on the student's background, interests, and area of specialization. The student is expected to concentrate on a series of courses in a major area of study. Acceptance into the area studies program does not change the student's obligation to the methodology, language, seminar, and research paper theory requirement. In consultation with the faculty advisor, the student takes appropriate courses in the area of specialization and in other areas, as needed. Faculty supervising work in the specific areas evaluate the student's progress. The M.A. program concludes with written exams in the major area of specialization, an oral exam, and the submission of a significant research paper or thesis.

Master of Arts in Studio

The school offers the M.A. degree in studio with a major in ceramics, design, drawing, metals and jewelry, multimedia and video art, painting, photography, printmaking, or sculpture. The degree requires:

The B.S. or B.F.A. in art equivalent to that offered at The University of Iowa (undergraduate course and, if any, may be made up concurrently, but are in addition to, graduate requirements). A minimum of 38 semester hours of graduate work, including at least 12 semester hours in a major studio subject and a total of at least 12 semester hours in studio courses. 9 semester hours in the history and theory of art, excluding readings and directed studies, and no less than 8 semester hours of courses outside the art history and art history:

Clearance for M.A. candidacy by faculty review; and

Studio and written thesis.

Studio majors may elect to take art history courses on a satisfactory-un satisfactory 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 HIC 204 and HIC 205 for introductory art history, and graduate courses in art history and Criticism and one other seminar. Three hours are in addition to the University's undergraduate requirement for an art history major. In addition to the combination with the undergraduate hours, must satisfy the distribution requirement for art history.

Master of Arts in Art Education

Requirements for the M.A. in art education are:

The B.A. or B.F.A. in art equivalent to that offered at The University of Iowa; Teaching certification in art; Completion of 18 semester hours of graduate credit, including 18 semester hours of studio and art history in a rate 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 2 semester hours to be specified after the student completes the program.

An oral and/or written examination in art education; A written thesis based on research in art education or art history or a studio thesis (a studio thesis must be accompanied by a brief statement of the student's technical, aesthetic, and/or psychological approach) and, as the M.A. degree in studio, clearance for M.A. candidacy by faculty review.

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 a non-credit 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 Fine Arts in Studio

The school offers the M.F.A. degree with a major in ceramics, design, drawing, metals and jewelry, multimedia and video art, painting, photography, printmaking, or sculpture. The candidate 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 specializing in the school clearance for M.A. candidacy by faculty review; and studio and written thesis. Thesis credits earned in an M.A. program are not applicable toward the M.F.A. credit requirement.

Doctor of Philosophy in Art History

The Ph.D. student is expected to have a broad general knowledge of art history and to acquire detailed knowledge of monuments, an understanding of artistic development, and a knowledge of research methods within certain specialized areas of world art to be selected by the student in consultation with appropriate faculty members in the school. The Ph.D. degree in art history is licensed only for students who can effectively demonstrate scholarly potential in this field. Students may apply for a rapid track to the Ph.D. degree, as described in "Direct Entry into Ph.D. Program," below. Specific requirements for the Ph.D. degree include the following:

All students must make formal oral examination at the art history faculty a grade-point average of at least 3.0, be registered for semester and continue in the program.

All students, including those with an M.A. in art history from another university, must submit an art history research paper written at least three-fourths of the graduate art history faculty.

All students must complete a minimum of 72 semester hours of graduate level coursework, toward this total, a maximum of 38 semester hours of work taken for the M.A. degree may be applied. Students must demonstrate, within the
first 21 semester hours of graduate work beyond the M.A. ability to read art history writings in two appropriate foreign languages. The procedure for satisfying the Ph.D. language requirement is as explained in the description of the M.A. in art history program.

Students with the M.A. degree in a discipline other than art history must, at the graduate level, the distribution requirement for the M.A., or complete the M.A. comprehensive examination, submit a research paper in the field of art history to be approved by three-fourths of the graduate art history faculty. Complete two seminars in two different areas and meet the requirements for two foreign languages.

The University of Iowa residence requirement for the doctorate must be met by enrollment with this University as a full-time student in each of two semesters beyond the first 24 semester hours of graduate study. Course requirements beyond the M.A. program outlined above are:

Two art history seminars (with two different instructors) 6 s.h.

Additional art history courses 18-20 s.h.

Courses outside the school 0-12 s.h.

Students must successfully complete a comprehensive examination (on one major field six hours) and comprehensive field (three hours), selected by the student in consultation with the advisor and approved by the art history faculty. The minor field will be selected from a list of disciplines outside the school—for example, religion, history, literature, science, or philosophy.

The student must prepare a written dissertation consisting of an original contribution to knowledge. The school will allow up to 6 semester hours of credit toward the art history course requirements for dissertation preparation. The topic of the dissertation must be presented to the faculty for approval. The student is given a final oral examination on the dissertation.

Direct Entry Into Ph.D. Program

A graduate student may, at any time, apply directly to enter the Ph.D. program without having an M.A. degree. Students who wish to exercise this option must submit a significant research paper that meets the approval of three-fourths of the graduate art history faculty. Students may apply for this Direct Entry Option. If the second application fails, they must complete the M.A. before again applying for admission into the Ph.D. program. All other requirements, including M.A. distribution, seminars, and foreign language, remain the same.

Doctor of Philosophy in Art Education

The Doctor of Philosophy in art education gives college teachers and researchers in art education and art supervisors in state and local education and school systems an opportunity to continue their creative and creative work in art history and in studio art.

The program is administered by the College of Education in consultation with the School of Art and Art History. Students must apply for admission to the College of Education.

Admission

Students must meet the general requirements for doctoral students in the Graduate College and have an M.A. degree in art education at The University of Iowa or an equivalent degree from an accredited college or university. Students who have course work deficiencies must register for pertinent courses. Candidates must have completed one year of successful teaching experience in an elementary or secondary school to be eligible for the doctoral degree.

Application to the program must be accompanied by a representative portfolio of the candidate’s work, consisting of 12 colored slide reproductions of art work and two examples of written work. Written work may consist of papers previously written for a course or may be the work. The portfolio should be submitted to the Office of Art History, 13 North Hall.

Degree Requirements

Students must complete at least 60 semester hours of graduate work beyond the M.A. The curriculum must include the student’s advisor and must include at least 15 semester hours in the School of Art and 30 semester hours in art education graduate seminars, 15 semester hours in a related area (e.g., aesthetics, anthropology, higher education, history, psychology, sociology), and 15 semester hours in thesis and field courses (79:306 and 79:306 introduction to Research in Art Education). Students must take both oral and written comprehensive examinations. The written examination consists of an in-depth research proposal to be completed within 45 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 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: Studio Programs

Admission procedures for graduate studio programs include a committee system of applications and a fixed quota of the applicant’s supporting material. Applicants should consult the school for deadlines and minimum requirements.

Ceramics, design, drawing, metalworking or jewelry, multimedia or video art, painting, printmaking, or sculpture must submit slides and a portfolio of their work in their major field. Drawing samples must submit from six to twenty original prints or negatives. Studio samples must submit at least two slides showing examples of their work in their other area, and three letters of recommendation.

Newly admitted students who do not register within two semesters of their admission must reapply. Students who attend for a limited time, then fail to register for a period of 36 months or more, must apply for reactivation.

Graduate Admissions: Art History and Art Education

Applicants to the graduate program in art history must submit a letter of recommendation from a faculty advisor or other example of ability to write in the field and a one-page, single-spaced statement of their purpose in pursuing graduate study. Applicants in the graduate program in art education must submit a letter of recommendation from a faculty advisor or other example of ability to write in the field and a selection of slides or photographs of their art work in two studio areas. All applicants must submit three letters of recommendation.

Deadline for receipt of completed art history and art education applications is June 15 for fall semester, November 15 for winter semester, and April 15 for spring semester. March 1 is the deadline for prospective art history students to apply for financial aid for the next academic year.

Newly admitted students who do not regularly register within two semesters of their admission must reapply. Students who apply for a limited time, then fail to register for a period of 36 months or more, must apply for readmission.

Assistantships and Scholarships

Assistantships pay approximately $8,000 per academic year for 20 hours of departmental duties weekly are awarded to graduate students on a competitive basis. One-quarter-time assistantships also are available. The award of an assistantship entitles the recipient to the Iowa resident tuition rate.

Scholarships paying partial or full tuition and entailing no departmental duties require at least a 3.0 cumulative grade point average.

These financial aids usually are awarded to students who have shown in residency for at least one semester, so that faculty members
ASIAN LANGUAGES AND LITERATURE

Quin M. Miyamoto, Director

Undergraduate Programs

The Department of Asian Languages and Literatures prepares students to study the literature, history, religion, and politics of modern and traditional Asia. The department offers a broad, flexible curriculum to develop skills in Chinese, Japanese, and Korean. Students may choose to study one or more of the languages offered. The curriculum is designed to provide an understanding of the cultures and civilizations of Asia.

Major in Asian Studies

This major introduces students to East or South Asian cultures, both modern and traditional, and to the contemporary politics and societies of Asia. Courses are taught by faculty members with expertise in the region. Students are encouraged to take courses in a number of disciplines and to study in an area of their choice.

Students majoring in Asian studies must complete at least 30 semester hours of courses in Asian studies, distributed as follows:

- 39-10-11 Second-Year Chinese 12 s.h.
- 39-10-11 Second-Year Hindi 8 s.h.
- 39-23-24 Second-Year Sanskrit 6 s.h.

Minor in Asian Languages

A minor in Asian Languages requires at least 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, and Sanskrit. The following courses are considered advanced for the minor.

Chinese
- 39-11 Second-Year Chinese 6 s.h.
- 39-12 Second-Year Chinese 6 s.h.

Hindi
- 39-12 Second-Year Hindi 4 s.h.
- 39-13 Second-Year Hindi 4 s.h.
- 39-14 Third-Year Hindi 4 s.h.

Japanese
- 39-10 Second-Year Japanese 6 s.h.

Sanskrit
- 39-12 Second-Year Sanskrit 4 s.h.
- 39-13 Second-Year Sanskrit 3 s.h.
- 39-14 Third-Year Sanskrit 3 s.h.

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Hindi
- 39-12 Second-Year Hindi 4 s.h.
- 39-13 Second-Year Hindi 4 s.h.
- 39-14 Third-Year Hindi 4 s.h.

Japanese
- 39-10 Second-Year Japanese 6 s.h.

Sanskrit
- 39-12 Second-Year Sanskrit 4 s.h.
- 39-13 Second-Year Sanskrit 3 s.h.
- 39-14 Third-Year Sanskrit 3 s.h.

Honor Students

Students with a grade-point average of 3.20 or above are encouraged to enroll in the College of Liberal Arts Honors Program. With the permission of the departmental chair and a faculty sponsor selected from Asian specialists in any department, students may register for 39-104 University Honors Thesis to receive a B.A. with honors. Students must fulfill the requirements for an acceptable thesis based on original research in an appropriate area of Asian studies.
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 Liberal Arts and the College of Business Administration. The wide range of courses in the program permits undergraduate students to tailor it to their individual interests and to fulfill requirements in the College of Liberal Arts and Business Administration (see the "College of Business Administration" section of the Catalog).

Graduate Programs
Master of Arts in Asian Civilizations
The graduate program in Asian Civilizations prepares for doctoral study in a variety of disciplines. It is also of interest to students with nontenure career plans or who graduate-level work on 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, of which 18 must be taken in residence at The University of Iowa. By the end of the first semester in residence, students prepare a plan of study developed in consultation with the advisor. The course of study must conform to one of the following concentrations and a related master's program: Chinese literature, Chinese linguistics, Chinese language teaching, interdisciplinary studies in Chinese, Japanese literature, Japanese language and literature, and Southeast Asian and South Asian studies.

All students must maintain a 3.00 minimum grade-point average. Detailed information on degree requirements is sent to all applicants.

By the end of the final semester in residence, students are examined to demonstrate, either by departmental examination or the successful completion of courses at the appropriate level, advanced competence in Chinese, Japanese, Hindi, or South Asian, defined generally as language proficiency corresponding to the fourth-year level of language study in Chinese or Japanese and the third-year level in Hindi and South Asian.

Admission
Application for graduate admission must meet the general admission requirements of the Graduate College, except that a minimum grade-point average of 3.25 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 graduate thesis—to the Department of Asian Languages and Literature.

Both foreign and domestic graduate applications requesting financial support for the following terms are due on February 1. No 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 semester of fall semester or September 1 for the spring semester. Conditional aid offers must be accepted by the Graduate School Admission Office (GSA) Center Early, since an increment of funds cannot be made until aid is received.

Financial Aid
The Department of Asian Languages and Literature has available two study of summer 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 continuing undergraduate and graduate students are eligible to compete for summer scholarship aid for intensive language study provided by the University of Iowa Foundation Support Organization. Scholarships consist of a cash grant of $2,100.

Students selected to participate in the Iowa Critical Languages Program receive special financial support. Undergraduate students of Asian language have available support from two special sources:

- Presidential Scholarships for Study Abroad in the amount of $1,000 may be used to help defray the costs of study abroad. Up to twenty such scholarships are available each year, and proposals for study in non-Western European countries are especially encouraged.
- Study Scholarships for International Students and Study in study aid of up to $1000 to support summer study programs. Study abroad programs offered by the University of Iowa carry out the student's requirements for the College of Liberal Arts and Business Administration and the College of Business Administration. The scholarships are awarded by the Center for International and Comparative Studies. The fellowships and in some cases available support, and funding for travel support. They may not be held jointly by American citizens.

Special Programs and Activities
Iowa Critical Languages Program
The Iowa Critical Languages Program prepares students to teach Chinese, Japanese, or Russian in Iowa high schools. Each year two students in each language are admitted to the program, which leads to a bachelor's degree with a major in the language and Iowa certification at the secondary level. Applicants must be U.S. citizens. Students may explore the University of Iowa for three years after graduation. Additional information is available from the Office of Academic Affairs, IUPUI Student Life.

Summer and Study-Abroad Programs
The department strongly urges 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 lists of information about study-abroad opportunities.

The University's membership in the American Association of Indian Studies and the Chinese Observers' Language and Study Program provides opportunities for study abroad for students. The China programs provide opportunities to study language and culture at universities in Peking, Shanghai, and Nanjing. Special note is the Chinese Business and Society Program at the University of International Business and Economics in Beijing, which students may study Chinese business in China and foreign language and business students may study in Chinese and foreign countries.

The Chinese Institute offers many courses on the Iowa campus that may be counted toward the degree of a student who wishes to experience life in a Japanese family.

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The Chinese Institute offers many courses on the Iowa campus that may be counted toward the degree of a student who wishes to experience life in a Japanese family.
Internships
Students are encouraged to enrich their education outside the classroom setting. The Office of Cooperative Education' offers a wide variety of internships designed to provide practical experience in real-world settings. Opportunities vary throughout the year, with placements in various fields and industries.

Japanese Language House, Student Association
The Foreign Language House in Hilcrest Residence Hall includes a Japanese House that is a focal point for activities among both resident and nonresident students and the Japanese Students Association, including weekly dinners.

Japanese Student Association is composed of American students of Japanese and members of the Japanese community at the University. It organizes social events, film showings, and other cultural programs.

Library Facilities
Since 1962 the Main Library has routinely acquired major American titles in Asian studies and selected overseas scholarly publications in English and other Western languages. The Library's Asian collection has grown to over 20,000 volumes in Asian languages and over 120,000 titles. The library is open from 8 a.m. to 5 p.m. Monday through Thursday and 8 a.m. to 6 p.m. on Friday. The library also offers a number of special collections.

Library Resources: Library Information Network Database in Asian languages.

Courses
Undergraduate Language

300/400 Cooperative Education Internship 1.5 a.
20-1 Chinese I 4.5 a.
Introduction to spoken Mandarin, with some instruction in writing. Focus on listening and speaking, pronunciation, grammar, vocabulary, and writing. Required for all students. (Credit/No Credit option available.)

300 Chinese 4.5 a.
Further study of spoken Mandarin, with more emphasis on written language. Further study of grammar, pronunciation, and writing. (Credit/No Credit option available.)

301 First Year Chinese 4.5 a.
First year Chinese courses, covering Mandarin, Cantonese, and written Chinese. (Credit/No Credit option available.)

301-10 Second-Year Chinese 4.5 a.
Continued study of Chinese, with a focus on expanding vocabulary and sentence structure of student's Chinese through the use of Chinese literature, African drama, and personal writing. Required for all students.

331-10 Second-Year Chinese 4.5 a.
Continued study of Chinese, with a focus on expanding vocabulary and sentence structure of student's Chinese through the use of Chinese literature, African drama, and personal writing. Required for all students.

331-10 Second-Year Chinese 4.5 a.
Continued study of Chinese, with a focus on expanding vocabulary and sentence structure of student's Chinese through the use of Chinese literature, African drama, and personal writing. Required for all students.

500 Chinese 4.5 a.
Chinese language and culture. (Credit/No Credit option available.)

Graduate Language

310-10 Beginning Chinese for Graduate Students 4.5 a.
Introduction to Chinese for graduate students. (Credit/No Credit option available.)

311-10 Beginning Chinese for Graduate Students 4.5 a.
Introduction to Chinese for graduate students. (Credit/No Credit option available.)

312-10 Third-Year Chinese 4.5 a.
Continued study of Chinese, with a focus on improving grammar, sentence structure, and vocabulary through the use of Chinese literature, African drama, and personal writing. Required for all students.

312-10 Third-Year Chinese 4.5 a.
Continued study of Chinese, with a focus on improving grammar, sentence structure, and vocabulary through the use of Chinese literature, African drama, and personal writing. Required for all students.

312-10 Third-Year Chinese 4.5 a.
Continued study of Chinese, with a focus on improving grammar, sentence structure, and vocabulary through the use of Chinese literature, African drama, and personal writing. Required for all students.

Graduate Language

313-10 Beginning Chinese for Graduate Students 4.5 a.
Introduction to Chinese for graduate students. (Credit/No Credit option available.)

314-10 Beginning Chinese for Graduate Students 4.5 a.
Introduction to Chinese for graduate students. (Credit/No Credit option available.)

315-10 Beginning Chinese for Graduate Students 4.5 a.
Introduction to Chinese for graduate students. (Credit/No Credit option available.)

316-10 Beginning Chinese for Graduate Students 4.5 a.
Introduction to Chinese for graduate students. (Credit/No Credit option available.)

321-10 Advanced Chinese 4.5 a.
Introduction to Chinese for graduate students. (Credit/No Credit option available.)

322-10 Advanced Chinese 4.5 a.
Introduction to Chinese for graduate students. (Credit/No Credit option available.)

323-10 Advanced Chinese 4.5 a.
Introduction to Chinese for graduate students. (Credit/No Credit option available.)

500 Chinese 4.5 a.
Continued study of Chinese, with a focus on improving grammar, sentence structure, and vocabulary through the use of Chinese literature, African drama, and personal writing. Required for all students.

500 Chinese 4.5 a.
Continued study of Chinese, with a focus on improving grammar, sentence structure, and vocabulary through the use of Chinese literature, African drama, and personal writing. Required for all students.

500 Chinese 4.5 a.
Continued study of Chinese, with a focus on improving grammar, sentence structure, and vocabulary through the use of Chinese literature, African drama, and personal writing. Required for all students.

500 Chinese 4.5 a.
Continued study of Chinese, with a focus on improving grammar, sentence structure, and vocabulary through the use of Chinese literature, African drama, and personal writing. Required for all students.

500 Chinese 4.5 a.
Continued study of Chinese, with a focus on improving grammar, sentence structure, and vocabulary through the use of Chinese literature, African drama, and personal writing. Required for all students.
Astronomy

See "Physics and Astronomy."

Biochemistry

Head: Alan G. Goodridge

Undergraduate degrees offered: B.A., B.S. in Biochemistry

Graduate degree offered: 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 biological sciences.

Biochemists generally work in laboratories and/or classrooms. Those with the bachelor's degree are often employed as research assistants in industry, government, education, and health service, or in secondary school teaching, for which certification is required.

Biochemists hold advanced degrees—usually for doctorate—pursue teaching, research, and/or administrative careers in universities, medical schools, hospitals, private research agencies, and government laboratories; use a food, drug, cosmetic, chemical, petroleum, and allied industries as well as in biotechnology companies.

Undergraduate Programs

The department offers both the Bachelor of Science and the Bachelor of Arts.

Requirements are outlined below. Students choose the advanced science electives to supplement biochemical studies or as part of a minor or a double major program. Typical courses are 37:128 Fundamental Genetics or 220:7 introduction to Computing with Fortran. Courses must be offered above 100 to qualify, especially courses in the mathematical sciences.

Bachelor of Science

The B.S. degree program in biochemistry prepares students to work as biochemists in positions that require no further formal training. It is also an excellent background for graduate study in biochemistry and related sciences or for professional degree work in the health sciences.

In addition to the College of Liberal Arts General Education Requirements, the Bachelor of Science degree in biochemistry requires 64-65 semester hours earned for courses as follows:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>22M:25-26</td>
<td>Calculus I-III</td>
<td>8.0</td>
</tr>
<tr>
<td>22M:35-36</td>
<td>Engineering Calculus I-III</td>
<td>8.0</td>
</tr>
<tr>
<td>29:17-18</td>
<td>Introductory Physics I-II</td>
<td>8.0</td>
</tr>
<tr>
<td>37:2 Principles of Inorganic Chemistry</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>21:1 Introduction to Inorganic Chemistry</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>61:157 General Microbiology</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>64:147 Survey of Immunology</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>75:130 Human Physiology</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>Other biological discipline</td>
<td>6.0</td>
<td></td>
</tr>
</tbody>
</table>

Mathematical Sciences

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>41:3 Principles of Chemistry I</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>41:4 Principles of Chemistry II</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>41:16 Principles of Chemistry I</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>41:121-122 Organic Chemistry I-II</td>
<td>6.0</td>
<td></td>
</tr>
<tr>
<td>41:131 Physical Chemistry I</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>41:132 Physical Chemistry II</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>41:141 Organic Chemistry Laboratory</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>95:1 Introduction to Computer Science</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>95:102 Introduction to the Field of Biochemistry</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>95:101 Technical Writing in the Field of Biochemistry</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>95:102 Undergraduate Seminar</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>(1 semester hour of 95:10 and 2 semester hours of 95:10 are required.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95:121 Biochemistry and Molecular Biology I</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>95:122 Biochemistry and Molecular Biology II</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>*95:123 Experimental Biochemistry</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>*95:125 Research Independent Study (may be taken for credit)</td>
<td>at least 6.0</td>
<td></td>
</tr>
</tbody>
</table>

Advanced science electives

15.0

*95:123 and 95:125 are required only if grades of A or B have been earned in 95:120, 95:130, and 95:140, or by consent of advisor and instructor.

Bachelor of Arts

In addition to the College of Liberal Arts General Education Requirements, the B.A. degree in biochemistry requires 65 semester hours earned in courses as follows:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>22M:05 Mathematics for the Biological Sciences</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>22M:16 Calculus for the Biological Sciences</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>22M:17 College Physics</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>37:15 Principles of Animal Biology</td>
<td>5.0</td>
<td></td>
</tr>
</tbody>
</table>
Undergraduate Programs

The undergraduate degrees in biology teach science, especially the science of living organisms. The courses of study prepare students for careers in biological sciences, health-related professions, and related fields. Lecture and laboratory courses offered by the department also serve students in other fields, including psychology, anthropology, and sociology, as well as students in humanities who wish to develop an interest in biological science. The undergraduate programs are administered jointly by the departments of Biology and Botany.

Graduates with bachelor's degrees may enter research or become career positions at the technical level in research, governmental, and industrial institutions or organizations. The biological program and advanced degree programs at the University of Washington in biological fields, teaching at all levels, and the health professions, such as medicine, dentistry, pharmacy, nursing, and humanitarian and government agencies. Students may be employed in research, teaching, and developing new ideas in the biological sciences.

Graduates with a bachelor's degree in biology may enter research or become career positions at the technical level in research, governmental, and industrial institutions or organizations. The biological program and advanced degree programs at the University of Washington in biological fields, teaching at all levels, and the health professions, such as medicine, dentistry, pharmacy, nursing, and humanitarian and government agencies. Students may be employed in research, teaching, and developing new ideas in the biological sciences.
### Bachelor of Arts

The B.A. program provides more options among the required courses than does the B.S. program. It also permits more flexibility in course selection for satisfying the elective hour requirements.

#### Required Courses in Biology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI 3135</td>
<td>Introduction to Biology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>BI 373</td>
<td>Principles of Animal Biology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>BI 375</td>
<td>Fundamental Genetics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>BI 1311</td>
<td>Evolution</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

**An investigative laboratory course:**
- BI 1205 Fundamental Genetics Laboratory (3 s.h.)
- BI 1206 Molecular Genetics Laboratory (3 s.h.)
- BI 1207 Endocrinology Laboratory (2 s.h.)
- BI 2196 Field Ecology (4 s.h.)

Electives in biology, botany, microbiology or paleontology (11 s.h.)

**Total:** 28-31 s.h.

*These courses are cross-listed in the botany department.*

*Students who enter the program during the fall semester must complete 6 hours in biology or biology-related courses.*

*Students who enter the program during the spring semester must complete 7 hours in biology or biology-related courses.*

#### Required Courses in Other Disciplines

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI 3751</td>
<td>Principles of Chemistry (I or II)</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>BI 3752</td>
<td>Principles of Chemistry Laboratory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>BI 3753</td>
<td>Organic Chemistry 1</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>BI 3754</td>
<td>Biochemistry</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>BI 3755</td>
<td>Biochemistry and Molecular Biology 1</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>BI 2196</td>
<td>Plant Biochemistry</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>BI 2197</td>
<td>Introduction to Botany</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>BI 3756</td>
<td>Introduction to Statistics in Psychology</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

### 225-148 Intermediate Statistical Methods, or

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI 2255</td>
<td>Calculus I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>BI 2256</td>
<td>Calculus for the Biological Sciences</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>BI 2255</td>
<td>Engineering Calculus I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>BI 2255</td>
<td>Accelerated Calculus I</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

28-30 s.h.  

**Suggested Course Schedule for Freshman Year**

*The following schedule is recommended for students entering either the B.S. or B.A. degree in biology.*

#### First Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI 1205</td>
<td>Rhetoric (101 or 103)</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>BI 1206</td>
<td>Chemistry (4-13)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>BI 1207</td>
<td>Botany (2-1)</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>BI 2196</td>
<td>Mathematics</td>
<td>3-4 s.h.</td>
</tr>
</tbody>
</table>

#### Second Semester

*Students majoring in the biological sciences may earn a minor in biology.*

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI 2255</td>
<td>Biology (4-14, 45)</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>BI 2255</td>
<td>Foreign Language or General Education Course</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>BI 2256</td>
<td>Mathematics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>BI 3751</td>
<td>Education Course</td>
<td>3-4 s.h.</td>
</tr>
</tbody>
</table>

**Total:** 4-5 s.h.

#### Minor

Students majoring in other subjects may earn a minor in biology. The biology minor requires 15 semester hours of credit in biology, botany, microbiology, and/or paleontology courses taken at The University of Iowa, including at least 12 semester hours in 100-level courses, and excluding those designatd primarily for non-science students. Biology courses taken at other institutions or taken on a pass/no-pass basis do not apply toward requirements for the biology minor.

### Honors

The honors program in biology gives the superior student membership in a small, active group of undergraduates with common interests. Honors students associate with one of the department's research groups, gaining an introduction to the practice of scientific research, discussions of current research, work on specialized topics, and attendance at research lectures. Students in the College of Liberal Arts *Honors Program* may earn an honors degree in biology by completing at least 6 semester hours of honors coursework in the departments of Biology and/or Botany, including at least 2 semester hours in BI 2196 *Advanced Laboratory Skills Research*, at least 2 semester hours in BI 3719 *Honors Readings in Biology*, and at least 1 semester hour in BI 3719 *Honors Seminar in Biology* or a biology-related seminar. Three of the minimum 4 semester hours of honors coursework must be counted toward the 11-semester-hour elective requirement for the B.S. or B.A. in Biology. Honors students in biology must maintain at least a 3.20 grade-point average overall and at least a 3.30 average in the biological sciences. A final research paper, approved by the research supervisor, is required and must be submitted to the honors program director.

### Introduction to Research

The department offers BI 197 *Introduction to Research* to acquaint students majoring in biology with the nature of practicing scientific work—from association with one of the department's research groups in experiments, discussions of current research, study of specialized topics, and attendance at research lectures.

### Graduate Programs

The graduate programs in the department are designed to train scientists who can participate in research in medical, educational, or environmental settings.

**Graduate Certificate in Biological Sciences**

**M.S. in Biological Sciences**

**Ph.D. in Biological Sciences**

Graduate work in biology is carried out in faculty research laboratories and is intended to acquaint the student with the major areas of biology. The program is designed to prepare the student for a career in research or teaching in biology.
and parasitology. If appropriate, projects can involve work in other departments; graduate students sometimes are advised jointly by faculty in those departments.

On occasion, each new graduate student is assigned a temporary advisor, chosen to complement the research interests of the student. The temporary advisor guides the student through initial requirements and acts as the student's advocate. For purposes of grants, 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 their laboratories on a rotating basis during their first year.

A graduate advisory committee evaluates and advises students initially. After the first two semesters, students choose a permanent sponsor (advisor) and a PhD advisory (dissertation) committee. Advisors, responsibility for evaluation is shared by the dissertation committee and the advisor's area committee.

Master of Science in Biology

Although the department emphasizes the Ph.D. degree, two M.S. programs are available.

M.S. with Thesis

The M.S. degree with thesis requires 30 semester hours of graduate credit and a thesis on original research. Ordinarily, 6-8 semester hours are assigned to thesis research and writing. The remaining hours are selected in consultation with the advisory committee. The course of study is tailored to students' backgrounds and career goals. Students must pass written comprehensive examinations for courses they are required to take, but credit awarded for courses required by the advisory 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 on the thesis and related subjects.

M.S. without Thesis

The M.S. degree without thesis requires 34 semester hours of graduate credit and a library research report for which no more than 6 undergraduate 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—except the exception of courses in biology required to make up deficiencies—may be included in the 34-semester-hour minimum if approved by the advisory committee. On completion of

Doctor of Philosophy

Each Ph.D. student's formal course or preliminary requirements 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 students must complete before taking the comprehensive examination, which admits them to full candidacy for the Ph.D. degree. In this examination, students demonstrate a knowledge of biology fundamentals and the analytical and synthetic skills necessary to become creative and independent scientists.

The program culminates in students' presentation 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.

Financial Aid

All graduate students making satisfactory progress in the department receive support from teaching assistantships, fellowships, and research assistantships provided by the University or by individual research grants administered by faculty members. First-year students ordinarily are supported by departmental fellowships during the research rotation period. Stipends and tuition are available through fellowship awards, and other financial aid is available. Students who apply for departmental support may be considered for others.

Financial aid in the form of teaching assistantships, research assistantships, or fellowships for the following academic year are offered at the end of April, although occasionally small stipends or stipends at other times, including before the beginning of the spring semester. Requests for appointments should include clear statements of research interest.

Admission

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; that is, they serve as general guidelines to the admissions committee, which also considers applicants' letters of recommendation, research experience, and other appropriate criteria. Applicants must have a Bachelor of Science degree in biology or related discipline and submit their scores. Although most applicants have completed undergraduate

programs in biology, the department considers applicants with backgrounds in biology, biophysics, biochemistry, molecular biology, microbiology, and other related areas. Applications should be submitted by February 1.

Facilities

The department is housed in a cluster of three contiguous buildings. It has approximately 12,000 square feet of laboratory space. The building also includes a large, well-equipped, and centrally located teaching laboratory. There are 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 student-directed research in all areas in which graduate teaching is conducted. All modern equipment (microscopes, fluorescence microscopes, controlled environment rooms, centrifuges, and other apparatus) is available for graduate student research. In addition to departments and facilities, a number of campuswide facilities exist. A DNA oligonucleotide synthesis and enzyme lab is available as is a cell biology and sequencing equipment and an NMR spectroscopy facility, and a commercial image analysis facility. A biosensor facility has functional and screening and provides researchers with functional antibodies. A campus data processing area is located in the University's central computer facility, and there is a University computer in the computer science building.

Computing facilities are available in the department and at the main campus computer building. Graduate students have their own computer accounts and terminals linked to the campus mainframe. One of the only computer-based microanalysis facilities in the world is available in the department. In addition, there are numerous microscopes and microscopes in the department. In addition, there are numerous microscopes and microscopes in the department.

Iowa Lakeside Laboratory

Courses in the biology and agricultural science at the Iowa Lakeside Laboratory extend the existing curriculum in biology. See "Iowa Lakeside Laboratory" in this section of the Catalog.

Courses

Primarily for Undergraduates
Undergraduate Programs

Bachelor of Science
In addition to the General Education Requirements of the College of Liberal Arts, students seeing the B.S. degree are required to take the following.

Botany and Biology Requirements
2.1 Introduction to Botany 4.0
2.2 Principles of Plant Biology 5.0
2.128 Fundamental Genetics 3.0
2.123 Plant Anatomy 3.0
2.120 Land Plants: An Evolutionary Survey 4.0
2.121 Algae and Fungi 3.0
One course from each of the following three areas:

Taxonomy
2.121 Plant Taxonomy 2.4
2.123 Summer Flora 3.0
1.105 Plant Taxonomy 2.5

Physiology
2.129 Plant Physiology 4.0
2.110 Plant Physiology 4.0
2.114 Cellular Plant Physiology 4.0
2.107 Plant Cell Physiology 4.0

Ecology
2.111 Plant Ecology 4.0
2.137 Ecology 4.0
2.211 Field Ecology 4.0
2.215 Tutorial Undergraduate Research 1.0
2.216 Honors Laboratory Research 1.0

Chemistry Requirements
4.1 Principles of Chemistry 1 3.0
4.2 Principles of Chemistry II 3.0
4.15 Principles of Chemistry Lab I 1.0
4.16 Organic Chemistry I 3.0
99.110 Biochemistry 3.0
99.120 Biochemistry and Molecularity Biology 4.0
1.125 Plant Biochemistry 3.0

Mathematics Requirements
22M.50 Mathematics for the Biological Sciences 4.0
22M.19 Elementary Functions 3.0
22S.42 Introduction to Statistical Methods (or equivalent) 3.0
22S.81 Calculus for the Biological Sciences 3.0
22S.82 Calculus I (or equivalent) 4.0

Biology Degree Programs
Undergraduate and graduate degree programs in biology are administered jointly by the Departments of Botany and Biology. Degrees offered include the Bachelor of Arts (B.A.), Bachelor of Science (B.S.), Master of Science (M.S.), and the Doctor of Philosophy (Ph.D.). For information on these degree programs, see "Biology" in this section of the Catalog.
Bachelor of Arts
The B.A. curriculum provides a broad background in biology yet allows more electives than does the B.S.
In addition to the general requirements of the College of Liberal Arts, students majoring in botany are required to take the following:

Botany and Biology Requirements

Biology 1
Introduction to Botany 4 s.h.
37.3 Principles of Animal Biology 5 s.h.
2108 Fundamental Genetics 3 s.h.
3132 Plant Anatomy 4 s.h.
One course from each of the following four areas (17-20 semester hours), and one additional 100-level course in botany or cognate sciences.

Physiology and Cell Biology
2108 Plant Physiology 4 s.h.
3117 Plant Physiology 4 s.h.
2114 Cellular Plant Physiology 4 s.h.
2125 Plant Biochemistry 3 s.h.
3705 Cell Physiology 4 s.h.

Vascular Plant Diversity
2100 Land Plants: An Evolutionary Survey 4 s.h.
2101 Plant Taxonomy 4 s.h.
2151 Plant Structure 5 s.h.
2120 Paleobotany 4 s.h.
1105 Plant Taxonomy 5 s.h.

Ecology and Evolution
2113 Plant Ecology 4 s.h.
3117 Plant Ecology 3 s.h.
3121 Evolution 4 s.h.
2116 Field Ecology 4 s.h.

Biology of Nonvascular Plants
2105 Algae and Fungi 4 s.h.
2106 Bryology-Lichenology 4 s.h.
2112 Field Mycology 3 s.h.

Chemistry Requirements
431 Principles of Chemistry I 3 s.h.
434 Principles of Chemistry II 3 s.h.
436 Principles of Chemistry Lab 3 s.h.
4321 Organic Chemistry I 3 s.h.
4322 Organic Chemistry II 3 s.h.
99141 Biochemistry 3 s.h.
99130 Biochemistry and Molecular Biology I 4 s.h.
99152 Plant Biochemistry 3 s.h.

Mathematics Requirements
One of the following courses (students should consult with their advisor):
2206-15 Mathematics for the Biological Sciences 4 s.h.
2206-16 Calculus for the Biological Sciences 3 s.h.
2205 Elementary Functions 3 s.h.
2205 Calculus I 4 s.h.

Teacher Certification
Students preparing to teach in secondary schools should consult the "College of Education" section of the Catalog regarding requirements for teacher certification.

Honors
An undergraduate program leading to graduation with honors provides opportunities for participation in independent research projects guided by faculty members.
In addition to the regular requirements for the B.A. and B.S. degree, honors students must:
Maintain an overall grade-point average of 3.00.
Maintain a minimum grade-point average of 3.20 in all botany and biology courses.
Complete 4-6 semester hours of honors coursework that include a minimum of 4 semester hours in 200-level Honors Research.
Submit a written research proposal and a written research report (thesis), which have been approved by the student's research supervisor, to the botany honors advisor; and
Defend the thesis before a committee composed of the botany honors research advisor, the student's research supervisor, and a third faculty member chosen by the student and the honors advisor.

Minor
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 2100 and above.

Graduate Programs
An advanced degree enhances career opportunities in botany. The department offers advanced degree work in anatomy, botany, cell biology, ecology, genetics, plant molecular biology, development and morphogenesis, mycology, palaeobotany, paleontology, physiology, plant biochemistry, and taxonomy. Graduate training frequently involves interdisciplinary study that requires some coursework in cognate departments. Each graduate student is assigned a faculty graduate committee to help him or her set educational goals and plan the coursework necessary to meet them.

Master of Science
The botany department offers two distinct M.S. degree programs, one with thesis and one without. The M.S. thesis offers greater emphasis on independent research and less on formal course work. It is intended primarily for candidates who have a strong course background in botany or biology.

Master's Degree without Thesis
Each student 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; the program must be prepared during the first semester in residence as a regular graduate student.
Complete at least 34 semester hours of graduate courses in botany or supporting areas, as prescribed by the guidance committee, of which hours of research (2225) are required; additional research hours may be taken, but no more than 6 may be counted toward the 34-semester-hour degree requirement.
Achieve a grade-point average of 3.00 or all courses—other than research—completed prior to the final examination.
Pass a written examination during the term in which the student is in graduate (individual committee members may opt not to give a written examination in their areas), followed by a week oral examination, these examinations cover the student's courses and research experience.

Master's Degree with Thesis
Each student must:
Submit a program of study (as for the M.S. without thesis, above).
Complete at least 30 semester hours of graduate courses in botany or supporting areas, as prescribed by the guidance committee, of which hours of research and thesis (2225 and 3220) are required; additional research hours may be taken, but no more than 9 may be counted toward the 34-semester-hour degree requirement.
Achieve a grade-point average of 3.00 on all courses other than the thesis—attempted up to the time of the final examination.
Prepare a thesis on research conducted; Defend the thesis in an examination during the term in which the student is to graduate.

Doctor of Philosophy
The Ph.D. is primarily a research degree. The student must conduct original research of sufficient magnitude and value to allow a thesis to be written and successfully defended prior to final examinations completed. 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 may require course work beyond the 72 semester hours to be taken to meet specific proficiency requirements (e.g., language or statistics) or to make up for background deficiencies.
Graduate Admission

University Requirements

An application form for admission to the Graduate College must be completed and sent to the Director of Admissions, The University of Iowa, Iowa City 52242. Official transcripts from each college or university attended and scores on the Graduate Record Examination (GRE) General Test (verbal and quantitative) should be submitted with the application. A valid B.S. or B.A. degree from an accredited institution is required.

Departmental Requirements

Master’s Degree Program

A cumulative grade-point average of at least 3.00 on all college-level work attempted;
A GRE General Test score (verbal plus quantitative) of 1100 or greater; and
Three letters of recommendation.

Promotion: The numerical requirements are not absolute. For example, a student may compensate for a GRE General Test score slightly below 1100 with a high level of academic achievement.

Students applying for admission to the master’s program in botany must have a bachelor’s degree in one of the biological sciences. Students with bachelor’s degrees in other areas will need to register as special students (AIV) and make up the equivalent of the department’s bachelor’s degree program prior to consideration for admission. In addition to the botany and biology course list in the undergraduate program, special students must complete the chemistry and mathematics requirements that students should consult the department chair before attempting to set up a program with special students.

Ph.D. Program

A grade-point average of at least 3.40 on graduate work;
A GRE General Test score of at least 1200;
Three letters of recommendation; and
A master’s degree in botany or a biological science.

Provision: The numerical requirements are not absolute. For example, a student may compensate for a GRE General Test score slightly below 1200 with a high level of academic achievement, especially during the M.S. program.

Special Provision for Foreign Students

Admission for foreign students is based on a quantitative score on the GRE General Test of 120 or greater and a Test of English as a Foreign Language (TOEFL) score of 550 or greater. These scores may be used in place of the total GRE requirement, as outlined above.

Financial Aid

New students wishing to apply for assistantships or fellowships may submit an application for graduate awards form when applying for admission to graduate study. The application form may be obtained from the Office of Admissions, the Graduate College, or the department office.

Applications for teaching assistantships are reviewed by the faculty; those for research assistantships and fellowships are reviewed by the Graduate College, upon recommendation by the department faculty.

The kinds and amounts of support for graduate study in botany, as in other departments, vary from year to year, depending on the availability of funds. The types of appointments and support are teaching assistantships and research assistantships (one-half-time or one-quarter-time), summer research fellowships; grants, research assistantships; and other sources of support.

Teaching and research assistantships. Appointment to an assistantship requires that the student provide approximately 20 hours of work per week. Appointments pay resident tuition rates.

Summer research fellowships. These are available for outstanding graduate students. Recipients are expected to do full-time research, or any two-month period between mid-May and mid-August to be enrolled for at least 1 semester hour of credit in 2225 Botany. Awards are made on a competitive basis.

Genetics research assistantships. These are awarded by the interdepartmental genetics program from University funds. Any student whose thesis project is primarily concerned with genetics is eligible to apply.

Summer appointments. These depend on available summer session budgets; the department has awarded as many as four teaching assistantships in recent summer sessions. Summer session appointments are two-months of the academic year salary. Awards are made for one-half-time service or 20 hours of time per week for the eight-week summer session. Selection of full-time assistants for the summer is made by the department in charge of the course to be served.

Faculty members with individual grants-in-aid. Faculty may wish to employ one-half-time or one-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 institutional 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.

The Graduate College also provides information regarding grants available to graduate students.

Special Facilities and Activities

The Chemistry-Botany Building houses an excellent botany rotory.

Students conducting research projects that require plant cultivation have access to greenhouse and special culture rooms with controlled environments. A plant physiology laboratory with associated greenhouses is available.

A number of research laboratories are equipped with standard as well as sophisticated apparatus for research in photosynthesis, plant biochemistry, molecular biology, biochemical systematics, palynology, cytochemistry, histology, mycology, bacteriology, histology, mycology, and cell biology. A transmission electron microscope resides in
3144 Seminar in Plant Molecular Biology 1-2 s.h. Seminar, meetings, and discussions to review progress in plant cellular and molecular biology. Prerequisite: 2108 or 3712 or consent of instructor. Same as 3706.
2108 Botany: Molecular Biology 2-3 s.h. Same as 2178.
3196 Hours Laboratory Research 1-3 s.h.
3197 Hours Reading or Research 1-3 s.h.

Priimarily for Graduates
2134 Seminar: Ecoligical Writing and Coferences 3-4 s.h. Same as 2nd3.
2135 Seminar: Special 1-2 s.h.
2199 Special Topics in Intensive Instruction 2-3 s.h.
2196 Seminar: Botany 3-4 s.h.
2195 Seminar: Botany 3-4 s.h.
2194 Seminar: Botany 3-4 s.h.
2193 Seminar: Botany 3-4 s.h.
2192 Seminar: Botany 3-4 s.h.
2191 Seminar: Botany 3-4 s.h.
2190 Seminar: Botany 3-4 s.h.

CHEMISTRY

Charles Donald J. Petrynek
Professor emeritus: Robert E. Buckles
Associate professors: Mark A. Arndt, William E. Benner, Darrell P. Eyring, James B. Gower, Richard F. Jordan, Louise Mozafari, Daniel N. Quinn
Assistant professors: Vicki H. Gossans, William R. Leaf, Gary W. Israel
Undergraduate degrees offered: A.B., B.S. in Chemistry
Graduate degrees offered: M.S., Ph.D. in Chemistry

Undergraduate Programs

Bachelor of Science

Present and projected demand for chemists with a B.S. degree is excellent in research and development work. The B.S. program also provides all the prerequisites for graduate work in chemistry or biochemistry. Theses are the major requirements for the B.S. degree.
4134-135 Principles of Chemistry I-II 6 s.h.
416 Principles of Chemistry Lab I 2 s.h.
417 Basic Measurements 2 s.h.
4111-112 Analytical Chemistry I-II 6 s.h.
4125-126 Organic Chemistry I-II 6 s.h.
4125 Inorganic Chemistry 2 s.h.
4132-133 Physical Chemistry I-II 6 s.h.
414 Organic Chemistry 2 s.h.
414 Laboratory 3 s.h.
414 Laboratory 3 s.h.
4140 Analytical Measurements 3 s.h.
4141 Physical Measurements 3 s.h.
4155 Inorganic Chemistry 3 s.h.
4170 Advanced Inorganic Chemistry 3 s.h.

Integral calculus (2125,35-36
Engineering Calculus I-II or
2125-35-36 Calculus I-II) 8 s.h.

Honors Program

Graduate students may pursue graduate work in the Honors Program in Chemistry and obtain an honors degree. The program requires 32 semester hours for the Bachelor of Arts degree, 36 of which must be in Chemistry courses.

Minor

The minimum requirements for a minor in chemistry are 15 semester hours, including three semester hours in introductory level courses and 12 semester hours taken at the University of Iowa in advanced chemistry courses numbered 130 and above. Note: 4134-135 Principles of Chemistry I-II and 416 Principles of Chemistry Lab I are recommended for upper-level courses in Chemistry.

Honor Program

To graduate with honors in chemistry, a student must be enrolled in the College of Liberal Arts Honors Program and in 4125 Undergraduate Research, complete a research project acceptable to the student’s research advisor, and write an honors thesis based upon 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.

Teacher Certification

The chemistry courses required for the B.S. or B.A. degrees 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. degree, with or without thesis, in analytical, inorganic, organic, and physical chemistry and in chemical physics. Candidates for the M.S. degree must present 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 semester of graduate work. At least 30 semester hours of graduate work are required for admission to the master’s examination.

Doctor of Philosophy

A program of study for the Ph.D. degree in the areas listed for the M.S. degree includes the minimal proficiency examinations, core courses as may be necessary, a minimum of 81 semester hours of advanced course work, and research. Students who have met the core course requirements with a cumulative grade-point average of 3.00 are admitted to the oral comprehensive examination upon successful presentation and preliminary approval of their written research proposal; they must then take the oral comprehensive examination.
following courses, or their equivalents, are required:
141-12 Elementary Greek 8 s.h.
141-21-12 Second-Year Greek I & II 6 s.h.
20-12 Elementary Latin 6 s.h.
20-16-17 Second-Year Latin I & II 6 s.h.
14-121-122 Honors and Ancient History
Heraclitus 6 s.h.
or 20-81 Age of Cicero
and 20-82 Age of Augustus 3 s.h.
14-171 Elementary 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 civilizations 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, nevertheless, it provides a sound basis for preparing teachers at the secondary and junior college levels. In addition to the normal college requirements for the B.A. degree, the following are the specific requirements of the major:

Ancient art 6 s.h.
Ancient biography 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 3 s.h.
14-194 Seminar in Ancient Civilization 3 s.h.

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 by 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 examined by at least three members of the department.

Minors
A minor requires a minimum of 15 semester hours in classics courses with a minimum grade of 2.00. Of the 15 semester hours, at least 12 must be in classics 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 a minor.

Greek
14-11-12 Second-Year Greek I & II 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 Greek language.

Latin
20-16-17 Second-Year Latin I & II 6 s.h.
20-81 Age of Cicero 3 s.h.
20-82 Age of Augustus 3 s.h.
All courses numbered 20-121 or higher.
Courses numbered 20-100-120 do not count toward the minor because they are not courses in Latin language.

Classics
14-11-12 Second-Year Greek I & II 6 s.h.
20-16-17 Second-Year Latin I & II 6 s.h.
20-81 Age of Cicero 3 s.h.
20-82 Age of Augustus 3 s.h.

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 numbered 14-100, 20-100, or higher, 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.

14-26 Introduction to Ancient Art 3 s.h.
20-81 Age of Cicero 3 s.h.
20-82 Age of Augustus 3 s.h.

Language for Nonmajors
Students who want to satisfy the College of Liberal Arts foreign language requirement for the B.A. degree by studying Greek should take 14-12 Elementary Greek and 14-11-12 Second-Year Greek I & II. Students who want to meet the requirement by studying Latin may elect 20-121 Elementary Latin or 20-15 Advanced 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 101-159.

Master of Arts
The department offers the M.A. degree in Greek, Latin, or classics. Candidates must earn a minimum of 30 semester hours of major credit in 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.

Doctor of Philosophy
Required Courses
A one-semester course in Greek (3 s.h.)
A one-semester course in Latin (3 s.h.)
Advanced Greek composition (3 s.h.) or equivalency
Advanced Latin composition (3 s.h.) or equivalency
Survey of Ancient Near East and Greece (3 s.h.)

The Homeric World and Rome (3 s.h.)
Any two of the following three courses:
Comparative Greek and Latin (3 s.h.)
Greek Paleography (3 s.h.)
Any 3 s.h. graduate-level art course
The minimum Graduate College requirement is 72 semester hours; the difference is to be made up from regular departmental offerings.

Required Ph.D. Examinations
Precomprehensive
French competence
German competence
Greek (written exam) (5 s.h.)

One oral exam must be attempted by the end of the first year of graduate study.

Ph.D. Comprehensive
Request for the comprehensive examination must be filed at least three weeks before the date of the examination. Candidates have the option of taking examinations in any sequence.

Greek literature (including passages)—4 hours, written
Latin literature (including passages)—4 hours, written
Special field or author (Greek)—3 hours, written
Special field or author (Latin)—3 hours, written

Dissertation

Facilities
Extensive collections of classical texts and periodicals in the Main Library and the Art and Art History Library facilitate research in the major areas of Greek and Roman civilization. The department has a varied collection of all major classical subjects, and a small library. Associated with the department, the classical museum contains a valuable collection of vases, vases, and facsimiles in
GREEK—FOR UNDERGRADUATES

GREEK—FOR UNDERGRADUATES AND GRADUATES

GREEK—FOR GRADUATES

LATIN—for UNDERGRADUATES AND GRADUATES

LATIN—for GRADUATES

CLASSICS IN ENGLISH

LATIN—for GRADUATES
No B.A. degree in communication studies completed under the old requirements will be awarded after August 1990.

Hons

A degree with honors in communication studies requires maintenance of a 3.20 grade-point average, membership in the College of Liberal Arts 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 advisor. The complete thesis is defendted before a committee consisting of the faculty advisor, the departmental honors advisor, and one other faculty member.

Students who enroll in the honors program are eligible to take courses labeled "honors only" in the Schedule of Classes and to add as honors designation to any other departmental course by completing an agreement with the course instructor for special work in that course. Forms providing instructions are available from the honors advisor.

Minor

A minor in communication studies requires 15 semester hours of credit in communication studies with a minimum grade-point average of 2.0. Of the 15 semester hours, at least 12 must be in University of Iowa courses numbered 3000 or 4000 or above.

Graduate Programs

Master of Arts

A student can earn a master's degree in the school's graduate degree programs or in one of the divisions in or under the supervision of the divisions.

Departmental requirements for the Master of Arts degree are:

A minimum of 30 semester hours, including 36000 through 40000, excluding dissertation and including at least 15 semester hours in an approved research area;

A minimum of 10 semester hours of dissertation credit;

36000 Introduction to Research, at least two courses in theory and research in the department, and others as determined by the student and graduate director; and

Successful completion of a qualifying and a dissertation examination for admission to candidacy in the student's major research areas.

A substantial scholarly dissertation;

A 2.00 minimum cumulative grade-point average for all courses in the program of study.

Applicants for summer session or fall semester whose papers are received by February 1 have the best chance of admission. The minimum cumulative undergraduate grade-point average required for admission in good standing is 2.75.

Educational Specialist (for Junior College Teaching)

Departmental requirements for the Educational Specialist degree are:

A minimum of 60 semester hours, including 36000 through 40000, excluding dissertation and including at least 29 semester hours in the College of Communication graduate program.

Successful completion of a research report;

A semester internship in an assigned teaching position;

Satisfactory performance on a nine-hour written examination covering areas of learning agreed on by the student and his or her graduate committee; and

Successful completion of such additional requirements as are specified by the departmental division in which the student's work is concentrated.

Doctor of Philosophy

Departmental requirements for the Doctor of Philosophy degree are:

A minimum of 30 semester hours, including 36000 through 40000, excluding dissertation and at least 12 hours of dissertation credit;

36000 Introduction to Research, at least two courses in theory and research in the department, and others as determined by the student and graduate director; and

Successful completion of a qualifying and a dissertation examination for admission to candidacy in the student's major research areas.

A substantial scholarly dissertation;

A 2.00 minimum cumulative grade-point average for all courses in the program of study.

Applicants for summer session or fall semester whose papers are received by February 1 have the best chance of admission. Admission decisions are based on composite consideration of the applicant's undergraduate achievements, the nature of reference and other evidence of sufficiently potential or accomplished, such as Graduate Record Examination (GRE) General Test results and samples of scholarly work.

Facilities

The Communication Studies Building, one of the newest facilities on campus, has been designed specifically to meet both the research and technical needs. Included are two television studios, a complete video postproduction facility, a film sound stage, a voice 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 studios 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 a computer for research efforts. The Communication Studies Building is one of the best facilities of its kind in higher education.

Interdisciplinary Course

30100 Cooperative Education Internship I-3-0

30130 Summer Internship I-3-0

30164 Problems in Communication Studies I-3-0

30170 Workshop in Teaching Communication and Formulas I-3-0

Communication Training Methods and procedures in teaching and training, and improving students in written and oral communication. Credit toward teacher's education. A seminar and discussion of teaching theory, philosophy of education, and communication. Credit and methodology. Prerequisite: 2000 communication grade-point average.

20000 Workshop Teaching Oral Communication Skills I-3-0

Introduction to Research I-3-0

Communication studies as a field of scholarship; whatever the major focus of research 299 or 3000 and 30000, the 120000 and 220000 theoretical methods for scholarship in the field.

30000 Thesis I-3-0

30050 Ph.D. Dissertation I-3-0

Communication Education

The communication teaching major requires a minimum of 33 semester hours. Course work in the Department of Communication Studies. Students must take four foundation courses across four core areas: Communication, media, research, courses, two theatre arts courses, and any other communication studies course, with the approval of a communication education advisor.

To strengthen both their major and their employment opportunities, students are advised to complete a minor certification in English, reading, or other related field, and to accumulate a record of achievement in
Teaching Minor Certification in Communication Studies
Completion of 23 semester hours of course work in communication and theater arts is required. These hours must be approved by an advisor.

Courses
- **361718 Directing Forensics Activity**: 3 s.h.
- **361719 Organizational Communication**: 3 s.h.
- **361720 Public Speaking**: 3 s.h.
- **361721 Mass Communication**: 3 s.h.
- **561722 Communication Methods**: 3 s.h.
- **561723 Interpersonal Communication**: 3 s.h.
- **561724 Mass Media and Society**: 3 s.h.
- **561725 Communication Theory**: 3 s.h.
- **561726 Communication and Justice**: 3 s.h.
- **561727 Communication and Technology**: 3 s.h.
- **561728 Communication and Ethics**: 3 s.h.
- **561729 Communication and Globalization**: 3 s.h.
- **561730 Communication and Social Change**: 3 s.h.
- **561731 Communication and Political Science**: 3 s.h.
- **561732 Communication and Psychology**: 3 s.h.
- **561733 Communication and Economics**: 3 s.h.
- **561734 Communication and Law**: 3 s.h.
- **561735 Communication and Education**: 3 s.h.
- **561736 Communication and Health**: 3 s.h.
- **561737 Communication and Religion**: 3 s.h.
- **561738 Communication and Environment**: 3 s.h.
- **561739 Communication and Gender**: 3 s.h.
- **561740 Communication and Diversity**: 3 s.h.
- **561741 Communication and International Relations**: 3 s.h.
- **561742 Communication and Peace Studies**: 3 s.h.
- **561743 Communication and Conflict Resolution**: 3 s.h.
- **561744 Communication and Social Justice**: 3 s.h.
- **561745 Communication and Human Rights**: 3 s.h.
- **561746 Communication and Social Innovation**: 3 s.h.
- **561747 Communication and Social Entrepreneurship**: 3 s.h.
- **561748 Communication and Social Change**: 3 s.h.
- **561749 Communication and Social Justice**: 3 s.h.
- **561750 Communication and Social Innovation**: 3 s.h.
- **561751 Communication and Social Entrepreneurship**: 3 s.h.
- **561752 Communication and Social Change**: 3 s.h.
- **561753 Communication and Social Justice**: 3 s.h.
- **561754 Communication and Social Innovation**: 3 s.h.
- **561755 Communication and Social Entrepreneurship**: 3 s.h.
- **561756 Communication and Social Change**: 3 s.h.
- **561757 Communication and Social Justice**: 3 s.h.
- **561758 Communication and Social Innovation**: 3 s.h.
- **561759 Communication and Social Entrepreneurship**: 3 s.h.
- **561760 Communication and Social Change**: 3 s.h.
- **561761 Communication and Social Justice**: 3 s.h.
- **561762 Communication and Social Innovation**: 3 s.h.
- **561763 Communication and Social Entrepreneurship**: 3 s.h.
- **561764 Communication and Social Change**: 3 s.h.
- **561765 Communication and Social Justice**: 3 s.h.
- **561766 Communication and Social Innovation**: 3 s.h.
- **561767 Communication and Social Entrepreneurship**: 3 s.h.
- **561768 Communication and Social Change**: 3 s.h.
- **561769 Communication and Social Justice**: 3 s.h.
- **561770 Communication and Social Innovation**: 3 s.h.
- **561771 Communication and Social Entrepreneurship**: 3 s.h.
- **561772 Communication and Social Change**: 3 s.h.
- **561773 Communication and Social Justice**: 3 s.h.
- **561774 Communication and Social Innovation**: 3 s.h.
- **561775 Communication and Social Entrepreneurship**: 3 s.h.
- **561776 Communication and Social Change**: 3 s.h.
- **561777 Communication and Social Justice**: 3 s.h.
- **561778 Communication and Social Innovation**: 3 s.h.
- **561779 Communication and Social Entrepreneurship**: 3 s.h.
- **561780 Communication and Social Change**: 3 s.h.
- **561781 Communication and Social Justice**: 3 s.h.
- **561782 Communication and Social Innovation**: 3 s.h.
- **561783 Communication and Social Entrepreneurship**: 3 s.h.
- **561784 Communication and Social Change**: 3 s.h.
- **561785 Communication and Social Justice**: 3 s.h.
- **561786 Communication and Social Innovation**: 3 s.h.
- **561787 Communication and Social Entrepreneurship**: 3 s.h.
- **561788 Communication and Social Change**: 3 s.h.
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- **561795 Communication and Social Entrepreneurship**: 3 s.h.
- **561796 Communication and Social Change**: 3 s.h.
- **561797 Communication and Social Justice**: 3 s.h.
- **561798 Communication and Social Innovation**: 3 s.h.
- **561799 Communication and Social Entrepreneurship**: 3 s.h.
- **561800 Communication and Social Change**: 3 s.h.
- **561801 Communication and Social Justice**: 3 s.h.
- **561802 Communication and Social Innovation**: 3 s.h.
- **561803 Communication and Social Entrepreneurship**: 3 s.h.
- **561804 Communication and Social Change**: 3 s.h.
- **561805 Communication and Social Justice**: 3 s.h.
- **561806 Communication and Social Innovation**: 3 s.h.
- **561807 Communication and Social Entrepreneurship**: 3 s.h.
- **561808 Communication and Social Change**: 3 s.h.
- **561809 Communication and Social Justice**: 3 s.h.
- **561810 Communication and Social Innovation**: 3 s.h.
- **561811 Communication and Social Entrepreneurship**: 3 s.h.
- **561812 Communication and Social Change**: 3 s.h.
- **561813 Communication and Social Justice**: 3 s.h.
- **561814 Communication and Social Innovation**: 3 s.h.
- **561815 Communication and Social Entrepreneurship**: 3 s.h.
- **561816 Communication and Social Change**: 3 s.h.
- **561817 Communication and Social Justice**: 3 s.h.
- **561818 Communication and Social Innovation**: 3 s.h.
- **561819 Communication and Social Entrepreneurship**: 3 s.h.
- **561820 Communication and Social Change**: 3 s.h.
- **561821 Communication and Social Justice**: 3 s.h.
Communication Studies • Liberal Arts

Communication Research

The program in communication research leads to the M.A. or the Ph.D. degree. Programs designed for individual students provide background for and experience in research on interpersonal communication and group communication from a social science perspective with special emphasis on group decision making and relational communication. In addition to general departmental requirements, students study related social sciences and select appropriate trainers in the division from those listed below.

Courses

32:825 Communication Theory and Research 3 s.h.
32:826 Organizational Communication Theory and Research 3 s.h.
32:827 Group Communication Theory and Research 3 s.h.
32:828 Research Methods in Communication 3 s.h.
32:829 Communication Research Techniques 3 s.h.
32:830 Research and Surveys in Communication 3 s.h.
32:831 Research and Surveys in Communication 3 s.h.
32:832 Seminar: Research and Surveys in Communication 3 s.h.
32:835 Communication Theory and Research 3 s.h.
32:836 Seminar: Research and Surveys in Communication 3 s.h.

Rhetorical Studies

The program in rhetorical studies leads to the M.A. or the Ph.D. degree. It is based upon four courses in the study of rhetorical theory, the criticism of rhetorical discourse, and theoretical relationships between rhetorical activities and other dimensions of society. Some instructors in courses in this area are offered at the 500 level. The requirements for the M.A. are offered at the 500 level, and for the Ph.D. at the 600 level. The seminar on rhetorical theory and criticism at the 600 level is required for all students who have not completed requirements for the M.A. in rhetorical studies.

Master of Arts

The M.A. program in rhetorical studies awards knowledge of rhetorical theory, criticism, and theory. That goal usually is achieved by work in the division and in other seminars of the department and on the job.

Doctor of Philosophy

Ph.D. in Communication Studies

32:830 Research and Surveys in Communication 3 s.h.
32:831 Research and Surveys in Communication 3 s.h.
32:832 Seminar: Research and Surveys in Communication 3 s.h.
32:833 Seminar: Rhetorical Theory and Research 3 s.h.
32:835 Communication Theory and Research 3 s.h.
32:836 Seminar: Rhetorical Communication Theory 3 s.h.
Broadcasting and Film

Bachelor of Arts

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 fields must acquire some 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 story, theories, 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 establishing production emphasis plan to write, plan, shoot, edit, and present film, radio, and television production. 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 development. The prospective students are interested in media theory and criticism teach 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 as large.

To graduate with a B.A. in broadcasting and film, students must complete 30 semester hours in the department, including:

Four foundational courses across four core areas

- 6.0 credit hours

- 3.0 credit hours

- 3.0 credit hours

The courses for the Bachelor of Arts in Broadcasting and Film major are as follows:

- Communication Studies 2.0 credit hours
- Film and Society 3.0 credit hours
- Television Production I 3.0 credit hours
- Visual Communication and American Democracy 2.0 credit hours
- Digital Production II 3.0 credit hours
- Digital Production III 3.0 credit hours
- Digital Production IV 3.0 credit hours
- Digital Production V 3.0 credit hours
- Digital Production VI 3.0 credit hours
- Digital Production VII 3.0 credit hours
- Digital Production VIII 3.0 credit hours

These courses provide a comprehensive overview of the field, covering topics from production techniques to critical thinking and ethical considerations. Students will gain hands-on experience in various aspects of film and television production, preparing them for careers in the industry or further academic pursuits in communication studies.
Faculty assistant in the program: In addition to the above faculty, the Comparative Literature fields of study offer students access to additional faculty members, including professors and teaching assistants.

4852 Non-Western Literary Traditions 3 a.b.
4855 Undergraduate Seminar 3 a.b.
4859 Introduction to Critical Problems 3 a.b.
Elective comparative literature course work of the 3 a.b.

Foreign Literature
Students should take 9 semester hours of courses in a foreign language, read in the original language, in addition to courses taken to 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) as courses in a second foreign language.

Minor
Students majoring in other disciplines may acquire 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 courses at the University of Iowa numbered 4855 and above.

Honors
To graduate with honors in Comparative Literature, students must meet eligibility standards listed in the Guide to Honor publication of the College of Liberal Arts. They must identify an area extending beyond the major course work and must complete a project in consultation with one or two faculty members, including the major advisor. For more information consult the Comparative Literature office - 415 NR.

Graduate Programs
Master of Arts
The Master of Arts degree in comparative literature requires 21 semester hours of study of literature in an international context, concentrating on works of comparative or national literatures, and on the theory and study of literature in general. In consultation with faculty advisors, students combine course work in comparative literature and in the individual area departments to design a coherent program of study. Formal foreign language requirements may be satisfied by a written examination on reading tests agreed upon by students and their advisors, or by a written thesis and oral examination on the thesis and its relation to problems and themes in comparative literature. The M.A. also may be awarded upon successful completion of comprehensive examinations for the Ph.D.
Bachelor of Arts

The B.A. degree program in dance is designed for students who want a strong liberal arts education background and solid undergraduate course preparation. It stresses performance, choreography, and teaching, as well as theory courses such as Labanotation, dance history, dance therapy, and dance production. Students in the program must complete 50 semester hours of credit in dance courses.

Required Courses

Dance Theory
- DANCE 372 Introduction to Dance 1.0 credit hour
- DANCE 374 Dance Production 3.0 credit hours
- DANCE 377 Rhythmic Analysis of Dance 2.0 credit hours
- DANCE 378 Dance crianças: From Primitive Through the Nineteenth Century 3.0 credit hours
- DANCE 379 Twentieth-Century Dance 3.0 credit hours
- DANCE 377 Beginning Labanotation 3.0 credit hours

Dance Electives
- Select two courses from the following:
  - DANCE 373 Composition I 3.0 credit hours
  - DANCE 374 Composition II 2.0 credit hours
  - DANCE 377 Composition III 2.0 credit hours
  - DANCE 377 Composition IV 4.0 credit hours

Dance Performance
- Select one course from the following:
  - DANCE 373 Composition I 3.0 credit hours
  - DANCE 374 Composition II 2.0 credit hours
  - DANCE 377 Composition III 2.0 credit hours
  - DANCE 377 Composition IV 4.0 credit hours

Dance Technique
- Select one course from the following:
  - DANCE 375 Top 2.0 credit hours
  - DANCE 376 Composition II 2.0 credit hours
  - DANCE 377 Major Modern Dance I 1.0 credit hour
  - DANCE 378 Beginning Ballet 2.0 credit hours
  - DANCE 379 Beginning Jazz 2.0 credit hours
  - DANCE 380 Intermediate Modern 2.0 credit hours
  - DANCE 381 Low Intermediate Modern 2.0 credit hours
  - DANCE 382 Low Intermediate Modern 2.0 credit hours
  - DANCE 383 Low Intermediate Modern 2.0 credit hours

Dance Production
- Select one course from the following:
  - DANCE 373 Composition I 3.0 credit hours
  - DANCE 374 Composition II 2.0 credit hours
  - DANCE 377 Composition III 2.0 credit hours
  - DANCE 377 Composition IV 4.0 credit hours

Dance Performance
- Select one course from the following:
  - DANCE 375 Top 2.0 credit hours
  - DANCE 376 Composition II 2.0 credit hours
  - DANCE 377 Major Modern Dance I 1.0 credit hour
  - DANCE 378 Beginning Ballet 2.0 credit hours
  - DANCE 379 Beginning Jazz 2.0 credit hours
  - DANCE 380 Intermediate Modern 2.0 credit hours
  - DANCE 381 Low Intermediate Modern 2.0 credit hours
  - DANCE 382 Low Intermediate Modern 2.0 credit hours

Bachelor of Fine Arts

In contrast to the B.A. degree in dance, the B.F.A. degree 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. degree program after they have completed a minimum of 30 semester hours at The University of Iowa. The dance department faculty admits only those students who have achieved the equivalent of "Moore II" technical level and show academic and professional promise. Students seeking the B.F.A. in dance may waive 3 semester hours of the General Education Requirement in natural sciences (inorganic) and 4 semester hours of the General Education Requirement in physical education.

Required Courses

Dance Theory
- DANCE 373 Introduction to Dance 1.0 credit hour
- DANCE 374 Rhythmic Analysis of Dance 2.0 credit hours
- DANCE 377 Dance History: From Primitive Through the Nineteenth Century 3.0 credit hours
- DANCE 379 Twentieth-Century Dance 3.0 credit hours
- DANCE 377 Beginning Labanotation 3.0 credit hours

Studio (Mimechnique)
- DANCE 373 Composition I 2.0 credit hours
- DANCE 374 Composition II 2.0 credit hours
- DANCE 377 Composition IV 4.0 credit hours

Dance Electives
- Four semester hours from dance electives listed under B. A. requirements.

Studio Technique
- Select one course from the following:
  - DANCE 375 Top 2.0 credit hours
  - DANCE 376 Composition II 2.0 credit hours
  - DANCE 377 Major Modern Dance I 1.0 credit hour
  - DANCE 378 Beginning Ballet 2.0 credit hours
  - DANCE 379 Beginning Jazz 2.0 credit hours
  - DANCE 380 Intermediate Modern 2.0 credit hours
  - DANCE 381 Low Intermediate Modern 2.0 credit hours
  - DANCE 382 Low Intermediate Modern 2.0 credit hours

Dance Production
- Select one course from the following:
  - DANCE 373 Composition I 3.0 credit hours
  - DANCE 374 Composition II 2.0 credit hours
  - DANCE 377 Composition III 2.0 credit hours
  - DANCE 377 Composition IV 4.0 credit hours

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 must be in University of Iowa courses numbered 137-130 and above.

Honors Program

The 6- to 12-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 3.00 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 College of Liberal Arts Honors Program to graduate with honors in Dance.

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. degree program. Admission is based on an interview, a teaching and technique audition, review of videotaped choreographic work, and letters of recommendation. The M.F.A. degree 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.

Prerequisites

Advanced technique
Rhythmic analysis 2 s.h.
Dance production 3 s.h.
Dance history 6 s.h.
Anatomy 3 s.h.
Aesthetics 3 s.h.
Practicum 4 s.h.
Compositions IV 5 s.h.

Required Courses

Dance Theory
240/241 Physiological Responses to Exercise and Training 3 s.h.
137/137 Ballet Pedagogy 3 s.h.
137/138 Teaching of Modern Dance I 3 s.h.
137/137 Dance Theory 3 s.h.
137/138 Dance Performance 5 s.h.
137/139 Independent Choreography 2 s.h.
137/294 Seminar Dance II 2 s.h.
137/401 Thesis 3 s.h.
137/522 Graduate Production Practicum 1 s.h.

Dance Technique

Twenty-two-semester hours from the following:
137/194 Major Modern Dance I 1.5 s.h.
137/195 Major Modern Dance II 1.5 s.h.
137/196 Major Modern Dance III 1.5 s.h.
137/197 Major Ballet I 1.5 s.h.
137/198 Major Ballet II 1.5 s.h.
137/199 Major Ballet III 1.5 s.h.

Required Non-Dance Courses

A total of 6 semester hours at the 100 level or above must be earned from courses other than Dance with a 157 prefix. These courses, selected for the student and approved by the student's advisor, usually are from the disciplines of art and art history, music, theater, broadcast and film, physical education, and English.

All M.F.A. candidates must take both a ballet and a dance technique course during their first two semesters in residence at The University of Iowa. Electives

Departamental or nondepartmental 6 s.h.

Facilities

The dance department has some of the finest facilities in the country: six technique studios, two classrooms, video viewing and Labanotation computer rooms, a library, and its own performance theater space for internal concerts. In addition, Hatchet Auditorium is available for formal concerts.

Courses

Primarily for Undergraduates

130/190 Cooperative Education Internship 0 s.h.
137/105 Tap Introduction, may be repeated.
137/106 Continuing Tap Continuation of 137/105 may be repeated.
137/107 Intermediate Tap High-level instruction, may be repeated.
137/108 Major Modern Dance I Interim level (may be repeated).
137/109 Beginning Ballet I Required or recommended for beginners. May be repeated.
137/110 Continuing Ballet I Intermediate level. May be repeated.
137/111 Continuation Ballet I Required or recommended for beginners. May be repeated.
137/112 Low Intermediate Ballet Low-intermediate level. May be repeated.
137/114 Intensive Training for the Male Dancer Beginning course is upper level. Open only to majors. May be repeated.
137/115 Major Ballet I Intermediate level. May be repeated.
137/116 Introduction to Dance Survey 1 s.h.
137/297 Beginning Jazz Introduction to jazz. May be repeated.
137/298 Advanced Jazz Advanced level. May be repeated.
137/298 Low Intermediate Jazz Jazz for beginners. May be repeated.
137/298 Advanced Jazz Advanced level. May be repeated.
137/299 Dance Production Survey of accompanying arts of dance production: music, costume, stage, lighting, choreography, and history. 3 s.h.
137/391 Rhythmic Analysis of Dance Rhythm and its relationship to dance. 2 s.h.
137/521 Beginning Modern Dance Broadens technique for beginners. May be repeated.
For Advanced Undergraduates

18.01 Honor Sozialwerk

18.02 Supply Theory: An Economics

18.04 Readings and Independent Study (Economics)

18.05 Priority for Graduates

With consent of the department chair, qualifying students may elect to enroll in courses listed for graduate students.

18.06 Prior Price Theory

These requirements are intended to provide an introduction to price theory, market equilibrium, and welfare economics.

18.03 Microeconomics I

18.04 Microeconomics II

18.06 Macroeconomics

18.07 Economics of Natural Resources and Environmental Economics

18.08 Microeconomics III

18.09 Macroeconomics II

18.10 Advanced Macroeconomics

18.11 Introduction to Econometrics

18.12 Econometrics

18.13 Econometrics II

18.14 Econometrics III

18.15 Econometrics IV

18.16 Economic Theory I

18.17 Economic Theory II

18.18 Economic Theory III

18.19 Economic Theory IV

18.20 Topics in Economic Theory

18.21 Advanced Macroeconomic Theory

18.22 Macroeconomic Policy Alternatives

18.23 Development Policy and Planning in the Third World

18.24 International Trade Theory

18.25 Theory of International Trade

18.26 Macroeconomic Theory

18.27 Money Theory

18.28 Labor Economics

18.29 Industrial Organization

18.30 Industrial Organization II

18.31 Industrial Organization III

18.32 International Trade

18.33 International Economics

18.34 International Economics II

18.35 International Economics III

18.36 International Economics IV

18.37 International Economics V

18.38 International Economics VI

18.39 International Economics VII

18.40 International Economics VIII

18.41 International Economics IX

18.42 International Economics X

18.43 International Economics XI

18.44 International Economics XII

18.45 International Economics XIII

18.46 International Economics XIV

18.47 International Economics XV

18.48 International Economics XVI

18.49 International Economics XVII

18.50 International Economics XVIII

18.51 International Economics XIX

Primary for Graduates

These requirements are intended to provide a comprehensive understanding of the theory of free, distorted, market equilibrium, and welfare economics.

18.03 Microeconomics I

18.04 Microeconomics II

18.06 Macroeconomics

18.07 Economics of Natural Resources and Environmental Economics

18.08 Microeconomics III

18.09 Macroeconomics II

18.10 Advanced Macroeconomics

18.11 Introduction to Econometrics

18.12 Econometrics

18.13 Econometrics II

18.14 Econometrics III

18.15 Econometrics IV

18.16 Economic Theory I

18.17 Economic Theory II

18.18 Economic Theory III

18.19 Economic Theory IV

18.20 Topics in Economic Theory

18.21 Advanced Macroeconomic Theory

18.22 Macroeconomic Policy Alternatives

18.23 Development Policy and Planning in the Third World

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18.27 Money Theory

18.28 Labor Economics

18.29 Industrial Organization

18.30 Industrial Organization II

18.31 Industrial Organization III

18.32 International Trade

18.33 International Economics

18.34 International Economics II

18.35 International Economics III

18.36 International Economics IV

18.37 International Economics V

18.38 International Economics VI

18.39 International Economics VII

18.40 International Economics VIII

18.41 International Economics IX

18.42 International Economics X

18.43 International Economics XI

18.44 International Economics XII

18.45 International Economics XIII

18.46 International Economics XIV

18.47 International Economics XV

18.48 International Economics XVI

18.49 International Economics XVII

18.50 International Economics XVIII

18.51 International Economics XIX
Advanced Graduate Seminars

3.008 Reading in Advanced Economis

Undergraduate seminars for seniors paper topics, prepared and culminated, are selected. Prerequisites: subjects 14.50 and 25.35.

3.010 Seminar in Economic Theory

Course of a seminar required.

3.011 Seminar in Microeconomics

Seminars of a seminar are required.

3.012 Seminar in Macroeconomics

Course of a seminar is required.

3.013 Seminar in econometrics

Course of a seminar is required.

3.014 Workshop in Macroe and Monetary Economics

Course of a seminar is required.

3.015 Workse in Monetary Econometrics

Course of a seminar is required.

3.020 Reading in Advanced Economic Theory

Undergraduate seminars for seniors paper topics, prepared and culminated, are selected. Prerequisites: subjects 14.50 and 25.35.

3.021 Seminar in Economic Theory

Course of a seminar required.

3.022 Seminar in Microeconomics

Seminars of a seminar are required.

3.023 Seminar in Macroeconomics

Course of a seminar is required.

3.024 Workshop in Macroe and Monetary Economics

Course of a seminar is required.

3.025 Workse in Monetary Econometrics

Course of a seminar is required.

EDUCATION

See "College of Education."

ENGLISH

Chair: John Bartho


Undergraduate Programs

The English major provides students with a solid core of interpretive, analytical, and writing skills rather than a syllabus wide of any particular literary history or theory. The department's goal is to offer a wide range of undergraduate programs designed to foster students' abilities to think critically, to write effectively, to read widely and critically, and to respond to the rich diversity of literary and cultural forms and experiences.

Bachelor of Arts

A Bachelor of Arts degree in major is available for students with a minimum of 31 semester hours of credit in courses offered by the Department of English at least 3 of which must come from courses dealing principally with literature written before 1800 and at least 18 of which 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 reading courses;

3 semester hours in auditors' courses, in which no more than two auditors are studied;

3 semester hours in literature and culture courses;

3 semester hours in cultural studies courses.

These requirements apply to all students who declare an English major following the close of the spring 1969 semester.

The Schedule of Classes for each semester specifies which English majors department courses lie above the all-alphabetical courses. The requirement of at least 3 semester hours focusing on literature written before 1800 may be satisfied by courses that also satisfy other requirements for the major. Only 5 semester hours of credit writing courses may be applied toward the 33 semester-hour total for the major.

Students interested in the English major should consult the director of undergraduate program for English departmental offices. 3/38 English Philosophy Building. The Handbook for the English Major offers a more detailed view of the requirements, program requirements, and procedures for the major. It is available from the Director of undergraduate program.

General Education Requirements for English Majors

Students who declare English majors may count the following General Education requirements toward the 33 semester hours required for the English major.

Minor

In English requires 15 semester hours of coursework in Department of English courses with a grade-point average of 2.00. Twelve of these semester hours should be counted toward the major. One course above the 1st year in the General Education courses are not used toward the minor.

Honors

The English major with honors offers talented students the opportunity to enhance their course of study through additional study and research.
special courses and independent study. Each year the department offers several honors courses and a number of special courses covering a wide range of historical and artistic periods. Students who wish to earn a degree with honors have two options. They may

- write a comprehensive examination during the junior and senior years, and then write the three essay papers on seminar papers and, with an introduction, present them as the honors project, or
- two of the seminars, preferably in the junior year, and then, in the senior year, write an honors thesis under the supervision of a faculty member. A creative thesis is possible under the second option, but only rarely and with permission of the Writers’ Workshop.

Students interested in more information should contact the chair or any member of the honors committee. The names of the committee members and their office hours are available in the English department office, 305 English-Philosophy Building. A workshop, Guidelines and Deadlines, which describes both options for the final project in greater detail and specifies the deadlines for turning in the project and the final honors project, is also available in the English office.

Creative Writing

Many undergraduates come to The University of Iowa because of the university’s creative writing program. With the consent of his or her advisor, any student may elect the undergraduate courses in this program. These are English 192: Creative Writing, English 195: Fiction Writing, and English 199: Poetry Writing.

Admissions to the undergraduate workshops in fiction and poetry (English 192, 195, and 199) are by portfolio. Prospective English students should visit the Creative Writing Workshop, Fiction 194 and 195, and 198. The workshop does not require a portfolio of work, but it is important to discuss writing with faculty members in the workshop and to attend the workshop’s regular meetings.

The workshop is designed to give student a general introduction to literary fiction and poetry, and major works of English and American literature. Students will explore the literary tradition and its role in contemporary society.

The workshop is designed to give student a general introduction to literature and its role in contemporary society. Students will explore the literary tradition and its role in contemporary society.

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English and Education

The department offers a flexible undergraduate degree program for students planning to teach English in elementary and secondary schools. Students who complete this program satisfy the requirements for a secondary license in English and in teaching certification.

Students who wish to be certified to teach English in Iowa secondary schools should select courses that fulfill the state guidelines for English teachers in grades seven through twelve.

Literary study for students planning to teach English should emphasize a range of close reading experiences in different kinds of literary works. For example, students might explore the world of Shakespeare, Bronte, literature of the sixteenth and seventeenth centuries, American literature, literature for adolescents, and other topics. Students are required to take 75-115 credits in English, 50-70 credits in English literature, and 50-70 credits in English literature, in order to be considered for certification.

In addition, students must complete 30-70 semester hours of English, excluding freshmen courses in rhetoric, creative, or writing.

The English minor certification program must include a course in each of these areas: advanced composition, an introduction to teaching high school writing, and some advanced literature or composition courses.

The program’s flexibility allows students to tailor their curricula to their specific needs, while providing the necessary knowledge and skills necessary for the successful teaching of English at the secondary level.

Graduate Programs

Master of Arts (Literary Studies)

The M.A. in English is a program for students who want to acquire an understanding of the relationships between literature, language, and society. The program offers courses in the history of English, American literature, and comparative literature.

Admissions to the M.A. program are by portfolio. Prospective students should visit the Creative Writing Workshop, Fiction 194 and 195, and 198. The workshop does not require a portfolio of work, but it is important to discuss writing with faculty members in the workshop and to attend the workshop’s regular meetings.

The workshop is designed to give student a general introduction to literature and its role in contemporary society. Students will explore the literary tradition and its role in contemporary society.

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Thesis or Comprehensive Examination

The student has two ways to complete the program. 

- The usual sequence is an eight-hour written comprehensive examination based on the material covered in the various periods of English and American literature. Students may obtain copies of the current reading list from the English and American literature faculty. The examination consists of 60 multiple-choice questions, 40 true/false questions, and 5 essay questions.  
- Students with strong academic records, solid writing skills, and a desire to explore a specific topic at length may petition the Graduate Studies Committee for permission to write a thesis. The thesis committee will consist of two members of the English faculty and a member of the history, English, or American literature faculty. The thesis consists of a comprehensive research paper written under the supervision of the committee and is submitted in final form for examination by three members of the committee. 

Master of Fine Arts (Expository Writing)

This program is designed for persons wishing to become essayists, freelance writers, editors, or writing teachers. 

To qualify for the M.F.A. with emphasis in expository writing, students must complete 30 semester hours of graduate work with a grade-point average of no less than 3.00. At least 24 semester hours must be earned in residence at the University of Iowa. 

In consultation with an advisor, each student designs a program of study suited to his or her professional interests. Thus, each student's plan of study is highly individualized and may include coursework in widely different areas and departments. 

Finally, each student produces a thesis, which may be an extended essay, a collection of essays, or a project involving some original body of expository writing. The thesis must be evaluated by at least two readers and submitted to the graduate college for approval. 

Students interested in this program should consult the director of the M.F.A. with emphasis in expository writing.

Master of Fine Arts (Creative Writing)

The purpose of the M.F.A. program is to provide professional guidance and an stimulating environment for students with previous achievement or notable promise in writing. The creative writing requirements include 48 semester hours of graduate credit, earned chiefly in the Writers' Workshop, a collection of courses or short stories, or a novel; and satisfactory performance on an examination in modern poetry or fiction. 

Doctor of Philosophy (Ph.D.)

The Ph.D. program is designed as preparation for the teaching, publishing, and 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 full residence at The University of Iowa. 

Common requirements are possible in such areas as literary history, literary theory, generic criticism, statistical theory, stylistics, writing theory and pedagogy, folklore, bibliography, comparative literature, and linguistics. 

Requirements for the Ph.D. include: 

- Final examination in candidates' area of special proficiency. 
- Three seminars taken at The University of Iowa. 
- An oral examination covering written examinations in two areas, one of which must be a paper on an English or American literary history, and an "open" area. 
- A dissertation, which usually a scholarly work, may, in rare cases, with permission, be a novel on a collection of poems or short fiction. 
- 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

Financial aid is available to graduate students in the form of scholarships, fellowships, and teaching and research assistantships. It is awarded on a competitive basis. 

The 1982-83 graduates received, in addition to teaching or research assistantships, a total of $60,468. Scholarships, internships, and special assistantships totaled $17,500, with a total of $47,500 in federal aid. 

Scholarships are available from the English department and the university's Office of Financial Aid. 

Admission

Admission requirements are stated in General Requirements and Information/Graduate Admissions, which is available from the English department graduate office, 329 English-Philosophy Building. 

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. In 1922 it became the first institution of higher education to accept creative dissertations for advanced degree programs. Founded in 1958, the Writers' Workshop was a pioneer in the field of creative writing. It serves without distinction of poets and writers 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 tutorials and readings. 

The International Writing Program, founded in 1966, brings numbers of prominent foreign writers to campus each year. The University of Iowa also has a leader in the area of expository writing and rhetorical theory. 

The University of Iowa is one of the few academic institutions in the nation that offers a full range of graduate course work in this area. 

Facilities

The library is strong in all areas of English and American literature. Partly 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 Zinman Reading Room (in the department 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 name: The Iowa Review, The Mystery Quarterly, The Writers' Workshop Quarterly Review, and Philological Quarterly. These provide opportunities for aspiring students to work as research assistants or editorial assistants. The Iowa Review of English offers students of English as a second language the opportunity to learn the way of print. 

The Department of English, the Writers' Workshop, and the International Writing Program sponsor a rich and extensive
courses of readings and lectures by poets, practitioners, 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 the English courses listed here are not included because courses and syllabi may vary considerably from semester to semester. This detailed course description is for all undergraduate courses at a specific semester and section. Detailed course descriptions for a semester’s graduate courses are available in the English department office well in advance that semester.

General Education
Literature

The General Education Requirement in the humanities is satisfied by taking RG.1. The Interpretation of Literature and two other approved humanities courses, RG.2 (or its equivalent by examination or transfer) is a prerequisite for the other courses (RG.2 through RG.5) and must be taken first. The pass/pass-fail option is available only for students majoring in English, literature, and English and philosophy.

Students must successfully complete the program of study before they may graduate with a degree.

RG.1 The Interpretation of Literature 3 s.h.

Poetry, short fiction, drama, and the novel: English, Irish, and American. (Hum; HSSs; Humanities; Prerequisite: RG.2.)

RG.2 Biblical and Classical Literature 3 s.h.

Selections from Old and New Testament literature. Greek literature, Greek translation, Latin, Greek, and Latin. (Hum; Humanities; Prerequisite: RG.1.)

RG.3 Medieval and Renaissance Literature 3 s.h.

Selections from Medieval, Castiglione, Chaucer, Shakespeare, Milton, and others. (Hum; Humanities; Prerequisite: RG.2.)

RG.4 Epic and Tragic Literature 3 s.h.

Selections from the principal English, Greek, and Latin works. (Hum; Humanities; Prerequisite: RG.2.)

RG.5 The Forms of Greek Tragedy 3 s.h.

The form of classic tragedy. An introduction to the basic ideas of Greek and Roman theater. (Hum; Humanities; Prerequisite: RG.2.)

RG.6 Narrative Literature 3 s.h.

Selected narratives and essays for their influence in the art of storytelling and in the study of character. (Hum; Humanities; Prerequisite: RG.2.)

RG.7 Lyric Poetry 3 s.h.

Selected poems and essays on the form of lyric poetry. (Hum; Humanities; Prerequisite: RG.3.)

RG.8 Literature of the Hunter 3 s.h.

Selected readings in the literature of hunting and the animals of North America. (Hum; Humanities; Prerequisite: RG.2.)

RG.9 American Lives 3 s.h.

Major works of American autobiography. (Hum; Humanities; Prerequisite: RG.2.)

RG.10 The Personal Voice 3 s.h.

The nature of the author’s “voice” in a given story, novel, short story, and personal essays. (Hum; Humanities; Prerequisite: RG.2.)

RG.12 Comic and Tragic Literature 3 s.h.

Imagery of comedy and tragedy, their contrasts and their connections with human experience. (Hum; Humanities; Prerequisite: RG.2.)

RG.16 Literature of the African People 3 s.h.

Selected readings in English by authors of African descent from American, Caribbean, and African literature. (Hum; Humanities; Prerequisite: RG.2.)

RG.26 Women and Literature 3 s.h.

Women’s role in literature and its role in society. (Hum; Humanities; Prerequisite: RG.2.)

Primarily for Undergraduates

English department majors are open to all undergraduates who have satisfied the prerequisite course in the English department. English majors are required to take at least one course from the first list ( rg.1).

Readings

These specializations described courses are intended for English majors, other students with considerable experience in the study of literature should consult the instructor before registering.

RG.34 Reading Poetry 3 s.h.

RG.35 Reading Prose 3 s.h.

RG.36 Reading Short Stories 3 s.h.

RG.37 Reading Plays 3 s.h.

RG.38 Reading Essays 3 s.h.

RG.39 Reading Criticism 3 s.h.

Auto-OPs

RG.41 Chaucer 3 s.h.

RG.42 Shakespeare 3 s.h.

RG.43 Milton 3 s.h.

RG.44 Selected American Authors 3 s.h.

RG.45 Selected Modern American Writers 3 s.h.

RG.46 Selected Authors 3 s.h.

RG.47 Selected Authors 3 s.h.

RG.48 Selected Authors 3 s.h.

RG.49 Selected Authors 3 s.h.

RG.50 Selected Authors 3 s.h.

RG.51 Selected American Writers 3 s.h.

RG.52 Selected American Writers 3 s.h.

RG.53 Selected American Writers 3 s.h.

RG.54 Selected American Writers 3 s.h.

RG.55 Selected American Writers 3 s.h.

RG.56 Selected American Writers 3 s.h.

RG.57 Selected American Writers 3 s.h.

RG.58 Selected American Writers 3 s.h.

RG.59 Selected American Writers 3 s.h.

RG.60 Selected American Writers 3 s.h.

RG.61 Selected American Writers 3 s.h.

RG.62 Selected American Writers 3 s.h.

RG.63 Selected American Writers 3 s.h.

RG.64 Selected American Writers 3 s.h.

RG.65 Selected American Writers 3 s.h.

RG.66 Selected American Writers 3 s.h.

RG.67 Selected American Writers 3 s.h.

RG.68 Selected American Writers 3 s.h.
FRENCH AND ITALIAN

Chair: John T. Mrozek
Professor: Charles F. Allen, Jacques A. Bouvier, Sarah Devesa, Nicholas Gold, Steven Ogan
Associate Professor: Janet G. Altman, Todd W. Cooper, Sarah Dallapi, Muriel Escobedo, Daniel Johnson, Lisa Volz

Undergraduate Programs

The department introduces students to the cultures of France and Italy, provides an understanding of those countries’ historical and contemporary perspectives, and facilitates development of proficiency in the French and Italian languages. It also fosters critical appreciation of French and Italian literature and civilization.

Students may choose from a variety of programs of majors in French and Italian and electives for nonmajors with appropriate linguistic skills. They are allotted flexible means to meet the foreign language General Education Requirement of the College of Liberal Arts and to satisfy individual needs and interests.

Students majoring in French or Italian may combine their studies with courses in education (see the “College of Education” section of the Catalog) to prepare for jobs in high school teaching. They may go on to graduate study in such fields as French, comparative literature, or history as preparation for college teaching. Or, in combination with other skills and studies, a major in French or Italian may prepare students for challenging career opportunities in the international areas of government, business, finance, travel, or diplomacy, where the knowledge of a foreign language is essential.

Bachelor of Arts in French

The undergraduate major in French may be completed with an emphasis in literature, civilization, teaching, or applied French. Courses taught in English as not count as credit toward the French major, nor does a grade of D in any required French course.

Literature Track

The literature track is designed for students who are interested in French literature or are considering the study of French literature with a major in another area, such as English, comparative literature, cinema, or film arts. It requires a total of 33 semester hours of credit in French, including:

- 910-116: Second-Year Composition and Conversation 5 s.h.
- 910-112: Third-Year Composition 5 s.h.
- 112 French Conversation: Third Level 2 s.h.
- 913: French Conversation: Fourth Level 2 s.h.
- 915: Advanced French Pronunciation 2 s.h.
- 925: French Pronunciation 2 s.h.

A minimum of four (104-hour) courses in literature (at least two of which must be above the 151 level) plus a fifth 100-level credit for a choice of literature, advanced language, or civilization, totaling 15 semester hours.

Civilization Track

The civilization track is designed for students interested in French history, politics, and culture and recommended for students who want to combine studies in French with a major in another area, such as history, political science, prelaw, or journalism and mass communication. It requires 35 semester hours of credit in French, including:

- 910-116: Second-Year Composition and Conversation 8 s.h.
- 911-117: Third-Year Composition 8 s.h.
- 915: Advanced French Pronunciation 2 s.h.
- 916 French Conversation: Fourth Level 2 s.h.
- 916 French Conversation: Fourth Level 2 s.h.

A minimum of four (100-level) courses in civilization and three (100-level) courses in literature, totaling 15 semester hours and including at least one course in literature below the 151 level.

Teaching Track

The teaching track requires 35 semester hours of credit in French, including:

- 910-106: Second-Year Composition and Conversation 8 s.h.
- 911-117: Third-Year Composition 6 s.h.
- 925: Advanced French Pronunciation 2 s.h.
- 916 French Conversation: Third Level 2 s.h.
- 916 French Conversation: Fourth Level 2 s.h.

A minimum of five (100-level) courses—at least two in literature and two in civilization—totaling 15 semester hours and including at least two courses above the 151 level.

The student who plans to acquire a secondary teaching certificate also must complete the requirements for teacher certification. See the “College of Education” section of the Catalog.

Applied French Track

The applied French track is designed for students with an interest in areas such as international business, communication, law, and others in which applied French would be an asset. It requires 39 semester hours in French, including:

- 910-106: Second-Year Composition and Conversation 8 s.h.
- 911-112: Third-Year Composition 6 s.h.
- 915: Business French 3 s.h.
- 916 French Conversation: Third Level 2 s.h.
- 916 French Conversation: Fourth Level 2 s.h.

EXERCISE SCIENCE

See “Division of Physical Education.”
Summer Program in Quebec
The department participates in the Semester on International Cooperation (SIC) Summer French Program in Quebec at the Université Laval. The SIC is a nonprofit organization whose purpose is to foster cooperation and educational opportunities among the Big Ten universities and the University of Quebec at Montreal. Within the Centre d'Etude pour l'Inter-Université du Quebec, 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 examine close cooperation with the Mission Francophone in the Foreign Language House at Hubbard Residence Hall. Residents include culture 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 36 semester hours of credit and pass a written and oral examination. The program must include 9.175 Advanced French Pronunciation, 9.210 Comparative Syntax, and at least four graduate-level (200-400 level) literature courses. With the permission of the departmental chair, candidates may take up to 6 of the required 36 semester hours outside the department.

Master of Arts in French with Thesis
The requirements for the thesis program are the same as for the non-thesis program, 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 36 semester hours of graduate credit, of which 6 may be in education or related fields, and at least 9 in graduate (200-level) courses in French literature.

The following courses also are suggested: 9.151 Textual Analysis 3.0

Doctor of Philosophy
To satisfy requirements for the Ph.D. degree in French, candidates must complete at least two years of graduate study, 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 minimum total of 9 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 9.271 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 the M.A. program in French, applicants must have completed the equivalent of two years of college-level French study, and a minimum degree and grades. Students with weaker French background may make up deficiencies in prior training by taking appropriate courses.

The M.A. in French is prerequisite to admission to the Ph.D. program in French. Students entering in the M.A. program, however, do not necessarily qualify for admission to the Ph.D. program.

For students enrolling in the M.A. at The University of Iowa, the M.A. comprehensive examination committee makes a recommendation concerning admission to the Ph.D. program. Students applying for doctoral candidacy with the M.A. earned at another institution must have a conditional status when admitted. This status is reviewed after one semester of residence.

The Graduate Record Examination (GRE) is 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
Italian Courses

A detailed description of courses offered each semester is available in the department office. All courses are given in Italian unless otherwise indicated. Students may not repeat for credit a course that is a prerequisite to, or whose equivalent is a prerequisite for, a higher level course that they have already completed.

Primarily for Undergraduates

48 Elementary Italian 3 h. For students who have no knowledge of Italian. GER: foreign language. Prerequisite: Intermediate Italian or equivalent.

48 Elementary Italian 4 h. For students who have no knowledge of Italian. GER: foreign language. Prerequisite: Intermediate Italian or equivalent.

58 Intermediate Italian 3 h. GER: foreign language. Prerequisite: 48 or equivalent.

58 Intermediate Italian 3 h. GER: foreign language. Prerequisite: 48 or equivalent.

58 Intermediate Italian 3 h. GER: foreign language. Prerequisite: 48 or equivalent.

58.60 Contemporary Italian Literature, Prerequisite: 58.1 or 58.2. GER: foreign language. Prerequisite: 58.1 or equivalent.

58.60 Contemporary Italian Literature II Prerequisite: 58.1 or equivalent.

58.65 Special Work 4 h.

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Guidelines
Each plan of study submitted for approval must provide the following information:
A description of academic goals for the bachelor's degree, with a clear statement of the minimums for passing the B.G.S. program for key departmental program.
A list of advanced-level course work already completed and a description of its relevance to the proposed plan of study.
An outline of advanced-level course work planned for all remaining semesters, noting how the courses are related 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 B.G.S. advisors. 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 reapplication at the next committee meeting. In some cases, the student may be referred to a more appropriate departmental major.
Students are required to follow for courses approved in the plan of study with each semester's registration. A limited number of substitutions may be allowed, but only if they are clearly consistent with the main focus of concentration in the approved plan of study and only if they are approved in advance by the B.G.S. advisor. Unauthorised substitutions may be designated as elective coursework.
Significant changes in the focus of a student's plan of study require the reinspection of approval of a revised plan of study. The student's academic advisor is consulted when the changes warrant a revised plan.
Forms and guidelines for preparing the plan of study are available in the Rockefeller of General Studies/Interdepartmental Studies Office (126 W. 116th St., Office of Academic Programs, 116 W. 116th St., a list of meeting times of the review committee is available each semester.

B.G.S. Requirements
In addition to having an approved plan of study, students must complete the following requirements for the B.G.S. degree.

General Education Requirements
Students must complete the College of Liberal Arts General Education Requirements, including two 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 least 36 semester hours of advanced course work at The University of Iowa. This includes both upper- and lower-level course work, and both 100 and 200 level course work.

Restrictions
No more than 20 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 100 and 200 level course work.

Advanced Course Work
Students must complete at least 36 semester hours of advanced course work at The University of Iowa. This includes both upper- and lower-level course work, and both 100 and 200 level course work.

Grade-Point Average
Students must achieve a grade-point average of at least 2.0 in all college work attempted, all college work undertaken at The University of Iowa, and all advanced course work attempted.

Total Hours Earned
Students must earn a minimum of 124 semester hours of credit.

Communication Studies
All courses numbered 360-369 and above All courses numbered M20-00 and above

Comparative Literature
441-46 Major Texts in World Literature I 3 s.h.
441-51 Major Texts in World Literature II 3 s.h.
450 Non-Western Literary Traditions 3 s.h.
450 Undergraduate Seminar 3 s.h.

Computer Science
220-21 Algorithms and Data Structures 3 s.h.
220-23 Programming Language Concepts 3 s.h.
220-31 Digital Systems and Computers 3 s.h.
220-32 Introduction to Systems Software 3 s.h.
220-51 Computer Graphics 3 s.h.
220-55 Elementary Numerical Analysis 3 s.h.
Graduate Programs

The interdepartmental Ph.D. program in genetics is designed to promote collaborative investigations 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 population genetics. Within this context, course requirements are flexible enough to permit students to tailor their formal work to their individual needs. All students enrolled in the program are required to take 99:130 Biochemistry and Molecular Biology II. 2:215 Genetics Seminar (same as 21:235, 41:235, 99:215), and either 17:171 Molecular Genetics or 14:251 Molecular Biology. In addition, they must earn a total of at least 10 semester hours in molecular and microbial genetics, cell and developmental genetics, and quantitative and population genetics. Even more important than formal course work is the opportunity for each student to complete a doctoral dissertation. The University is also strong in several related disciplines, including microbiology, microbiology, virology, genetics, biochemistry, and developmental, cell, and population 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 within their first two years in the program.

Admission

Prospective doctoral students in genetics should have a strong undergraduate background in science, including proficiency in general genetics, organic chemistry, introductory physics, and mathematics, as well as a strong commitment to genetic research and training. 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. About all students currently working toward the Ph.D. in genetics at The University of Iowa have undergraduate grade-point averages higher than 3.20, and their average GRE Aptitude Test score (verbal plus quantitative) exceeds 1300. 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 aid that is in the range of $11,000 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 encouraged to do some teaching as part of their development as scientists and teachers.

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, Biology, Botany, and Microbiology offer degree programs, which students may specialize in a particular aspect of genetics. See the appropriate departmental sections in the Catalog for information about these programs.

Courses
The following genetics courses are open to graduate students. Not all courses are offered every year.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>490:190</td>
<td>Biochemistry II</td>
<td>4 s.h.</td>
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<tr>
<td>490:223</td>
<td>Cell Expression</td>
<td>1-2 s.h.</td>
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<tr>
<td>490:104</td>
<td>Genetics and Biogenesis of Cell Organization</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>490:210</td>
<td>Plant Molecular Biology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>490:327</td>
<td>Animal and the Environment</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>490:270</td>
<td>Topics in Molecular Biology</td>
<td>2-3 s.h.</td>
</tr>
</tbody>
</table>

Carey opportunities for majors in geography exist in many branches of government and in business. To demand are persons capable of dealing with resources management, regional development, market area analysis, and other problems related to the distribution and spatial interaction of physical, economic, social, and political phenomena.

Courses in geography are commonly required of students preparing to teach at the elementary and secondary school levels, those who want to work in urban and regional planning, and as a background for many related professions, including law, health care, environmental or transportation engineering, and business administration.

Undergraduate Programs
The geography faculty has developed an undergraduate instructional program that serves students interested in acquiring a major or minor in geography, as well as those concentrating in other disciplines who are interested in electing geography courses as part of a liberal education. The department also participates in interdepartmental programs involving global, urban, and environmental components.

Bachelor's Degrees
Each student majoring in geography is one of the following three concentration areas: urban and regional studies, international development studies, or environmental studies.

Majors who wish to work toward a Bachelor of Science or Bachelor of Arts degree. Students who plan advanced training or careers in geography should elect the B.S. degree. Those pursuing a liberal arts objective may elect the B.A. or B.S. degree.

General Requirements
All geography majors must complete one of the following computer programming courses:

321C Introduction to Computing with PASCAL 3 s.h.
325C Introduction to Programming with PASCAL 3 s.h.
Bachelor of Science students must satisfy a mathematics requirement consisting of one of the following two pairs of courses:

321C Calculus I 3 s.h.
322C Calculus II 3 s.h.
323C Calculus I 4 s.h.
324C Calculus II 4 s.h.
321C Calculus I 3 s.h.
322C Calculus II 3 s.h.
443c: Introduction to Economic Geography

Intermediate Courses

At least two of these:
44130 Location Strategy of Firms
44132 Industrial Localization
44133 Introduction to Transportation
44135 Urban Geography

Methods Courses

All of these:
44136 Statistical Methods of Geospatial Analysis
44137 Computer Methods in Geospatial Analysis
44139 Undergraduate Seminar for Geography Majors

Advanced Courses

Students are required to take at least one course each from group A and B.

Group A

44154 Methods of Transportation
Analysis
44155 Economic Theory of
Location
44156 Economic Analysis of Urban
Space

Group B

44156 Contemporary Europe:
Interaction and Change
44157 Geography of the U.S. and
Canada
44157 Location Conflict

International Development Studies

The concentration in international development studies is designed for students interested in the processes of economic, social, and political development, particularly as they affect the countries of the Third World. 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. Prerequisites are listed in course descriptions. See "Courses" at the end of this section of the Catalog.

Introduction Courses

441 Introduction to Human Geography 4 s.h.
443 Introduction to Physical Geography 4 s.h.
At least one of these:
441 Introduction to Social Geography 3 s.h.
443 Introduction to Political Geography 3 s.h.
Courses for the Nonmajor

Students in the College of Liberal Arts as well as other areas of the University may find geography courses valuable to their own areas of study. The beginning-level courses 44.1 Introduction to Human Geography, 44.11 Introduction to Social Geography, 44.12 Cultural Geography, and 44.13 Environmental Issues and 44.30 Introduction to Economic Geography are approved for the General Education Requirement in social sciences. 44.157 Third World Development Support is approved for the General Education Requirement in natural sciences. These courses serve as part of a liberal education. Other courses may also be attractive as individual electives. These include 44.15 Introduction to Physical Geography, 44.35 World Cities, 44.125 Water in the Biosphere, 44.128 Drainage Basin: Form and Process, and 44.165 Geography of the Modern World, and 44.171 Energy in Contemporary Society.

Graduate Programs

The goals of the department's graduate program are to prepare students to carry on creative and productive research in selected areas of the discipline, to improve the use and further elaboration of theory, and to prepare students for positions in research, teaching, or some areas of applied geography. Success in achieving these goals has been demonstrated by the strong competition that University of Iowa graduates find in positions on college and university faculties, in private research organizations, and in business and government.

The department offers specialized instruction in both theoretical and applied geography at the college level for those pursuing major or minor programs. 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 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, water resources management, and transportation as well as for those who wish to pursue the Ph.D.

Each subprogram cuts across some of the more traditional breakdowns of the discipline and builds on the research specialties of the faculty. For example, topics of interest in urban geography are...
Subprogram Requirements

**Locational Analysis**
44:134 Methods of Transportation Analysis 3.0 h.
44:137 Economic Theory of Location 3.0 h.
6E:202 Price Theory 3.0 h.
6E:203 Microeconomics I 3.0 h.
Three of these:
44:216 Behavioral Analysis in Geography 3.0 h.
44:226 Travel Demand Modeling 3.0 h.
44:228 Urban Economics and Urban Special Structure 2.0 h.
44:285 Methods of Regional Analysis Regional Science 3.0 h.
44:293 Advanced Location Theory 3.0 h.
44:320 Research Seminar: Location Theory 3.0 h.

**Physical Geography**
44:123 Landscape Ecology 3.0 h.
44:128 Drainage Basin Form and Process 3.0 h.
44:113 Geographic Information Systems 3.0 h.
44:528 Research Seminar: Physical Geography 3.0 h.
44:450 Thesis 3.0 h.
Two of these:
44:225 Advanced Biogeography Landscape Ecology 3.0 h.
44:228 Advanced Earth Surface Processes 3.0 h.
44:225 Water Resources Systems Analysis 3.0 h.
Two from one of the following groups:
12:128 Quaternary Paleoecology and Palynology 5.0 h.
12:173 Quaternary Environments 3.0 h.
2:119 Plant-Animal Interactions 3.0 h.
or
12:123 Sedimentology 3.0 h.
12:172 Glacial and Paleoclimatic Geology 3.0 h.
53:170 Flow in Open Channels 3.0 h.
53:113 Mechanics of Sediment Transport 2.0 h.
or
53:152 Environmental Chemistry 3.0 h.
53:154 Environmental Microbiology 3.0 h.
53:155 Limnology 3.0 h.
53:251 Environmental Systems Modeling 3.0 h.
or
Equivalent group of courses
*M.A. thesis is required of all students in this subprogram.*

**Political Geography**
44:175 Locational Conflict 3.0 h.
44:273 Social Theory and Human Geography 3.0 h.
6E:202 Price Theory 3.0 h.
44:210 Philosophy and Methodology in Geography 3.0 h.
44:212 Political Economy of Regional Development 3.0 h.
44:270 Jurisdictional Organizations/Public Service Provision 3.0 h.
44:315 Research Seminar: Political Geography 3.0 h.

**Regional Development**
44:194 Geographic Perspectives on Development 3.0 h.
44:210 Philosophy and Methodology in Geography 3.0 h.
44:212 Political Economy of Regional Development 3.0 h.
44:294 Agrarian Change and Rural Development in the Third World 3.0 h.
44:394 Research Seminar: Regional Development 3.0 h.

**Transportation Systems Analysis**
*425:130 Probability and Statistics 3.0 h.
*4E:184 Introduction to Econometrics 3.0 h.
6E:202 Price Theory 3.0 h.
or
6E:203 Microeconomics I 3.0 h.
44:134 Methods of Transportation Analysis 3.0 h.
44:190 Travel Demand Modeling 3.0 h.
302:309 Transportation Policy and Planning 3.0 h.
302:291 Problems in Transportation Planning 3.0 h.
302:292 Urban Transportation Systems 3.0 h.

*Satisfies the M.A. and Ph.D. quantitative methods requirements.

**Water Resources**
44:120 Research Seminar: Water Resources 3.0 h.
44:150 Thesis (required of all students in the subprogram) 3.0 h.
The following courses, with at least 9 semester hours earned at the 400 level, may be used in the major:
44:126 Water in the Biosphere 3.0 h.
44:128 Drainage Basin Form and Process 3.0 h.
Three of these:
44:121 or 44:221 Natural Resources Management 3.0 h.
44:125 or 44:225 Environmental Impact Analysis/Water Resources Analysis 3.0 h.
44:127 or 44:227 Water Quality Control Systems 3.0 h.
44:129 or 44:229 Water Resources Management 3.0 h.

An additional sequence of three courses in social theory and regional development, social analysis, or social process, chosen under the direction of a faculty advisor, may include courses in other departments and may fill the out-of-subprogram requirement.
Students are expected to have an undergraduate background relevant to pursuing graduate work in one of the department's subprograms. The B.A. or B.S. degree in geography is not required for entry into the program. A strong analytical background in any of the social or environmental sciences and an interest in exploring the regional and spatial patterns and processes characterizing modern geography are the particular skills-important orientation of the student's background, as well as a demonstrated interest in the strength and suitability of their prior training; however, students may be required to take courses to fill certain prerequisites for courses in their selected 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 years. 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.

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. The student must present a dissertation which is an original contribution to knowledge and an expression of the expertise of the faculty. At the Ph.D. level, the student is expected to undertake a rigorous analytical orientation, particularly in the areas of locational analysis, spatial behavior, transportation, Third World regional problems, and economic political geography, physical geography, and water resources management.

The Ph.D. is a four- to five-year postbaccalaureate program, the first two years of which are dedicated to the student's department's M.A. program. Students can enter the program with advanced standing corresponding to 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. are subject to the degree requirements for the M.A. except for the M.A. equivalent. 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 in the major field of study 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. degree and is chosen from a list of courses approved by the faculty (students in the Ph.D. program are advised to fulfill both the M.A. and Ph.D. quantitative methods requirements—a total of 16 semester hours during their first year in residence).

Complete one additional research seminar under the direction of a faculty member who is not a Ph.D. student in the department's research seminar satisfying the student's M.A. requirement.

Register for the department's colloquium series, 400 series 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 thesis can admit the M.A. thesis to fulfill this requirement. Students entering the program with an M.A. from another institution can submit the faculty for research papers completed elsewhere to fulfill the requirement. Students who initially write the M.A. program with a terminal M.A. thesis degree objective and who complete that program can enter the Ph.D. program by fulfilling the research paper requirements. 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 which includes an abstract of progress to date, an outline of the areas of progress, a statement which indicates the student's plan to complete the dissertation. 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 tool requirements of the student's program of study.

Prior to taking the comprehensive examination consisting of 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. advisor, consists of a critical review of the student's areas 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 must then complete and defend the dissertation.

Before receiving the Ph.D. degree, students are expected to serve as both classroom instructors (or teaching assistants) and research assistants.

Admission

In addition to the general rules and regulations set forth in the General Rules and Regulations of the College, the department considers 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 assistantships as teaching or research assistantships are available. Awards are based on merit. Students usually must have a continuing score of 550 or higher on the 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 laboratory for computer cartography and spatial analysis equipment with DEC-20 and DEC-20 analog work stations, digitizers, and plotters. The laboratory is supported by a variety of GIS software packages including ERASE, ERIS, MAP, MAPEO, and TRANCE. The department also participates in an advanced GIS facility in the Center for Global and Environmental Research. The PCs and other terminals in the Geographic Information System Laboratory are connected to the University's SYEXE broadband communication network, which provides high-speed access to geodatabases, data archiving and visualization services. Courses are offered on University IBM, PRIME, and VAX computer systems.

Students also have access to a University computing cluster that contains IBM PCs, terminals, several printers, and a plottor. It
Honors
A degree with honors in geology is offered. Students in the honors program can elect a senior thesis.

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.

All beginning graduate students in geology must take 1107 Geologic Orientation.

All graduate students in geology must perform teaching, research, or related appropriate services as part of the degree program.

Prospective graduate students in geology 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.

Fellowship granting students are assigned to a general graduate advisor. Before the end of the second semester, the student has selected a minor area and related thesis topic. The department chair then approves a thesis adviser and the 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—e.g., for satisfactory development of research plans as outlined in a thesis proposal that is submitted for departmental approval.

Master’s degree candidates complete at least one-half of the M.S. degree and all requirements as part of the master’s program. Course work taken to satisfy these requirements does not count toward the seminar-hour requirements for the degree. To qualify for admission to the final major’s examination, the candidate must have at least a 3.0 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 3.0. No more than two semester-hour courses with a grade of C+ or D can be counted toward the degree, and research may be counted towards up to 30-semester-hour minimum required for the degree program.
M.S. with Thesis

Students are encouraged to select thesis topics involving a variety of geologic subdisciplines and scientific skills. Research topics might include field work or mapping, laboratory experiments, analytical work, or some combination.

M.S. without Thesis

The department encourages few students to pursue the M.S. without thesis. This program requires that applicants have approximately three months’ experience working under supervision of a professional geologist, or equivalent experience is some phase of geologic activity.

Students should receive prior faculty permission to apply the experience toward the degree. They must submit a written report on the activity, describing the geologic principles involved and its value and broader applications. No college credit is granted.

The M.S. degree 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. degree requires at least 24 semester hours of graduate study in professional education and at least 12 semester hours of graduate course work in earth sciences.

Doctor of Philosophy

The Ph.D. degree in geology requires at least 72 semester hours of graduate course work, not exceeding at least two full-time semesters in residence beyond the first 24 semester hours of graduate study.

Departmental language and test requirements for the Ph.D. degree may be met either by achieving competence in two languages or in one language and one tool, or by achieving proficiency in one language. Competence is usually achieved by satisfactory completion of a one-year sequence of appropriate courses, proficiency by satisfactory completion of a two-year sequence.

French, German, and Russian meet Departmental language requirements; statistics and computer science are suitable tool areas. In exceptional circumstances, the faculty may approve other languages or tool areas. Courses in related disciplines, such as botany, chemistry, physics, and biology, are not regarded as satisfying tool requirements, although they may provide indispensable background for geological specialization areas.

Course work taken to satisfy language and tool requirements may not be applied to credit requirements for the degree.

The following are the minimum requirements.

1. Satisfaction of course requirements for the M.S. degree in geology at the University of Iowa, where appropriate, additional work in one area may be approved as satisfying requirements in another.

2. An appropriate graduate course in another discipline, courses cross-listed between geology and other departments generally are not considered to meet this requirement.

3. At least 24 semester hours of graduate course work, exclusive of credits for dissertation research and beyond course work applied toward the M.S.

The comprehensive examination covers, in depth, all subdivisions of one major field and one subdivision in each of three other major fields. It also presents that the doctoral candidate is proficient in the basic elements of general geology, as presented by current elementary textbooks.

Major and Minor Fields

Economic Geology

Petroleum

Economic geology

Mineral economics

Mentionary

Cryotrology

Deteriminative mineralogy

Crystallography

Igneous and Metamorphic Petrology

igneous petrology

Metamorphic petrology

Aqueous geochemistry and thermodynamics

Structural Geology

Geotechnics

Structural analysis

Remote sensing

Geophysics

Geophysics

Solid earth geophysics

Rocks properties

Stratigraphy

Physical stratigraphy

Biostatigraphic

Depositional environments

Sedimentary Petrology

Sedimentation

Sandstone and carbonate petrology

Physical stratigraphy

Pleistocene Studies

Pleistocene geology

Vertebrate paleontology

Quaternary palynology

Paleontology

Palynology

Pleistocene

Biostratigraphy

General Geomorphology

Glacial and Pleistocene

Remote Sensing

Environmental Geology

Hydrogeology

Remote Sensing

Engineering geology

Other Minor Subjects

Atmosphere

Biology

Chemistry

Physics

Materials engineering

Geography

Hydraulics

Archaeology and anthropolgy

Science education

Others

Resources and equipment available for research in the Department of Geology include mineralogy/petrology lab (X-ray diffractometer, petrographic, petrological, thin-section lab, Raman spectrometer, scanning electron microscope); sedimentology lab (thin-section lab, X-ray diffractometer, petrological, paleontological); spectrophotometry facility (inverted, verticle, polarized); laboratory, equipped with a variety of computers; Geological Survey Building (locations, in area building on the department, with equipment core repository and remote labeling system); network of microearthquake stations and sedimentology, in house terminal for the University of Iowa Computing Center (IBM 310, Prime 75M's, HP3000 computers); trailer-mounted field probe, scanning electron microscope; microprobe; geological library with 30,000 volumes; journals, and 70,000 maps.

Cooperative Activities

The department has collaborative work with the Geological Survey Board, and geological students sometimes work on projects for the survey.

The Departments of Geology, Geography, Anthropology, Chemistry, Botany, and Biology cooperate in sharing services, equipment, and facilities in geotechnology and engineering. The geology department is an important participant in the Iowa Quaternary Studies group, an interdisciplinary program that
Germanic studies offered in another department (approval of major advisor required).  
May be taken in either order.

German majors, both graduate and undergraduate, are urged to supplement their degree programs with relevant courses in areas such as German literature, history, philosophy, and business.

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 (130, 140, and above) at The University of Iowa. All courses numbered 100 and above count toward the minor except 131, 132, 133, 135, 137, 138, and 139.

Certification for Teaching Minor

In addition to the basic program requirements for the first and second year, students must take the following courses of their equivalents for completion of the teaching minor in German:
- E3.101 Introduction to Modern German Literature I 3 s.h.
- E3.102 Introduction to Modern German Literature II 3 s.h.
- E3.103 Composition and Conversation I 3 s.h.
- E3.104 Composition and Conversation II 3 s.h.
- E3.114 Advanced Composition and Conversation 3 s.h.

Honors

Honors in German is open to exceptionally outstanding students who are in the College of Liberal Arts Honors Program and have completed three years of college-level German, the equivalent, with a grade-point average of at least 3.50, in the first- and second-year German courses.

Participating students register for the following courses:
- E3.190 Honors Program in German 3 s.h.
- E3.191 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.

Graduate Programs

Master of Arts with Thesis

Graduate students who show potential for productive scholarship and who plan to pursue doctoral study in German should elect the master’s degree program with thesis. The thesis project requires a minimum of 30 semester hours or, equivalent, of graduate-level work, and fulfillment of other requirements of the Department of German and the Graduate College. (See the "Graduate College" section of the Catalog.)

Students 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. degree. Some candidates may qualify for graduate credit for such work.

With the graduate advisor's approval, students may take some of the required 30 semester-hour courses outside the department in related subjects, such as philosophy, history, linguistics, or other languages.

Usually students may receive two semester hours of credit for satisfactory completion of the thesis. The thesis topic may be either literary or linguistic and is subject to approval by the faculty.

Master of Arts without Thesis

Graduate students preparing for careers in secondary school teaching, government service, or translation work may elect the master’s degree program without thesis. This program requires a minimum of 28 semester hours of course work and is considered a terminal degree.

The same course requirements, outlined for the M.A. with thesis, apply to candidates for the M.A. without thesis. Students in a master's program should, with the approval of the graduate advisor, select courses that will best prepare them for their chosen careers.

Doctor of Philosophy

The Ph.D. degree is awarded upon the 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), with a concentration in either Germanic linguistics or German literature.

Credit toward the M.A. degree usually is applied to the Ph.D. Students may enter 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 advisor.

Graduate Degree Language Tools

Master of Arts

Before they can take 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-year college level as determined by the appropriate language department.

Doctor of Philosophy

A candidate concentrating in linguistics must demonstrate a reading knowledge of French and of another language determined by the advisor to be pertinent to the candidate’s research interests.

Doctoral candidates in Germanic linguistics must demonstrate a reading knowledge of French or German and of a modern Scandinavian language or Dutch.

Conversance in any of these languages may be demonstrated by the methods described under "Master of Arts."

Financial Aid

Teaching assistantships, research assistantships, teaching-research fellowships, and tuition scholarships are available for qualified graduate students. The department awards the Wilson and the Funker prizes to students of distinction.

Special Facilities

Students have the opportunity to improve their comprehension and command of German by working with recorded material in the Audio-Visual Center. The student may benefit from the computer-assisted instruction programs. An extensive collection of journals and periodicals in the University Libraries facilitates research in all major areas of German literature and Germanic linguistics of all levels of study.

The Foreign Language House is available to undergraduates and graduate students as an on-campus housing option.

Foreign Study

The Department of German participates in the Regents Summer Programs in Austria. Sponsored by the three Iowa Regents universities, this program is open to students in all disciplines. A two-week session is conducted at St. Raphael, near Graz, Austria. Instruction in both language and culture is provided on an appropriate level. A second four-week
13.17 German Hermits and Erzklosterliteratur of the Middle Ages 3 h.

Metaphysics, including Kaufbeuren, Kempten, and Herrsching, medieval authors. Mennonite, Dinklage. MIME, Kongress, cultural. International Ger.

13.18 Introduction to German I 3 h.

Particular emphasis on the work of the Masquerade. Masquerade, cultural. MIME, Kongress, cultural.

13.19 Introduction to German II 3 h.

Particular emphasis on the work of the Masquerade. Masquerade, cultural. MIME, Kongress, cultural.

13.20 Intermediate German I 3 h.

Particular emphasis on the work of the Masquerade. Masquerade, cultural. MIME, Kongress, cultural.

13.21 Intermediate German II 3 h.

Particular emphasis on the work of the Masquerade. Masquerade, cultural. MIME, Kongress, cultural.

13.22 Advanced German I 3 h.

Particular emphasis on the work of the Masquerade. Masquerade, cultural. MIME, Kongress, cultural.

13.23 Advanced German II 3 h.

Particular emphasis on the work of the Masquerade. Masquerade, cultural. MIME, Kongress, cultural.

13.24 German for Foreigners 3 h.

Particular emphasis on the work of the Masquerade. Masquerade, cultural. MIME, Kongress, cultural.

13.25 Elementary German I 3 h.

Particular emphasis on the work of the Masquerade. Masquerade, cultural. MIME, Kongress, cultural.

13.26 Elementary German II 3 h.

Particular emphasis on the work of the Masquerade. Masquerade, cultural. MIME, Kongress, cultural.

13.27 German for Foreigners 3 h.

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13.71 German for Foreigners 3 h.

Particular emphasis on the work of the Masquerade. Masquerade, cultural. MIME, Kongress, cultural.
Language Courses for Graduate Nonmajors

13310 Germanic Language History 3 u.
13315 Russian Language 3 u.
13320 French Language 3 u.
13325 Italian Language 3 u.
13330 Spanish Language 3 u.
13335 German Literature 3 u.
13340 Russian Literature 3 u.
13345 French Literature 3 u.
13350 Italian Literature 3 u.
13355 Spanish Literature 3 u.
13360 Chinese Language 3 u.
13365 Japanese Language 3 u.
13370 Korean Language 3 u.
13375 Hindi Language 3 u.
13380 Arabic Language 3 u.

For Graduates

15300 Advanced Graduate Studies 3 u.
15320 German for Students of English Literature 3 u.
15330 German for Students of Finance 3 u.
15340 German for Students of Biology 3 u.
15350 History of the German Language 3 u.
15360 Middle High German 3 u.
15370 Advanced German Grammar 3 u.
15380 History of the German Language 3 u.
15390 German Literature of the Baroque 3 u.
15400 German Literature of the Enlightenment 3 u.
15410 German Literature of the Romantic Period 3 u.
15420 German Literature of the 19th Century 3 u.
15430 German Literature of the 20th Century 3 u.
15440 German Literature of the 21st Century 3 u.
15450 German Literature of the 22nd Century 3 u.
15460 German Literature of the 23rd Century 3 u.
15470 German Literature of the 24th Century 3 u.
15480 German Literature of the 25th Century 3 u.
15490 German Literature of the 26th Century 3 u.
15500 German Literature of the 27th Century 3 u.
15510 German Literature of the 28th Century 3 u.
15520 German Literature of the 29th Century 3 u.
15530 German Literature of the 30th Century 3 u.
15540 German Literature of the 31st Century 3 u.
15550 German Literature of the 32nd Century 3 u.
15560 German Literature of the 33rd Century 3 u.
15570 German Literature of the 34th Century 3 u.
15580 German Literature of the 35th Century 3 u.
15590 German Literature of the 36th Century 3 u.
15600 German Literature of the 37th Century 3 u.
15610 German Literature of the 38th Century 3 u.
15620 German Literature of the 39th Century 3 u.
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15640 German Literature of the 41st Century 3 u.
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15660 German Literature of the 43rd Century 3 u.
15670 German Literature of the 44th Century 3 u.
15680 German Literature of the 45th Century 3 u.
15690 German Literature of the 46th Century 3 u.
15700 German Literature of the 47th Century 3 u.
15710 German Literature of the 48th Century 3 u.
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15760 German Literature of the 53rd Century 3 u.
15770 German Literature of the 54th Century 3 u.
15780 German Literature of the 55th Century 3 u.
15790 German Literature of the 56th Century 3 u.
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15900 German Literature of the 67th Century 3 u.
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15960 German Literature of the 73rd Century 3 u.
15970 German Literature of the 74th Century 3 u.
15980 German Literature of the 75th Century 3 u.
15990 German Literature of the 76th Century 3 u.
16000 German Literature of the 77th Century 3 u.
16010 German Literature of the 78th Century 3 u.
16020 German Literature of the 79th Century 3 u.
16030 German Literature of the 80th Century 3 u.
16040 German Literature of the 81st Century 3 u.
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16090 German Literature of the 86th Century 3 u.
16100 German Literature of the 87th Century 3 u.
16110 German Literature of the 88th Century 3 u.
16120 German Literature of the 89th Century 3 u.
16130 German Literature of the 90th Century 3 u.
16140 German Literature of the 91st Century 3 u.
16150 German Literature of the 92nd Century 3 u.
16160 German Literature of the 93rd Century 3 u.
16170 German Literature of the 94th Century 3 u.
16180 German Literature of the 95th Century 3 u.
16190 German Literature of the 96th Century 3 u.
16200 German Literature of the 97th Century 3 u.
16210 German Literature of the 98th Century 3 u.
16220 German Literature of the 99th Century 3 u.
16230 German Literature of the 100th Century 3 u.

GLOBAL STUDIES

Chair: Jerry McGee (Religion)

Coordinator: Robert B. Kuehn (Social Science)

History 201 (Office of International Education and Services)

1210 SPRING 2023 Course Descriptions

101001 Introduction to Global Studies

101002 Introduction to International Relations

101003 The Politics of International Economics

101004 Perspectives in Global Studies

101005 Human Rights in the World Community

101006 Students of Law and Policy

101007 Introduction to Public International

Group C

As of these:

1421 War and Society

1422 Politics of War and Peace

1423 Contemporary International Issues

1424 Third World Development Support

1425 The Political Economy of the Third World

1426 The Third World: A Survey

World Area

Studies take 12 semester hours of courses that focus on a major world area other than the area with which the student is primarily familiar.

Exams for which there are sufficient course offerings at The University of Iowa are:

From Other Majors 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:

Asia

China

India

Japan

Europe

France

Germany

Great Britain

Western Europe as a unit

Eastern Europe and the Soviet Union

Latin America

Africa

The Middle East

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 that for the B.A. degree of the College of Liberal Arts and it commonly requires more work. Because of the additional time required for Chinese, Japanese, or Russian, students who elect these languages may count one semester
Undergraduate Program

The Department of History 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 the past. In addition to offering three essential elements of liberal education, the department trains prospective historians and teachers of history, serves those who require a knowledge of a period or aspect of history as background for their own specialized studies in other fields, and participates in several interdisciplinary programs, such as American studies, Africana and African studies, Latin American studies, and women's studies.

Teacher Certification

Students majoring in history who wish to qualify for a teaching certificate must choose an area of concentration in history and meet the following requirements.

American History Concentration

Courses in U.S. history (including 16th-20th; Colloquium for History Majors)
30 s.h.

Courses in related areas
24 s.h.

Students must select 12 semester hours of course work in each of the two related areas chosen from economics, geography, world history (non-U.S.), political science, and sociology.

Students also must select a special requirement in European history by taking a 100-level course covering a period prior to 1750. This course may also 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 U.S. history (including 16th-20th; Colloquium for History Majors and a 100-level course covering a period prior to 1750)
30 s.h.

Courses in related areas
24 s.h.

Students must select 12 semester hours of course work in each of two related areas chosen from economics, geography, African history, political science, and sociology.

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.

Graduate Programs

The graduate programs in history prepare students for "applied" careers such as high school or college teaching, public administration, commercial research, and government, as well as for further academic work. Voluntary but specialized training, students of history must complete 30 credit hours of graduate work in history, with at least 24 hours in history. In addition, many students enter the graduate program leading to degrees in both law and history.
Master of Arts

There are two M.A. programs in the history department. The first is for students who wish to work toward the Ph.D. degree. It requires a minimum of 31 semester hours of credit, including the completion of a research thesis. 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 last two semesters of residence. Twelve semester hours must be in the area of the student's essay topic, and at least six seminar 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 serves as a term paper for the seminar in the major division and is completed for the following semester under the guidance of the supervisor, when the student is enrolled as an 16.00 Individual Study. Graduate. The finished product should ensue the exctation of articles in learned journals, just as the Ph.D. dissertation takes the form of a full-length monograph.

The alternate plan for the M.A. is intended 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 36 semester hours general, 36 in history, 12 in one major area of history, including a minimum of just one readings or seminar course. The second plan offers latitude in respect to concentration; fields: Ph.D. track emphasizes the development of research capabilities culminating in the essay; the alternate plan stresses breadth of learning. Students are the alternate plan must take at least 6 semester hours in each of two divisions in history, in 6 semester hours in a designated related field, and at least 6 semester hours in a related department. Included in these 6 divisional hours must be at least 6 reading 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 essays are admitted to the Ph.D. program on the favorable recommendation of the examining committee. Students who earn the M.A. at another university must meet the general requirements for admission to the Graduate program (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 22 semester hours (eight courses) in 200-level history courses, 42 hours toward the comprehensive examination, and at least 20 of these 22 hours must be completed before the student takes the comprehensive examination, and at least 20 of these 32 hours must be completed at The University of Iowa. Research seminars taken at the M.A. level may be counted toward the 22-hour requirement. The candidate also must earn 24 seminar hours of credit in the fields of methodology of history, historiography, or methods of historical research. The department has no common language requirement for the Ph.D., but the supervisor may require the candidate to demonstrate a reading knowledge of one or more foreign languages and proficiency in the use of one or other study tools. The candidate may complete the comprehensive examinations, and evaluation during these requirements have been met. The comprehensive written and oral examination covers three distinct fields, two of which must in a major division that is chosen from the following divisions: the ancient world, Medieval Europe, Europe, including Great Britain, 1500 to 1800, Europe, including Great Britain, 1800 to present, Russia and the Soviet Union, United States history, Latin American history, Chinese history, Japanese history, Chinese history, Japanese history, European history, and military history.

The third field must be either in a division outside the candidate's major division or in a related department outside the history. The committee may define and admit 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 paper.

Graduate Admission

Applications for admittance to the graduate program in history must meet the general requirements for admission to the Graduate College: academic transcripts, letters of reference, and Graduate Record General Examination (GRE) scores. In addition, students must submit samples of their writing, including, such as two papers, seminar papers or a thesis. The materials must be submitted by April 15 for admission to the summer session or fall semester, or by November 15 for spring semester. The application for graduate awards form is separate, with a February 15 deadline.

New students applying for aid must submit the application for admission when they apply for aid, or earlier. Those wishing to be considered for the University-wide Iowa Fellowships Program should have their applications completed by January 15.

Guide to Graduate Study

Further information on graduate study is contained in the department's Guide to Graduate Study, which can be obtained upon request from the history department. The guide is revised every spring to include the latest faculty listing, research interests of faculty members, and regulations on study toward advanced degrees and other information of interest to prospective students.

Special Facilities

The University Libraries are strong in all aspects of U.S. history. The Main Library houses over 10,000 books and related collections, as well as other unique materials. Its resources are in French and English languages. The French Branch Library in North and the Herbert Hoover Presidential Library in West Branch possess additional valuable research materials.

Courses

Courses numbered 161 through 1624 are required courses and those numbered 314 through 316 are seminars. The following is a list of the General Education Requirements in the philosophical perspectives. These courses numbered 180 and 190 usually are taken in the first year.

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>161 World Civilization to 1700</td>
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<td>162 World Civilization to 1800</td>
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In addition, the following courses are offered in specific areas of study:

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<th>Course Title</th>
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<tr>
<td>165 Civilization of Asia</td>
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For a complete list of courses, please consult the University catalog.
HOME ECONOMICS

Chair: Carolyn W. Lisle-Grant

Program Director: Lynne M. Turnham, Carol Fitch

Program Coordinator: Margaret A. Kayes, Nancy Schell, Patti Ziegler, Whitney

Associate Professor: Richard T. Cary, Carolyn W. Lisle-Grant, Mindy L. Hamilton, Libby P. Widdows

Assistant Professor: Elizabeth J. Stueck, Janice T. Abalawoff, Janine A. Ross

Assistant professors: Emily M. Stover, Mark N. Harman, Harriet R. Widdows

Undergraduate degrees offered: B.A., B.S. in Home Economics

Graduate degrees offered: M.A., M.S. in Home Economics

The Department of Home Economics is being phased out as a result of action taken by the State Board of Regents. No entering freshmen or transfer students may declare home economics as a major. Undergraduate students enrolled at the University prior to June 1, 1981, will be permitted to declare home economics as a major only if the year in the department determines that they can complete the required home economics courses before those courses are discontinued. No admissions will be accepted for graduate study in home economics.

Requirements for undergraduate and graduate degrees, the Cooperative Education/Internship Program, honors, and a major in home economics require the student to meet the requirements listed in the 1989-1990 General Catalog.

All instruction in home economics is scheduled to end May 31, 1992. Majors may have to postpone General Education Requirements, as well as take home economics, and effective courses in order to complete required home economics courses before this end date. Therefore, bachelor's degrees in home economics will be awarded until fall 1993. Continuously enrolled undergraduate home economics majors have completed the remaining degree requirements. Students not majoring in home economics must take courses in home economics whose places are available.

Courses

Primarily for Undergraduates

17250 Cooperative Education Internship 0-3 h.

17250 Human Development and the Family 3 h.

17250 Social Psychology 3 h.

17250 Introduction to Family Economics 3 h.

17250 Nutrition 3 h.

17250 Design and the Environment 3 h.

17250 Introduction to Men's Studies 3 h.

17250 Nutrition and the Environment 3 h.

17250 Ecology and Sustainability 3 h.

17250 Topics in Home Economics 3 h.

17250 Philosophy of Home Economics 3 h.

For Undergraduates and Graduates

17290 Adolescence and the Family 3 h.

17290 Conflict and Violence in Families 3 h.

17290 Basic Aspects of Aging 3 h.

17290 Family Management 3 h.

17290 Management of Family Resources 3 h.

17290 Personal Financial Management 3 h.

17290 Nutrition and Family Internship 3 h.

17290 Introduction to Consumer Economics 3 h.

17290 Consumer Behavior and Marketing 3 h.

17290 Family Economics 3 h.

17290 Human Sexuality 3 h.

17290 Methods in Home Economics 3 h.

17290 Principles, Materials, and Methods 3 h.

17290 Principles of Consumer Behavior 3 h.

17290 Marketing and Marketing in Family Life 3 h.

17290 Family Education 3 h.

17290 Family Health Education 3 h.

17290 Food and Family Nutrition 3 h.

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INTERDEPARTMENTAL STUDIES

Coordinator: Patricia Andra

In addition to the following, the Department of Sociology, Anthropology, and the Department of Psychology offer a variety of courses in the field of sociology and anthropology.

Degree Program

The Bachelor of Arts in the Interdepartmental Studies Program (ISP) is designed to allow students to plan their academic programs. Since this is an interdepartmental major, students are responsible for planning their own areas of concentration with the assistance of an interdepartmental studies advisor. ISP students may earn minors.

Students in interdepartmental studies develop creative capacities that will draw on the offerings of several departments and integrate various approaches to a particular topic. A few examples of interdepartmental programs are world order studies, environmental studies, technical writing, family studies, urban studies, and political science programs that are covered by existing combination majors are not appropriate for the ISP major. In all cases, careful and timely planning is essential.

Plan of Study

ISP students are required to submit for approval a plan of study. The earlier a plan of study is submitted, the more effective the planning is likely to be. Because the ISP major by definition allows for individualized academic programs, students are encouraged to apply for the program prior to or during the junior year.

Procedures through Summer 1994

Superseniors or juniors who decline the ISP major or change to a plan of study within three weeks after the declaration. The advisor will not sign subsequent registration cards until an approved plan of study is in the student's file.

HOSPITAL AND HEALTH ADMINISTRATION

See "College of Medicine,"
semester hours after entering the program, 1/3 of which must be in advanced-level course work. Hours taken during the semester in which the plan of study is approved are not counted as part of the final 30 semester hours.

Guidelines

Each plan of study submitted for approval must provide the following information:

A description of achieve goals for the bachelor's degree, with a clear statement of the reasons for proposing 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 are related to each other, in sequence, 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 ISP advisors. Advisors are fielded several times each semester.

If the committee does not grant approval, the plan of study may be released to the student for revision and resubmission as the most feasible meeting. In some cases, the student may be referred to a more appropriate committee.

Students are required to take the courses approved in the plan of study. A limited number of substitutions may be allowed if they are clearly consonant with the areas of concentration in the approved plan of study and only if they are approved in advance by the ISP advisor. Unplanned substitutions may be designated as elective course work.

Significant changes in the focus of a student's plan of study require the approval of a revised plan of study. The student's academic advisor determines whether changes warrant a revised plan.

Forms and guidelines for preparing the plan of study are available in the Bachelor of Arts Interdisciplinary Studies Advisory Office, 301 Schaefer Hall, or in the Office of Academic Programs, 116 Schaefer Hall. A list of review committee meeting dates is available each semester.

ISP Requirements

In addition to having an approved plan of study, students must complete the following requirements for the B.A. in Interdisciplinary Studies.

General Education 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 introduction section for specific information.)

Advanced Course Work

Students must complete at least 36 semester hours of advanced course work at The University of Iowa. No more than 18 semester hours of advanced course work from any one department may be counted toward fulfilling this requirement.

If more than 18 semester hours of advanced courses are taken in one department, however, the total may be counted toward the 124 semester hours needed for graduation.

Advanced courses typically are those numbered 100 and above. At the discretion of sponsoring departments and with approval of the Office of Academic Programs, courses numbered below 100 but taught at an advanced level also may be used to satisfy this requirement. Approved courses are listed later in this section.

The comprehensive graduation option is not available for the 36 semester hours of advanced course work required for the degree, but may be used for advanced course work beyond the 36 semester hours.

Courses taken to satisfy the General Education Requirements may also be counted toward completion of the advanced course work requirement.

Some study abroad advanced course work is considered residential work for the purposes of BIP requirements and college residence requirements. Students should check with their ISP advisor or with the ISP coordinator.

University of Iowa Guided Correspondence Study abroad courses count toward the advanced course work requirement, but the College of Liberal Arts residence requirement must be met by other 12 credit course work.

Grade-Point Average

Students must achieve a grade-point average of at least 2.0 in all college work attempted, or all college work undertaken at The University of Iowa, and all advanced course attempted.

Total Hours Earned

Students must earn a minimum of 124 semester hours of credit.

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 lower- and upper-level course work, and both transfer and transfer course work.

Students registering for a B.A. in Interdisciplinary Studies may earn no more than 30 transfer hours of credit toward the 124 hours 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, passing grades, and academic standards apply to ISP students.

Advanced Courses Numbered below 100

The following courses are accepted as part of the 36 semester hours of advanced course work requires under the ISP rules. 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. Some of the courses have prerequisites or require special permission signatures.

American Studies

4590 Seminar in American Cultural Studies 3 s.h.

Art and Art History

15.45 Advanced Painting 3 s.h.

15.52 Undergraduate Printmaking 3 s.h.

15.17 Undergraduate Sculpture Workshop 3 s.h.

Asian Languages and Literature

19.13-Year-Old Samurai 3 s.h.

19.24 Second-Year Samurai 3 s.h.

39.24 Non-Western Literary Traditions 3 s.h.

Botany

2.5 Iowa Flora 2 s.h.

54.00 Advanced course work only if 2.00 Plant Taxonomy 100 is completed

Communication Studies

All courses numbered 368-699 and above

All courses numbered 366-699 and above

Comparative Literature

46.44 Methods in World Literature I 3 s.h.

46.45 Methods of World Literature II 3 s.h.

46.50 Non-Western Literary Traditions 3 s.h.

46.55 Undergraduate Seminar 3 s.h.

Computer Science

22.43 Algorithms and Data Structures 3 s.h.

22.45 Programming Language Concepts 3 s.h.

22.51 Digital Systems and Computers 3 s.h.

22.52 Introduction to Systems Software 3 s.h.

22.551 Computer Graphics 3 s.h.

22.552 Elementary Numerical Analysis 3 s.h.
Dance
137:91 Independent Study 4 s.h.
137:93 Independent Choreography 4 s.h.

Dental Hygiene
201:02 Human Histology 4 s.h.

English
All courses numbered above 8110 except 81 courses

Geology
12:41 Mineralogy 4 s.h.
12:52 Elementary Petrology 4 s.h.
12:92 Structural Geology 4 s.h.

Mathematics
22M:27 Introduction to Linear Algebra 4 s.h.
22M:28 Calculus III 4 s.h.
22M:41 Differential Equations for Engineers 3 s.h.
22M:42 Vector Calculus for Engineers 3 s.h.
22M:50 Elements of Group Theory 3 s.h.
22M:55 Fundamental Properties of Spaces and Functions 3 s.h.
22M:70 Foundations of Geometry 3 s.h.
22M:72 Elementary Numerical Analysis 3 s.h.

Music
25:141History of Music I 3 s.h.
25:142History of Music II 3 s.h.

Physical Education and Sports Studies
28:85 Psychosocial Dimensions of Physical Activity 3 s.h.

Spanish and Portuguese
35:30 Spanish Conversation Junior Level 2 a.h.
35:35 Spanish Conversation Senior Level 3 s.h.

Statistics and Actuarial Science
25:25 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.

Theatre Arts
40:13 Shakespeare 3 s.h.
40:90 Play Script Analysis 3 s.h.
40:92 Basic Playwriting 3 s.h.

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 6:30 (accounting is also considered a department in the College of Liberal Arts) are considered to be in one department.

Honors
IFP students quality for membership in the College of Liberal Arts 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 College of Liberal Arts Honors Program or from the IFP coordinator.

IFP students should inquire about graduating with honors by contacting the director of the College of Liberal Arts Honors Program at the Pammel Visiting House Honors Center. Students are encouraged to enroll in upper division courses one year prior to the expected graduation year to allow time for foundation coursework. The honors director offers suggestions for contacting a supervising faculty member or committee from time to time or for appropriate departments.

Career Considerations
Since the B.A. degree in Interdepartmental Studies affords opportunities not available in 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. The entire curriculum is designed to provide students who seek a career in teaching, pursuing graduate or professional study, the easier it is for students to prepare for complete and necessary prerequisites.

IfP students who design a coherent program and maintain a cumulative grade-point average of 3.20 or higher complete the requirements for other undergraduate degrees for employment or admission to professional schools.

For More Information
Information about the Interdepartmental Studies Program is available from the Interdepartmental Studies Advisor, 113 Schaefer Hall.

Courses
40:900 Cooperative Education Internship 0 s.h.

IOWA LAKEIDES LABORATORY

Iowa Lakeside Laboratory is a biological field station comprising approximately 140 acres of grassland and gallery forest along the west shore of Lake Iaive in northwest Iowa.

Iowa Lakeside Laboratory was established in 1959 under the leadership of Thomas H. MacAuley, whose endowment as a University of Iowa biologist and geologist from 1878 to 1914 was recognized by his appointment as University president from 1914 to 1916. The lab site was the first site around the precision conservation and study of the rich flora and fauna of the northern Iowa lakes 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 courses work in two four-week terms during the summer session. Enrollment is limited to one course per term, for 3 semester hours of credit.

The laboratory gives advanced underclassmen and graduate students the opportunity to study plant and animal life in its natural habitat. This is a strong focus of Iowa State University's education of students and scientists in the conservation movement.

Teaching and research facilities include an observation and collection center, a library, and a lecture hall. Living accommodations include dormitories and a large mass hall.

Financial Aid
The University of Iowa has established several Thomas H. MacAuley Scholarships in Natural Science for undergraduate students students at the University. The scholarships cover the Iowa Lakeside Laboratory costs, including tuition and fees.

For more information, contact the University of Iowa's Student Financial Aid Office or visit their website.

Registration
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 forms in the Lakeside Laboratory building. Students from other institutions must apply for admission to one of the three cooperating universities; such students who wish to register for summer

Iowa Lakeside Laboratory

Iowa Lakeside Laboratory is a biological field station comprising approximately 140 acres of grassland and gallery forest along the west shore of Lake Iaive in northwest Iowa.

The Iowa Lakeside Laboratory was established in 1959 under the leadership of Thomas H. MacAuley, whose endowment as a University of Iowa biologist and geologist from 1878 to 1914 was recognized by his appointment as University president from 1914 to 1916. The lab site was the first site around the precision conservation and study of the rich flora and fauna of the northern Iowa lakes and prairie regions.

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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 19:115:15 Advanced Reporting and Writing or an advanced reporting and writing course (19:129:19-125). Students must complete either an advanced additional reporting and writing course or a media workshop (19:130-19:127). Every major must complete 19:149:02 Legal and Ethical Issues in Communication and one advanced conceptual course numbered 19:150 or above. Majors take additional electives to develop professional and conceptual interest.

Because of the flexibility inherent in the undergraduate program, a new major should develop an individual plan of study in consultation with a faculty advisor.

Required Courses

Minimum of 30 semester hours, maximum of 34 semester hours

Premajor Foundation

19:30 Social Scientific Foundations of Communication 3 s.h.

19:51 Cultural and Historical Foundations of Communication 3 s.h.

Journalism Laboratory

19:150:02 Journalistic Reporting and Writing 4 s.h.

One advanced reporting and writing course (19:129:19-125) 4 s.h.

A second advanced reporting and writing course (19:129:19-125) 4 s.h.

One media workshop (19:130:19-137) 4 s.h.

Conceptual

19:149:02 Legal and Ethical Issues in Communication 3 s.h.

A conceptual course numbered 19:150 or higher 3 s.h.

Electives

(2-6 s.h. from undergraduate courses)

Additional Electives

Students have the option of taking an additional 3- or 4-semester hour course, for the maximum 34 semester hours.

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 communications. The second area permits students to acquire a substantial body of knowledge, learn how another discipline views the world, or develop a comprehensive set of skills in 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 conceptual areas. Students who do not complete second courses must complete at least 15 of the 24 required semester hours in upper-level courses. Course work in the second area must be arranged in consultation with an advisor; each student must have his or her advisor'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 fulfill the school's second area of concentration requirement in one of two ways:

- Obtain a full B.A. major in another department;
- Complete a 24-semester-hour concentration of related courses in one or more departments that offer B.A. degrees; this work must include 15 or more academic hours of work in upper-level courses and should be designed by the student in consultation with an advisor; the advisor must certify the completion of the second area of concentration before the student may graduate.

Bachelor of Science

A student seeking a B.S. in journalism and mass communication must complete the journalism major requirements (30 semester hours), and 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;
- Complete the following:
  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; at least 15 hours of the second area work must be in upper-level courses and should be designed by the student in consultation with an advisor; the student must have within approval of the second area of concentration by a journalism advisor in order to graduate; and
  All the special math, research methods, and related courses as necessary for the B.S. degree in the department in which the majority of the second area work is done.

Honors

Majors with outstanding academic records may participate in the College of Liberal Arts Honors Program and earn the honors degree in journalism and mass communications. The program provides students with an opportunity to complete additional work under the guidance of a faculty advisor.

A major with an overall grade-point average of 3.75 or higher may write an application letter to the school's head of undergradu ate studies requesting admission to the honors program in the School of Journalism and Mass Communication. The letter should include areas of interest and topics the student might pursue in completing an honors project. The student must consult with the head of undergraduate studies to identify a faculty member with whom he or she will develop the honors project. The student may arrange honors readings with a particular faculty member or take existing courses in the area of interest.

Honors program is completed in the form of a thesis or a professional project. The student must develop the form and topic of the project in a written proposal, which must be accepted by a faculty member. Once the proposal is accepted, the student enrolls in 19:18 Honors Project under the faculty member's written number. Students become official honors candidates in their senior year, unless they enroll in this course.

The honors candidate must make a formal presentation of the project to a committee consisting of the faculty advisor, as chair, and two other faculty members selected by the student in consultation with the advisor. At least two committee members must accept the completed project before the student may graduate. The committee's recommendation must be accepted by the School of Scientific Foundations of Communication 3 s.h.

or

19:51 Cultural and Historical Foundations of Communication 3 s.h.

The major is not intended to be sufficient professional preparation for a career in journalism or mass communication. The major should be regarded as an introduction to the field.

Courses for the major may not be taken pass/fail/credit. When students apply for a degree, they must submit the Office of the Registrar that they want to have a minor noted on their transcripts.
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 will have completed at least 30 semester hours (including those from The University of Iowa and other institutions) and their rhetoric requirements, 19.90 Social Scientific Foundations of Communication, and 15.01 Cultural and Historical Foundations of Communication. Neither of these premajor course requirements may be waived on the basis of course taken at other institutions; thus, a transfer student will be a premajor for at least one semester.

Graduate Programs

Master of Arts
The School of Journalism and Mass Communication offers a Master of Arts program with three separate emphases: professional communication, journalism, and mass communication, and development support courses. The following courses would illustrate the emphasis for which they seek admission.

Each emphasis requires 30 semester hours of approved course work, the completion of a manuscript dealt with at the successful completion of the final examination. 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 communications in contemporary society, but who do not plan to seek a Ph.D. degree.

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," below). It also serves the student who has worked in some area of mass communication (see "Group 2 Requirements" below).

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
19.12 Journalistic Reporting and Writing (does not count toward degree) 4 s.h.
19.20 Master's Seminar 3 s.h.
Two advanced reporting and writing courses (19.228-19.229) 6 s.h.
A third advanced reporting and writing course 3 s.h.
Or one media workshop (19.248-19.249) 3 s.h.
Electives 15 s.h.
19.229 Master's Research (project) 3-5 s.h.
Electives require consent of the advisor and may be selected from either School of Journalism and Mass Communication courses or from courses offered by other departments.

Group 2 Requirements
19.200 Master's Seminar 3 s.h.
19.201 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 advisor. The 15 semester hours of "other electives" may be selected from either School of Journalism and Mass Communication courses or from courses offered by other departments.

Every student in the professional program must complete a professional project (19.229) under the supervision of a graduate faculty member and take a final examination during the last semester of enrollment.

It is advisable for all students in the professional program to have a substantial body of work that would be suitable for publication. All requirements must be completed within one calendar year, and the student is responsible for maintaining a satisfactory G.P.A. during that time.

Mass Communication and 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:
19.120 Master's Seminar on Communication Concepts 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.
19.800 Communication Research: Historical Approaches 3 s.h.
19.401 Communication Research: Behavioral Approaches 3 s.h.
19.203 Communication Research: Phenomenological Approaches 3 s.h.
19.263 Communication Research: Legal and Ethical Issues 3 s.h.

Electives in journalism and mass communication in all schools and departments 19 s.h.
19.229 Master's Research (thesis) 3 s.h.
Every student in the Mass Communication and communication emphasis must complete a minimum of 1800 hours under the supervision of a graduate faculty member and take a final examination during the last semester of enrollment.

All students are expected to make coursework outside the School of Journalism and Mass Communication the nature and extent of the work is determined by the student and the faculty advisor.

Development Support Communication Emphasis
This interdisciplinary emphasis involves the cooperation of the departments of Geography and Political Science. It is intended for students seeking to gain analytical and technical expertise in understanding the role and function of mass communication in the process of helping solve three World development problems. The emphasis offers both thesis and nonthesis tracks.

Information on the specific requirements of the development support communication emphasis are available from the School of Journalism and Mass Communication.

Doctor of Philosophy
The Ph.D. program emphasizes interdisciplinary inquiry into mass communication phenomena with cultural and historical perspectives. Approaches include philosophical, ethnographic, and critical inquiry. The program's substantive nature is defined by the scholarly interests of faculty who have most frequently to investigations of historical, legal, economic, 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 Student Handbook.
Financial Aid

Nearly $40,000 in scholarships is available to undergraduate and graduate students on campus. Financial aid packages are available from the Financial Aid Office. Financial aid is based on need and is awarded to students who meet the eligibility requirements.

Professional Enrichment

The school offers a variety of professional enrichment opportunities for students. These include guest lectures, workshops, and seminars. Additionally, the school provides opportunities for students to participate in research projects and to gain practical experience.

Job Placement

The school provides opportunities for students to gain practical experience and to develop skills that are valuable in the workplace. Students have the opportunity to work on real-world projects and to build their resumes.
LATIN AMERICAN STUDIES PROGRAM

Chairs: Charles Haar
Professor Emeritus, Thomas Chatfield (Anthropology), New England (Anthropology), eastern Pennsylvania (History), Hispanic Studies and Latin American Studies, Charles Haar (History). Peter Beatty (History, French and Spanish). Associate professors: Francesca Balbiani, Maria Amalia Doria, Spanish and Portuguese; Douglas Plata (Art History); Luis Trabel (History); Julia Trabel (History); Anna Teitel (Spanish and Portuguese); Mireya Merino (Spanish and Portuguese); Kathleen Trencher (Classics and Modern Languages and Literatures). Latin American studies is in an interdisciplinary undergraduate program that focuses on the history, politics, social organization, economy, geography, art, and literature of Latin America. Students enrolled in this program may earn the Certificate in Latin American Studies, or they may declare a minor in Latin American studies. All students plan their programs in close cooperation with the Latin American studies adviser.

Programs

Certificate
To gain both depth of knowledge about Latin America and breadth in a variety of disciplines, students seeking the Certificate in Latin American Studies must earn at least 27 semester hours of credit in courses selected from “C” courses approved by the LASP certificate coordinator. Below, including at least six semester hours in each of at least three of the following: anthropology, history, literature, political science and government, and Latin American studies. Related courses that are not specifically approved for the certificate may also be applied toward the LASP certificate. Courses concerned in part with Latin America are occasionally used as electives to satisfy the requirements for the certificate. Students should consult the Latin American studies adviser.

Minor

Seminars enroll in Latin American Studies Seminars (35:170, 35:155, 44:149, or 113:132), a late-semester interdisciplinary course focused on problems that pertain specifically to Latin America. The seminar is usually taught by two faculty members from the participating departments.

Minor

To earn a minor in Latin American studies, students complete 15 semester hours in approved Latin American Studies Program (LASP) courses, with a minimum
Courses Approved for LASP Certificate

For full descriptions of each of the courses listed below, see the listings in the appropriate departmental sections of the Catalog.

Anthropology
113:10 Ethnology of South America 3 s.h.
113:11 Ethnology of Mesoamerica 3 s.h.
113:118 Social Anthropology of the Caribbean 3 s.h.
113:136 Latin American Economy and Society 3 s.h.
113:132 Latin American Studies Seminar 3 s.h.
113:163 Anthropology of Mesoamerica 3 s.h.

Art
18:105 Art of Pre-Columbian America 3 s.h.

Geography
44:157 Patterns of Urbanization and Development in Latin America 3 s.h.

History
16:113 Topics in Latin American History 3 s.h.
16:111 Colonial Latin America 3 s.h.
16:112 Introduction to Modern Latin America 3 s.h.
16:725 The Mexican Revolution 3 s.h.

Political Science
30:1 Latin American Government 3 s.h.
30:145 Major States of Latin America 3 s.h.
30:163 Inter-American Relations 2-3 s.h.

Portuguese
38:163 Brazilian Literature I 3 s.h.
38:165 Brazilian Literature II 3 s.h.
38:114 Culture and Civilization of the Portuguese-Speaking World (taught in English) 3 s.h.
38:159 Latin American Studies Seminar 3 s.h.

Spanish
35:100 Contemporary Latin American Narrative (taught in English) 3 s.h.
35:111 Contemporary Spanish American Fiction 3 s.h.
35:132 Spanish American Poetry I 3 s.h.
35:153 Spanish American Drama 3 s.h.
35:174 Spanish American Short Story 3 s.h.

35:110 Literature of the Discovery and Conquest of Spain 3 s.h.
35:115 Cultural Identity in Caribbean Literature 3 s.h.
35:143 Latin American Studies Seminar 3 s.h.
35:195 Twentieth Century Literature in Latin America 3 s.h.

Courses
190:110 Contemporary Latin American News Colloquium 3 s.h.
190:110 Contemporary Latin American Affairs as reported in the Latin American Press, and its influence on political and economic decisions. DRUNK, SEMES. SOME, SME. 180:230.

LEISURE STUDIES

See "Division of Physical Education."

PROGRAMS IN LETTERS

Director: Richard Lloyd-Jones

Programs in Letters was established in 1980 as an administrative unit to coordinate several mobile activities in language and literature including the International Writing Program, Iowa Center for the Book, the Midwest Language Association, the Editors' Consultancy, the Translation Workshop, and the Windhover Press.

Center for the Book

The University of Iowa Center for the Book encourages and facilitates student and faculty research in the various disciplines associated with the book. Faculty and staff members affiliated with the center have appointments in the School of Art and Art History, University Libraries' conservation and special collections departments, the School of Journalism, and the English Department. They conduct scholarly and applied research and teach classes.

International Writing Program, Windhover Press

See "Iowa Center for the Arts" in the Special Resources at Iowa section of the Catalog.

Translation Workshop

The Master of Fine Arts in Translation offers a "Comparative Literature." in translation.

Courses

180:110 Introduction to Playwriting
180:120 Advanced Playwriting
180:190 Playwriting
180:190 Photocomposition I
180:190 Photocomposition II
180:190 Silhouettes
180:190 Other Production Workshops
190:110 Calligraphy
190:110 Calligraphy II
190:127 Literary Publishing
190:133 Intermediate Bookbinding
190:152 Advanced Bookbinding
190:197 Hand-Printed Book Problems in Design
190:197 Printed Manuscript and Bookbinding
190:200 Visual Communication
190:410 History of the Book
190:219 Individual Instruction in Typography/Photomechanics
190:220 Introduction to Typography
190:220 Woodcut and Print Production

LIBERAL STUDIES

Degree offered: B.L.S.

The B.A. in Liberal Studies (B.L.S.) program offered by each of the Iowa Iowa Regional Universitie (The University of Iowa, Iowa State University, and the University of Northern Iowa) is designed to Mrs adults whose job, family, geographic location, or other personal circumstances prevent them from college college as full-time, on-campus students. The program has no residence requirement. Students may complete the degree without enrolling in a campus course. Credit earned in Iowa Regional University courses may be applied toward the degree, at the students discretion.

The California campus of the B.L.S. is the University of California, Berkeley, and the University of California, Los Angeles. Students may take a variety of courses from accredited institutions.

At The University of Iowa, the B.L.S. is awarded by the College of Liberal Arts and the Division of Continuing Education. Since the B.L.S. is a general undergraduate degree with field-specific majors, 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. advisor, 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 studies. Students who wish to earn a B.L.S. degree should contact the B.L.S. advisor at the University of Iowa, 100:000, or at the Iowa Regional Universities.
advanced degree program in mind should familiarize themselves with the required educational background or prerequisite course work so that they can incorporate appropriate courses into their B.L.S. degree program.

Admission to the B.L.S. Program

Students wishing to graduate from The University of Iowa must apply formally for admission to the B.L.S. program. Interested students should consult a B.L.S. adviser before applying. To be eligible for admission to the program, the student must have earned either:

An Associate of Arts (A.A.) degree from an Iowa community college that participates in the 1981 Iowa Community College/George Articulation Agreement, with a minimum grade-point average of 2.00; or

At least 60 semester hours of college 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 in the B.L.S. program.)

B.L.S. Requirements

Of the 124 semester hours of credit required for the degree, at least 60 must be earned in four-year colleges or universities at the University of Iowa, primarily courses numbered 100 and above. At least 45 courses must be completed at the University of Iowa. Students must complete at least 45 semester hours of upper-level work toward the degree, all course work completed after admission to the B.L.S. program from the specific George Articulation Agreement university that will grant the degree.

The B.L.S. candidate must meet the general educational requirements as defined in the student handbook at The University of Iowa, primarily credits earned in the College of Liberal Arts. Candidates are required to complete all general educational requirements except physical education (see the College of Liberal Arts introductory section in the Catalog).

Since there are no traditional majors available through the B.L.S. program, candidates must earn at least 12 semester hours of credit in each of the following distribution areas:

- Humanities (e.g., literature, history, philosophy)
- Communication and arts (e.g., journalism, speech, drama, art, music)
- Natural sciences and mathematics (e.g., biology, geology, statistics, computer science)
- Social sciences (e.g., geography, psychology, economics, political science, anthropology)
- Professional fields (e.g., business, education, nursing, social work, library science)

Of these 36 semester hours, 24 must be in upper-level courses, with at least 6 semester hours of upper-level credit in each of the three areas chosen. Credit applied to the General Education Requirements may not be used to meet the distribution area requirements that they may be counted toward for 45 semester hours of upper-level course work required in applicable.

At The University of Iowa, upper-level courses are numbered 100 and above. However, at the initiative 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 coursework is listed in the Interdepartmental Studies section of the Catalog.

Graduation requires a minimum grade-point average of 2.00 in course work applied toward the degree, all course work completed after admission to the program, and all upper-level course work.

All College of Liberal Arts policies regarding passing/non-passing, satisfactory/fail, academic standards, and so forth apply to B.L.S. students.

Further information about the Bachelor of Liberal Studies program is available from the Center for Credit Programs, 116 International Center.

Courses

BLS 5000 Cooperative Education Internship

Library and Information Science

Beverly Carl Catlin

Professor emeritus: Wilma Jeanne Oehser

Associate professor: Harvey L. Chappsher

Felder Blackman, Carl Opgenorth, James R. Davis

Assistant professor emeritus: Louise L. Newman

Assistant professor: Patricia Blanchard, Julie Tumler

Assistant professor: Kenneth M. Toomey

Assistant professor: Gary Smith, John W. Conner

Graduate degree offered in M.A. in Library and Information Science

The School of Library and Information Science offers a program of professional and academic preparation for careers in all types of library and information centers—public, school, academic, and special. It seeks to recruit and prepare librarians and information professionals who, to contribute to the advancement of librarianship through research, and to provide public service. The program is accredited by the American Library Association.

Program Goals and Objectives

The goals of the School of Library and Information Science are to offer a graduate program of basic professional preparation in library and information science that reflects the variety and growth of information needs by society and individuals, to prepare research that increases understanding of the variety of information needs and of the actions that can be taken to provide for those needs, and to provide public service through continuing education and consulting and through association and other professional services, so that growth is fostered toward students' basic professional program, and so that people have the information service they need.

Instructional Objectives

Upon completion of the program, students are able to:

- Demonstrate an understanding of the history and theory of library and information science sufficient to recognize their role in today's society and the library's importance in the communication process.

- Articulate a theory of librarianship that includes an understanding of intellectual freedom and freedom of information; demonstrate a professional attitude toward the librarian's role as mediator between user and information; and show a commitment to improve the quality of library and information services in response to the needs of all segments of society.

- Demonstrate an understanding of information sources, the flow of information through society, and the role of libraries and information centers in the process.

- Demonstrate an appreciation for the contribution of the library and information, and learning can make to the richness of life, and the necessity to convey that appreciation to others.

- Demonstrate mastery of the techniques and procedures of effective information service (e.g., the selection, acquisition, organization, storage, retrieval, and dissemination of information).

- Identify and use bibliographic techniques and sources of information in a broad range of media for a variety of fields of knowledge.

- Articulate an understanding of management theory and practice sufficient to plan library and information services and perform the professional responsibilities of identifying needs, setting goals, analyzing problems, implementing programs, and evaluating results.

- Critically evaluate research that helps in the advancement of the profession and critically evaluate the contribution of librarianship made by related disciplines; and
• Demonstrates a commitment to professional growth.

Research Objectives
Faculty engage in research on library and information problems that advances both theoretical and practical knowledge. This includes research that directly supports the instructional program of the School of Library and Information Science.

Public Service Objectives
The school offers library and information science courses and library services, stimulates and organizes in order to promote better library and information service for the citizens of Iowa and surrounding areas. Faculty and students in the school participate in professional organizations at local, state, regional, and national levels.

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.

Graduate Programs
Graduate Students Not Admitted to Master of Arts Program
Graduate students not yet admitted to the master's program in library and information science may be admitted, upon request to the director, to take one course during the application process. This course may later apply to requirements for the degree.

Graduate students in other programs may take a course only with approval of the director and the instructor of the course.

Master of Arts
Provisional and academic preparation for careers in all types of libraries is provided by the school's Master of Arts program. Graduate students must complete courses in law, economics, business, accounting, government, management, and related topics. The master of arts degree in library and information science requires 36 semester hours of graduate credit with a minimum grade-point average of 2.50, and completion of a comprehensive examination. Five additional semester hours of credit are required for certification as a school media specialist.

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 are to be applied to the 30-semester-hour program as approved by the adviser.

Required Core Courses
Required of all M.A. candidates; 15 s.h.
21-116 Reference
21-124 Description and Organization of Materials
21-133 Foundations and Collection Development
21-137 Management of Libraries and Information Centers
21-040 Introduction to Information Science

Electives
Total: 18 s.h.

Elective courses in other University departments must be shown to be an integral part of the student's preparation for library and information science. Although many disciplines offer cultural and intellectual support to preparation for librarianship, they do not warrant replacement of selected courses in a 30-semester-hour program. To be applied toward the degree, electives outside the department must be taken following approval by the School of Library and Information Science. Each course must count as the equivalent of one semester of credit. For students having no previous courses in library science or 9 semester hours of the previous college courses, only courses taken for graduate credit may be counted toward the University's requirements.

Thesis Option
The purpose of the thesis option is to provide opportunity for research and to provide means of independent study to a student with extensive preparation in library and information science, 6 s.h. intended to replace basic preparation courses.

Transfer Credit
Up to 6 semester hours of graduate credit may be accepted in transfer from another institution, provided that the work was taken in residence in a library and information science program accredited by the American Library Association. Approval is given on a case-by-case 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 many students take an extra semester or two to fulfill the requirements. In particular, students whose time-consuming responsibilities, such as family duties or part-time or full-time 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 four summer sessions, but school certification requires certain courses that are available only during fall and spring semesters.

Public Library Work
Public libraries provide informational, educational, and recreational materials and a wide range of services, for a diverse clientele. Public libraries usually receive the largest part of their funding from local, state, or federal sources, but 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.

A major concern of public librarians is to design innovative services programs to reach segments of the population that are not served, as well as to provide a full range of services to all members of the community. Management skills often are important in these positions.

Plan of Study
Required core courses
Suggested electives
21-101 Basic Public Library
21-234 Library Management
21-247 Information Science
21-260 Library Automation
21-251 Advanced Reference
21-282 Practicum in Libraries
Courses relating to service to children and young adults
21-123 Library Career Counseling
21-127 Library Evaluation
21-266 Library Management
21-268 Library Materials for Adolescents
College and University Library Work
The school offers, whether in a community college, four-year college, or university, information services in support of the educational and public service missions of the parent institution. These services include
Plan of Study
Required core courses 15 s.h.
Suggested electives 18 s.h.
21032 The College of Liberal Arts Library Science 3 s.h.
21040 Bibliography 3 s.h.
21047 Information Storage and Retrieval 3 s.h.
21048 Library Automation 3 s.h.
21049 Research Methods 3 s.h.
21051 Advanced Reference 3 s.h.
21052 Description and Organization of Materials II 3 s.h.
21053 Technical and Serial Services Management 3 s.h.
21054 Government Publications 3 s.h.
21064 Medical Librarianship and Bibliography 3 s.h.
21065 Law Librarianship, Bibliography, and Research Techniques 3 s.h.
21092 Practicum in Libraries 2-3 s.h.
39111 The Community College (required for Iowa endorsement in library work for community colleges) 2-3 s.h.

Work in Special Libraries
Special librarianship includes careers in libraries and information centers serving both profit and non-profit organizations and institutions, law firms, research, historical societies. The ability to design services suitable to the parent organization, the possession of such skills and competencies as innovative, attractive, online searching, systems analysis, and organizing knowledge is a requirement of substantial subject expertise that is continually required in today's library work. Information brokers and entrepreneurs are also special librarians.

Plan of Study
Required core courses 15 s.h.
Suggested electives 18 s.h.
21030 Special Libraries 3 s.h.
21040 Bibliography 3 s.h.
21047 Information Storage and Retrieval 3 s.h.
21049 Research Methods 3 s.h.
21051 Advanced Reference 3 s.h.
21052 Description and Organization of Materials II 3 s.h.
21053 Technical and Serial Services Management 3 s.h.
21064 Medical Librarianship and Bibliography 3 s.h.
21065 Law Librarianship, Bibliography, and Research Techniques 3 s.h.
21092 Practicum in Libraries 2-3 s.h.

School Library Media Work
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 role of media in the instructional program, producing new materials, offering media guidance, and providing reference service.

To qualify as school media specialists in Iowa, graduates must hold a valid teaching certificate and an appropriate endorsement for school library work. The plan of study in the following section describes a program that is designed to prepare students for endorsement as school library media specialist K-12.

Iowa School Media Certification K-12
Students who complete the program below will fulfill state certification requirements for endorsement as a school media specialist K-12. To be admitted to the media certification program, a student must hold or be eligible for a teaching certificate. This program requires completion of 33 semester hours, 5 hours more than are required for the M.A. degree. Thus, students completing the certification program will fulfill the requirements for the M.A. in library and information science as well. The plan of study is as follows:

21151 Reference 3 s.h.
21152 Descriptive Organization of Materials I 3 s.h.
21153 Foundations and Collection for Education 3 s.h.
21241 Management of Libraries and Information 3 s.h.
21253 School Library Media Center Administration 3 s.h.
21244 Library Materials for Children 3 s.h.
21245 Library Materials for Adolescents 3 s.h.
21252 School Library Media Center Practicum 3 s.h.
21238 Introduction to Instructional Design and Technology 3 s.h.
21239 Survey of Computer Applications to Instruction 3 s.h.
21348 Research Methods of Technology 3 s.h.
21349 Educational Research Methodology 3 s.h.
21223 Instructional Strategies 3 s.h.
21231 Consultation Theory and Practice 3 s.h.
21222 Multi-Media Concepts in Libraries 3 s.h.
21256 Design and Production of Media for Instruction 3 s.h.
21257 Total 38 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).
Computer Facilities

A multipurpose occupying laboratory provides student access to microcomputers. Equipment is available for CD-ROM software, online searching, use of bibliographic utilities, and use of local software. In various courses, students learn to write programs, use and create database management systems, conduct database searches, work with word processing and spreadsheet systems, and perform statistical analysis.

Cataloging Lab

The school maintains a reference collection of cataloging tools used in description and organization courses. The collection is also available to students who need the materials for research or for other course work.

Media Lab

A media lab contains equipment and space for slide-type productions, videotape production, and film slate. It allows for the editing of film, video, and television. The lab is equipped with editing equipment and is available for use by students and faculty.

Statewide Reference Service

The school serves as a unit of a state network of libraries. In cooperation with the State Library of Iowa, students provide basic on-line reference service to libraries throughout the state. Students, using skills, learn to use bibliographic searching and to answer reference questions. The service helps students retrieve and integrate classroom instruction and provides valuable reference experience.

University Libraries

All the resources of the University Libraries are available to students and faculty of the school. The system contains more than 20,000 volumes in the Main Library and 11 departmental branches. More than 20,000 monographic volumes were acquired in 1990. The main collection is extensive, with more than twelve thousand current periodical subscriptions. The first floor of the Main Library houses the government publications, stacks, and special collections as well as building entrance. The locations of the School of Library and Information Science on this floor allow quick access to several storage and faculty offices. The library contains additional storage for the second-floor cluster of computer terminals located in the Weog Computing Center.

Other Libraries

Students have access to a variety of libraries through field trips, practical experience, and personal use of the State Historical Society Library in Iowa City, the Iowa City and Cedar Rapids public four school libraries, the Guern, Cotul, and Grinnell college libraries, and the Herbert Hoover Presidential Library in West Branch.

Other Resources

Librarians, located across the street from the Main Library, house the Learning Resources Center of the College of Education and the Weog Computing Center. The resource center consists of the Video Lab, Computer Learning Lab, Audiovisual Production Lab, and Curriculum Resources Lab. The Curriculum Resources Lab contains an extensive collection of books and nonbook instructional materials for children in preschool through grade 12. It is especially valuable for students interested in school or public library work.

Weog 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 advisor, a tenured faculty member. Advisors are encouraged to discuss career objectives and problems with graduate students outside of class as well. The initial size of the graduate student community is small to large, and individual students graduate on a regular basis. Each graduate student is expected to complete the degree requirements as outlined by the advisor.

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 international conferences provide opportunities to pursue study in contemporary subjects in library and information science, as well as an opportunity to meet with practicing librarians from across the state and nation.

The Library Information Science Student Organization (LISSO) is composed of all students accepted into the M.A. program. The Executive Committee of LISSO serves as a liaison between students and faculty/admission in matters of common concern, and as a planning group for student seminars and other activities. ECI holds 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 by means of bulletin board announcements, seminars on resume building, and interviewing, and personal counseling. The University's Educational Placement Office issues a weekly listing of job openings and provides a credential file service.

Iowa graduates find positions in all types of libraries. The placement distribution for the last three years was: academic libraries 30 percent, public libraries 35 percent, special libraries 14 percent, public libraries 12 percent. Iowa graduates currently work in libraries in 46 states and 9 foreign countries. Strong personal qualities, academic qualifications, job flexibility, and geographic mobility are important factors in obtaining a position.

Admission

Academic requirements for admission to the M.A. program include:

- A baccalaureate degree from an accredited college or university.
- A minimum grade-point average of 3.0 on a 4.0 scale, or an average of 3.0 on a 4.0 scale.
- At least 85 semester hours of study in the liberal arts and sciences.

A combined verbal+quantitative score of 1000 or a combined verbal+analytical score of 150 on the Graduate Record Examination (GRE) General Test.

A minimum of 15 credits in the liberal arts and sciences is required. The liberal arts and sciences must include at least 12 credits in a single discipline, and the average of the two best semesters must be at least 3.0 on a 4.0 scale.

Application material includes a written statement of purpose. This application material is available upon request. Applicants are required to write to the School of Library and Information Science for a preliminary information form. If the information provided on the form indicates that the applicant meets the basic admission requirements, the school will schedule a personal interview.

Prospective students are urged to begin application procedures early. Early application is encouraged by the deadline given below. Applicants must allow time for the Graduate Record Examination (GRE) General Test in order to take it.

Completed applications should be received by the school by March 1 for fall semester.
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 professional goals, prospective linguists students should consider growing their studies either through the M.A. in linguistics with a pedagogy of forces or through the doctorate, or they should take a second major.

Appreciation and knowledge in the field include foreign languages, English, anthropology, psychology, psychiatry, mathematics, computer science, philosophy, and elementary, secondary, and special education.

Bachelor of Arts

The Bachelor of Arts degree in linguistics prepares students to do basic language analysis and synectics (sentence patterns and their relation to meanings) and phonology (second pattern). Elective courses include methods and techniques enabling students to tailor the program to their own interests.

The major in linguistics requires 30 semester hours of course work. Majors must take introductory linguistics course (103.100), courses in phonetics (103.105), psycholinguistics (103.111), and syntax (103.112), and a course in language history. The last requirement can be satisfied by taking 103.120 National and Comparative Linguistics, or a course in the history of some language or language family (e.g., 103.135, 103.138), or a course in another language (e.g., Classical Greek, Latin, Swedish, Old English). Remaining electives are chosen with the undergraduate advisor.

Minor

The undergraduate minor in linguistics requires 15 semester hours of linguistics courses, which may be cross-listed, at least 12 of which must be in courses numbered 100 or above. A minimum grade point average of 2.0 is required, and none of these courses may be taken pass-fail.

Honors Program

Students may graduate with honors in linguistics by completing the major course work plus an honors thesis. The thesis must be prepared in consultation with the student's academic advisor.

Graduate Programs

The graduate programs emphasize theory and research. Students interested in nonuniversity careers also may take courses in applied linguistics and other fields, either in connection with doctorate work or as an option in the M.A. program.

Master of Arts

All students take a required set of core courses and comprehensive examinations in phonology and syntax. The required core courses are:

- 103.110 Articulatory and Acoustic Phonetics
- 103.111 Syntactic Analysis
- 103.122 Phonological Analysis and Theory
- 103.120 Historical and Comparative Linguistics
- 103.124 Syntax Theory
- 103.120 Phonology Theory

One of the following:

- 103.113 Linguistic Field Methods
- 103.210 Linguistic Structures
- 103.217 Language Universals and Linguistic Typology

Students who write a thesis take at least 9 semester hours of elective courses, exclusive of thesis hours, and receive up to 6 semester hours of thesis credit.

Students who take a degree without thesis complete a focus area consisting of 12 semester hours of course work plus at least 6 semester hours of elective courses. The focus may be designed in accordance with the student's (subject to departmental approval) or may be one of a set of predetermined options (e.g., teaching English as a second language).

All electives must be approved by the student's advisor or chosen from a departmental 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 30 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 (e.g., 103.121 Syntactic Theory and 103.113 Advanced Syntactic Theory, two upper-level phonology courses (e.g., 103.122 Phonological Theory), and at least two seminars, for a total of 18 semester hours. An approved 18-semester-hour specialty area also is required. Students must acquire proficiency in at least two foreign languages, as specified by departmental 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 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 accepted at any time, but earlier submission is encouraged. Applications for tuition reward are considered only for students whose admission for application is complete.

English as a Second Language

EFL students are divided into three distinct, but related, programs: the ESL credit support courses, the intensive English Program (IEP), and the Transitional Academic Preparation in English Program (TAP). 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 IEP provides intensive instruction for students who must raise their English proficiency to gain admission to a university or college. The TAP program prepares students to enter 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 590 to 610. ESL courses are offered to increase proficiency in six skill areas: reading, writing, speaking, listening comprehension, 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.

Iowa Intensive English Program (IEEP)
The IEP primarily serves students 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 IEP have full access to all University facilities. The program is a prerequisite to enrollment in the English Language Program.

Students admitted to the IEP receive a certificate of eligibility (Form L-180), which requires enrollment in the student visa at the nearest U.S. consulate. Application materials are available from the ESL Program Office.

Teaching Assistant Preparation in English (TAPE)
The TAPE program is designed for graduate students who desire to teach English as a Second Language (ESL) to international students. The program prepares students to assist with the instruction of non-English speaking students. TAPE graduates have completed courses in grammar, pedagogy, and methods of teaching ESL. The program provides a comprehensive course of study designed to meet the requirements for teaching English as a Second Language (ESL) to non-native speakers of English.

Courses
Primary for Undergraduates

**Courses for Undergraduates**

The department's reading room allows a close relationship between faculty and students, a considerable influence of students on departmental affairs, and a high degree of individual instruction. A large part of students' education in linguistics is conducted informally through daily conversations with each other and with faculty members.

**Courses for Undergraduates**

Primary for Undergraduates

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>100:006</td>
<td>Comparative Educational Internship</td>
<td>3 cr.</td>
<td>Description of educational systems in different countries.</td>
</tr>
<tr>
<td>195:11</td>
<td>Language and Society</td>
<td>3 cr.</td>
<td>Coursework specific to the requirements of the educational sector.</td>
</tr>
<tr>
<td>195:028</td>
<td>Special Project</td>
<td>1-3 cr.</td>
<td>Individual research in a linguistic topic, directed by a staff member.</td>
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For Undergraduates and Graduates

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<th>Description</th>
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</thead>
<tbody>
<tr>
<td>100:100</td>
<td>Introductions to Linguistics</td>
<td>3 cr.</td>
<td>Year-long introductory course designed to introduce students to basic concepts in linguistics.</td>
</tr>
<tr>
<td>244:100</td>
<td>Language, Society, and Education</td>
<td>3 cr.</td>
<td>Coursework specific to the requirements of the educational sector.</td>
</tr>
<tr>
<td>244:100</td>
<td>Teaching English as a Second Language</td>
<td>3 cr.</td>
<td>Methods and approaches in teaching English as a second or foreign language.</td>
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<td>244:100</td>
<td>Teaching English as a Second Language</td>
<td>3 cr.</td>
<td>Methods in teaching English as a second or foreign language.</td>
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Facilities

The Department of Linguistics has limited acoustic equipment consisting of a sound spectrograph, a studio-type tape recorder, and an audiometric chamber. There is also a remote terminal and a personal computer available to students. The department's reading room allows a close relationship between faculty and students, a considerable influence of students on departmental affairs, and a high degree of individual instruction. A large part of students' education in linguistics is conducted informally through daily conversations with each other and with faculty members.

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<tbody>
<tr>
<td>195:12</td>
<td>Computer Language Processing</td>
<td>3 cr.</td>
<td>Examination of language processing systems.</td>
</tr>
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- Examination of language processing systems.

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- Examination of language processing systems.

**Course Title:** Computer Language Processing  3 cr.

- Examination of language processing systems.
Literature beyond General Education Requirements 12 s.h.
Fine Arts 3 s.h.
Foreign Language: one semester beyond second year (Foreign literature courses in the original language may also be used to satisfy the requirement in literature.) 3 s.h.

Students considering an LSA major should consult with the chairperson of the department before the end of the sophomore year.

Honors
Superior students who undertake a further program of independent study may earn the Bachelor of Arts degree 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 the requirements for the College of Liberal Arts Honors Program. Honors students submit an honors project and present it to an Honors Committee.

Courses
3113 Why and Reason 3-4 s.h.
Involves between myth and reason as significant elements in Western thought: readings from Plato, Plato, Aristotle, and other philosophers, and poets.

3124 The Good Society 2-4 s.h.
How to live a good life: an examination of man's life and its society, as seen by authors from Plato, Aristotle, Machiavelli, Montesquieu, Hume, Marx, Marx and others. (G.) Honors.

3117 The Significance of Politics 2-4 s.h.
Political action as evidenced in biographical and sociological evidence.

3135 Crime and Punishments 2-4 s.h.
The impact of the criminals and punishment is reflected in history, literature, and art.

3118 The Family in Law and Society 2-4 s.h.
Equally shared family description, example in legal and social dimensions and their interaction, historical and cultural variables, and systematic representation in literature.

3119 Architecture and Symbolism 2-4 s.h.
Relationship between individual and institutions through understanding works of humanistic, social, and law, and authors such as Plato, Marx, Berle, and Tocqueville, Melville, and others.

3120 Values in the Contemporary World 2-4 s.h.
Survey of intellectual trends, organized through a series of contemporary philosophical theories and movements.

3133 Core Course: Science Policy and Values 2-4 s.h.
Investigation of major issues in practical science through different case studies of fields such as science, medicine, technology, and philosophy, as well as in literature in the works of Plato, Aristotle, and others. (G.) Honors.

3144 Human Nature and the Impact of Science 2-4 s.h.
Reflections on scientific, humanistic, social, and religious response to the problems of the universe as seen in the works of Plato, Aristotle, and others. (G.) Honors.

3164 Issues of Crime in America 2-4 s.h.
Examination of crime, violence, urban and suburban communities in the United States, as examined in works of literature, fiction, and nonfiction from the 18th to the 20th century.

3172 Poetry and Song 2-4 s.h.
An examination of literature and music, a range of serious classical compositions and the role of the performer, music, and the evolution of the arts and of the role of the arts.

3180 Special Projects 2-4 s.h.
Independent Study for Honors 2-4 s.h.
Honors students must report the course for a total of 6 s.h.

DIVISION OF MATHEMATICAL SCIENCES
Undergraduate degrees offered: B.A., B.S. in Mathematical Sciences

The Division of Mathematical Sciences is comprised of the Departments of Computer Science, Mathematics, and Statistics and Actuarial Science. For descriptions of these programs, see “Computer Science,” “Mathematics,” and "Statistics and Actuarial Science" in this section of the Catalog.

The B.A. and B.S. in Mathematical Sciences are being phased out, since each department listed above offers its own undergraduate program. Beginning in 1990, the mathematical sciences degrees are closed to new majors. Students already in the programs must complete the degree requirements by August 1995. For a description of the program requirements, see the 1988-89 General Catalog.

APPLIED MATHEMATICAL SCIENCES

Chair: Herbert W. Kerlell
Fawcett: Kendall E. Atkinson (Mathematics), Dennis L. Brinker (Industrial and Management Engineering), Gregory C. Gore (Chemical and Biological Engineering), Chien-chen Chen (Mechanical Engineering), Donald D. Horner (Psychology), Peter A. Gething (Psychology and Biophysics), Edward I. Hagg (Mechanical Engineering), Herbert B. Kolm (Mathematics), William H. Kunkel (Physics and Astronomy), Kenneth O. Kurose (Management Sciences), George E. Kerr (Physics and Astronomy), Karl E. Lommerg (Electrical and Computer Engineering), R. MacRae (Geography and Urban Planning Engineering), Roger K. Sall (Computer Science), George W. Mardia (Statistics and Actuarial Science)

Graduate degrees offered: Ph.D. in Applied Mathematical Sciences

Applied mathematical scientists formulate scientific concepts and problems in mathematical terms, solve the resultant mathematical problems, and interpret, and evaluate the solutions. They explore ideas for new and areas of mathematical application and development of mathematical theories in new areas.

Career opportunities for applied mathematicians include faculty positions in colleges and universities, research positions in industrial and governmental laboratories, and professional consulting positions.

Program
The Program in Applied Mathematical Sciences at The University of Iowa is an autonomous, broad-based interdisciplinary program leading to the Doctor of Philosophy degree. The program helps students achieve a command of theoretical and applied aspects of a mathematical science (mathematics, statistics, or computer science) and obtain basic knowledge in at least one substantive (theoretical, biological engineering, medical, physical, or social). The program is flexible, so students can concentrate on applied mathematics, such as differential equations, optimization, probability, and stochastic processes, or other applicable techniques in mathematics, statistics, or computer science. Applicants should have a strong background in a mathematical science and a desire to apply a mathematical science to relevant scientific problems in another science. Students may enter with either a bachelor's or master's degree.

Plan of Study
Faculty members help each student plan a course of study that is consistent with the student's background, interests, and goals. They also help the student find a suitable thesis problem and supervisor. Students' individual programs are designed to help them develop expertise in methods of applying a mathematical science. Build a good foundation in the relevant topics of theoretical and applied mathematics, statistics, or computer science; and provide sufficient knowledge of a particular science so that students can use mathematical science techniques in that science. Students can arrange their study plans so that they can obtain a master's degree in a mathematical science or a mathematical science department after they complete part of their plan.

Comprehensive Exam
Ph.D. comprehensive examinations cover those areas and theoretical foundations in a mathematical science, methods of application, and the chosen scientific area. One program objective is to have each student's dissertation research include many of the activities of an applied mathematical scientist. For example, a student would formulate a model, do a quantitative analysis of the model, and interpret the results.

Comprehensive Exam
Ph.D. comprehensive examinations cover those areas and theoretical foundations in a mathematical science, methods of application, and the chosen scientific area. One program objective is to have each student's dissertation research include many of the activities of an applied mathematical scientist. For example, a student would formulate a model, do a quantitative analysis of the model, and interpret the results.
Assistantship: Application for Admission

Research and teaching assistantships are available to qualified applicants. Support for students as research assistants is available during the summer. Applications for fall semester admission and for financial support should be received by March 1. For application forms and more information about the academic program, write to the Chair of the Program in Applied Mathematical Sciences, The University of Iowa, Iowa City, Iowa 52242.

Courses

191,917 Seminar in Applied Mathematical Sciences

AM

223,499 Reading and Research

AM

C0mputer Science

Chair: Arthur C. Black

Professors: Donald J. Alm, Donald L. Fisher, Arthur C. Black, Geoffrey (Psychology)

Associate professors: Robert B. Bani, Steven C. Breit, Herbert Davis, Douglas W. Jones, Tikva Roa

Assistant professors: Marc Armstrong, Robert R. Curbert, Joseph J. Klaysey, Bai-Lun Kang, Lifang Wangchak, Myong-Sik Piek, Kenneth Street; Harriet Zhang

Lecturers: William D. Blocker

Visiting lecturers: Robert Christiansen, Undergraduate degrees offered: B.A., B.S. in Computer Science

Graduate degrees offered: M.S., Ph.D. in Computer Science

Undergraduate Programs

Undergraduate students majoring in computer science must develop competence in mathematics, programming languages, and computer systems. They must also explore at least one area of potential computing applications through a required elective program. Students have great flexibility in their choice of area, but specific courses in that area must be approved by a computer science advisor. The Computer Science Undergraduate Handbook is available for purchase at the Iowa Memorial Union Bookstore, 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.

Pre-Computer Science

Existing students who wish to major in computer science are disqualified from precomputer science major status unless they have met the entry requirements of that computer science major. Students continue on precomputer science status until they complete the first four required courses of the major.

22C:16 Introduction to Programming with Pascal 4 s.h.
22C:17 Programming Techniques and Data Structures 3 s.h.
22C:18 Computer Organization and Assembly Language Programming 4 s.h.
23M:15 Calculus I 4 s.h.
23M:16 Engineering Calculus I 4 s.h.
23M:17 Calculus II 4 s.h.
23M:21 Calculus III 4 s.h.
23M:22 Calculus II 4 s.h.
23M:25 Calculus III 4 s.h.
23M:26 Calculus IV 4 s.h.
23M:27 Calculus IV 4 s.h.
22C:16 Introduction to Programming with C 4 s.h.
22C:17 Programming Techniques and Data Structures 3 s.h.
22C:18 Computer Organization and Assembly Language Programming 4 s.h.
22C:19 Discrete Structures II 4 s.h.
22C:23 Algorithms and Data Structures 4 s.h.
22C:24 Programming Languages Concepts 3 s.h.
22C:25 Parallel Systems and Computers 3 s.h.
22C:26 Introduction to Systems Software 3 s.h.

Total: 38 s.h.

In addition, an approved elective program of at least 12 semester hours is required, as described below.

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 requirement as described below.

Students must complete all the previously stated Computer science requirements for the B.A. degree, including the approved effective programs of at least 12 semester hours. In addition, they must meet the following requirements:

Computation of a two-semester sequence in a natural science acceptable toward a major in that science; these courses ordinarily are chosen to also satisfy the College of Liberal Arts General Education Requirement in natural sciences.

CLEAPST credit cannot be used to satisfy all or part of this requirement; approved natural science sequences are listed below.

Advanced Courses

22C:51 Computer Graphics 3 s.h.
22C:55 Elementary Theoretical Analysis 3 s.h.
22C:58 Computer Architecture II 3 s.h.
22C:96 Topics in Computer Science 3 s.h.
22C:99 Honors in Computer Science (if repeated, may be counted only once as an advanced course) 3 s.h.
22C:111 Software Engineering I 3 s.h.
22C:113 Operating Systems 3 s.h.
22C:122 Concurrent Programming 3 s.h.
22C:211 Advanced Computer Organization and Design 3 s.h.
22C:212 Programming Language Foundations 3 s.h.
22C:215 Data Abstractions, Types, and Structures 3 s.h.
22C:127 Introduction to Computer Construction 3 s.h.
22C:152 Parallel Programming 3 s.h.
22C:155 Introduction to
Computation Theory 3 s.h.
22C:144 Database Management
Systems 3 s.h.
22C:145 Artificial Intelligence I 3 s.h.
22C:146 Computer Vision and
Robotics 3 s.h.
22C:153 Design and Analysis of
Algorithms I 3 s.h.
22C:167 Introduction to Graphics 3 s.h.
22C:178 Computer Communications 3 s.h.
22C:185 Introduction to
Engineering 5 s.h.
22C:196 Topics in Computer
Science (if repeated, may be
counted only once in an
advanced course) 5 s.h.
22C:198 Individual
Programming Projects (if repeated, may be
counted only once in an
advanced course) 8 s.h.
22M:160 Numerical Analysis
3 s.h.
22M:161 Numerical Analysis
2 s.h.
22M:170 Analytical
Differential Equations and
Linear Algebra 3 s.h.
22M:174 Optimization
Techniques 3 s.h.
22M:176 Topics in the Numerical
Solution of Partial Differential
Equations 3 s.h.

These courses cannot be taken
pass/no-pass. Students with certain special
elective programs may petition for
additional courses to be accepted for this
requirement.

Natural Science Sequences
For the B.S. degree, students must take two or more courses in a sequence required of majors in at least one area of natural science. The first course must be a prerequisite to the second. This sequence should 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 eight semester hours and may also be chosen to fulfill a minor in natural science. General Education Requirement. Some possible courses are listed below, and the computer science adviser may approve others.

Astronomy
206:1 General Astronomy (GER, lab) 4 s.h.
52:42 General Astronomy (GER, lab) 4 s.h.

Biology
14:3 Principles of Chemistry I (GER) 3 s.h.
37:5 Principles of Animal Biology (GER, lab) 5 s.h.
20:100 Land Plants: An Evolutionary
Survey (not a "world science"
GER) 4 s.h.

Chemistry
41:3 Principles of Chemistry I (GER) 3 s.h.
51:16 Principles of Chemistry II (GER) 3 s.h.

Physics
291:1 Introduction to Physics I (GER,
lab) 4 s.h.
291:2 Introduction to Physics II (GER,
lab) 4 s.h.

Required Elective Program
For the B.A. or B.S. degree, students must take at least 12 semester hours of electives in a thematic area with potential computing application, such as business, engineering, mathematics, physics, or other field in which they plan to apply the computer science degree. These courses must be approved by the student’s computer science advisor and cannot be taken pass/no-pass. See the Computer Science Undergraduate Handbook for more details and examples of approved elective programs.

Honors
Any University of Iowa student with a cumulative grade-point average of 3.20 or higher may join the College of Liberal Arts 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 4-5 semester hours of 22C:99 Honors in Computer Science and submit an acceptable honors thesis. The computer science thesis can be written in either B.S. To take 22C:99, students must have the consent of a computer science faculty member. The thesis must make the nature of the intended project for the honors thesis, a plan or timetable for the work, and the nature of the thesis itself. Students are responsible for finding a faculty member willing to supervise their honors project. See the Computer Science Undergraduate Handbook for more details.

Minor
To earn a minor in computer science, students must complete a minimum of 15 semester hours of computer science courses, at least 12 of which must be taken at the University of Iowa computer science. For the minor only, the following courses are considered advanced: 22C:9 and 22C:250. Students must complete 22C:16, 22C:16, 22C:16, 22C:16, 22C:16, 22C:17, 22C:17, 22C:18, and one additional course numbered higher than 22C:18; or 22C:16, 22C:16, 22C:17. 22C:18, and one additional course numbered higher than 22C:18.

Graduate Programs
Master of Science
Computer science students with a bachelor’s degree in computer science must complete the following courses or acquire equivalent proficiency:

22C:16 Operating Systems 3 s.h.
22C:122 Advanced Compiler
Organization and Architecture 3 s.h.
22C:16 Introduction to
Computer Organization and
Architecture 3 s.h.
22C:123 Computer Language
Foundations 3 s.h.

In addition to the above courses, students must pass an oral exam to be eligible for the M.S. degree. Requirements for the M.S. degree include an oral defense of the thesis or a written examination that satisfies the equivalent of Computer Science 22C:99. The examination can be written in either B.S. To take 22C:99, students must have the consent of a computer science faculty member. The thesis must make the nature of the intended project for the honors thesis, a plan or timetable for the work, and the nature of the thesis itself. Students are responsible for finding a faculty member willing to supervise their honors project. See the Computer Science Undergraduate Handbook for more details.

Doctor of Philosophy
Doctoral students are expected to complete 80-90 semester hours of graduate work, including 27 hours of dissertation credit. Students need not have a master’s degree when beginning the Ph.D. program, and need not acquire one. Course
requirements or equivalent proficiency for the
discipline include:

22C:140 Operating Systems and
Concurrent Programming 3 s.h.
22C:184 Advanced Computer
Organization and Architecture 3 s.h.
22C:133 Programming Language
Foundation 3 s.h.
22C:125 Data Abstractions, Types,
and Interfaces 3 s.h.
22C:117 Introduction to Compiler
Construction 3 s.h.
22C:131 Introduction to Compilers
and Programming Theory 3 s.h.
22C:134 Database Management
Systems 3 s.h.
22C:145 Artificial Intelligence I 3 s.h.
22C:135 Design and Analysis of
Algorithms I 3 s.h.

Students also must complete at least 18 semester hours of 300-level computer science coursework in addition to 22C:199 Research for Dissertation. In addition to the coursework in computer science, students must complete at least three courses, with grades of A or B, in one of these outside areas: areas, algebra, analytic
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.

After students pass the qualifying examination, they select a faculty advisor to
direct their research. Students and their advisors select the dissertation committee.

In organizational and dissertation committee, students prepare a proposal and specifications for a feasibility examination that will serve as the PhD comprehensive examination. The dissertation committee administers the specialty examination after most of the required coursework is completed. Examinations are described in the Computer Science Graduate Handbook. Students prepare a written proposal for research and present an oral defense to the dissertation committee. They must demonstrate expertise in the area of
general computer science or the proposed project in terms of originality and significance. Students must make a final defense of the completed dissertation.

The department is highly selective in admittance doctoral students and usually
considers only applicants with a grade-point average above 3.30.

Graduate Service Courses

Compliance and experience in the use of a digital computer to problem solving is useful for those who have
prerequisite to advanced study and research in computer science. For those students, the following service
courses are recommended: Introduction to Programming with Pascal and 22C:116 Programming Techniques and

Dna Structures, in recommended Students in 1990 to which other programming
language are heavily used may find

22C:100 Introductory to Computing with
FORTRAN or 22C:100 Programming with
COBOL more appropriate.

Courses

Primarily for Undergraduates

22C:100 Cooperative Education Training
Assignment 5 s.h.

An on- or off-campus work experience with a
selected business or industry that integrates classroom and job
experience prior to entry that stimulates adaptability and
self-confidence. This course should be taken

22C:102 Introductory to Computer
Construction 3 s.h.

22C:131 Introduction to
Computation Theory 3 s.h.
22C:144 Database Management
Systems 3 s.h.
22C:135 Artificial Intelligence I 3 s.h.
22C:135 Design and Analysis of
Algorithms I 3 s.h.

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FORTRAN or 22C:100 Programming with
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Courses

Primarily for Undergraduates

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Computation Theory 3 s.h.
22C:144 Database Management
Systems 3 s.h.
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The department is highly selective in admittance doctoral students and usually
considers only applicants with a grade-point average above 3.30.
Program B Requirements
Program B requirements for the B.S. degree are the same as those for the B.A. program, except that two additional courses in mathematics numbered 228:107 or higher are required. The statistics and computer science courses listed in the program B requirements for the B.S. degree 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 transfer credit, 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, accredited 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 and another degree, such as computer science, statistics, or actuarial science must satisfy the requirements of program A or program B. Both degrees must be taken at the same time, or at the time, in the same semester.

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.

Minor
The minor in mathematics requires:
A minimum of 15 semester hours credit earned in Department of Mathematics courses; at least 2 of those 15 semester hours must be taken at The University of Iowa in advanced courses, neither transfer credit nor credit by examination.

At least 12 semester hours of advanced work; advanced courses are 228:107, 228:29, and all courses numbered 228:50 or higher.

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/no credit.

Honor's
Any undergraduate student with a cumulative grade-point average of 3.50 or higher may join the College of Liberal Arts Honor's Program; interested students should contact the department in Stouffer-House Honors Center.
Program II
This program is designed for secondary school teachers. The requirements are the same as those in program I or II, except that two mathematics education courses are required. All mathematics courses numbered 222 or above are required to satisfy the 24 semester hour requirement. Students are encouraged to consult with mathematics education faculty when planning their course of study.

Program III
This program focuses on applied mathematics. It requires two core courses and two comprehensive examinations, one in differential equations (222.144, 222.145) and one on numerical analysis/optimization (222.170, 222.171, 222.174). The required courses are:

222.144 Introduction to Partial Differential Equations I
222.145 Intermediate Differential Equations
222.140 Continuous Mathematical Models
222.151 Discrete Mathematical Models
222.174 Optimization Techniques
222.170 Numerical Analysis: Nonlinear Equations and Approximation Theory
222.171 Numerical Analysis: Differential Equations and Linear Algebra

Two additional courses from the following:
222.116 Complex Variables
222.117 Advanced Statistics
222.122 Advanced Calculus
222.140 Continuous Mathematical Models
222.151 Discrete Mathematical Models
222.172 Theory of Graphs
222.116 Operating Systems and Concurrent Programming
222.125 Design and Analysis of Algorithms I
222.125 Introduction to Probability
222.172 Mathematical Statistics
222.157 Introduction to Geometric Programming

The program requires a minimum of 30 semester hours of graduate credit, including at least 24 semester hours in the Department of Mathematics. Students who have studied mathematics equivalent to the required courses may request substitute electives.

Program IV
This program is designed for nondesidential students working toward Ph.D. degrees in areas that require mathematical knowledge. The program has as required courses. Course distribution requirements are the same as those for program I. Students in program IV are considered to have passed the comprehensive examination for the master's degree in mathematics if they have maintained a minimum grade point average of 3.0 in all mathematics courses taken for the master's degree in mathematics and have completed the Ph.D. comprehensive examination in the chosen area.

Students in program IV are assigned a mathematics advisor, who works with them and their major advisor to plan an appropriate curriculum for the master's degree in mathematics. A suitable program of study should be approved by a mathematics adviser before the student takes the Ph.D. comprehensive examination. The Ph.D. comprehensive examination committee, a member of the mathematics faculty, should preserve the Ph.D. comprehensive examination committee.

Admission
Admission to a Ph.D. degree program (I-IV) is based on a combination of undergraduate course work and grades, letters of recommendation, and GRE General Test scores (also TOEFL, access for foreign students). The following guidelines are current although exceptions may be made. Numerical standards are reset each 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 take specific courses that cover the deficiency.

Students must have an undergraduate grade point average of at least 2.0. Relevance and difficulty of courses are considered when evaluating grades; grades of C or lower in mathematics courses need not be balanced by grades in other fields.

Students must submit three letters of recommendation to support their applications.

Students must score at least 500 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 weaknesses.

Foreign students are required to demonstrate their competence in English. Normally this is done by scoring at least 500 on the TOEFL.

Doctor of Philosophy
The Ph.D. program places strong emphasis on preparation for research and teaching. The department maintains a division between "pure" and "applied" 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 grades), examination, 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 an adequate number of courses designated as satisfiable 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 acceptable as well as rules to ensure proper distribution.

The Ph.D. comprehensive examination consists of three parts, each a three-hour written exam, all taken over a two-week period. 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, topology, and geometry and one other from the preceding or partial differential equations. For each comprehensive area, there is a two-hour, 300-level course sequence designated as preparatory, although exams may differ from course content. One grade (pass, fail, conditional pass) is given on the whole three-part examination by a committee of three faculty members.

Candidates also take an oral final examination on their dissertation material.

Cambridge is required to demonstrate knowledge of French or Russian by passing a reading test administered by the appropriate language department, earning a grade of B or higher in the relevant language coursework. The language test is offered by the appropriate language department, or passing a special examination approved by the mathematics department graduate committee. The comprehensive examination must take place after the student has earned satisfactory grades.

The most distinctive aspect of a Ph.D. is the thesis. The department expects it to be an original mathematical work congruent in content and writing quality to that found in current research literature. The thesis is written under the supervision of a committee chosen by a member of the department's faculty, presumably the student's advisor.

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, access for foreign students). The department generally requires stronger grades and scores for admission. Undergraduate or graduate grade point average of at least 3.0. GRE General Test quantitative score of at least 750, TOEFL, scores of at least 577. Often new graduate students are admitted as master's
null
Statistics and Actuarial Science  ●  Liberal Arts

225.175-176 Casualty Actuarial Mathematics I
or
225.181-182 Life Actuarial Mathematics I-II
*In exceptional cases, the adviser may grant permission to waive 225.130. Otherwise, it should be completed before 225.131 is taken.
At least three from the following:
6A-1 Introduction to Financial Accounting
6F-100 Introductory Financial Management
6F-103 General Insurance
6M-190 Introduction to Marketing
6L-07 Introduction to Law
6L-100 Administrative Management
Suggested additional courses
225.179 Advanced Casualty Insurance Topics
225.189 Advanced Life Insurance Topics
6F-112 Property and Liability Insurance
6F-121 Life and Health Insurance
6C-275 Management Science Topics
(Crosslisted Research section)
The required and elective courses should be taken in the following order. In order to complete the program in four years, 225.133 Introduction to Probability must be completed prior to the fall semester of the senior year.
Freshman Year
Fall Semester
22M.25 Calculus I
or
22M.34 Advanced Calculus I
22M.45 Accelerated Calculus I
10-1 Economic
Spring Semester
22M.26 Calculus II
22M.36 Engineering Calculus II
22M.46 Accelerated Calculus II
10-2 Economic
Sophomore Year
Fall Semester
22M.57 Introduction to Linear Algebra
6E-1 Principles of Microeconomics
20C-7 Introduction to Computing with
PORTMAN
22C.16 Introduction to Programming with
Pascal
Spring Semester
22M.55 Principles of Macroecconomics
6E-2 Principles of Macroeconomics
22C.120 Probability and Statistics
Junior Year
Fall Semester
225.125 Casualty Actuarial Mathematics I
225.151 Introduction to Probability
225.177 Numerical Analysis for Actuaries
Business requirement
Spring Semester
225.126 Actuarial Mathematics II
225.154 Introduction to Mathematical
Statistics
225.150 Methods of Statistical Inference
Business requirement
Senior Year
Fall Semester
225.175 Casualty Actuarial Mathematics III
and/or
225.181 Life Actuarial Mathematics III
Business requirement
Spring Semester
225.176 Casualty Actuarial Mathematics IV
and/or
225.182 Life Actuarial Mathematics IV
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:
20C.7 Introduction to Computing with
PORTMAN
or
22C.15 Introduction to Programming with
Pascal
22M.25-26 Calculus I-II
or
22M.35-36 Engineering Calculus I-II
or
22M.45-46 Accelerated Calculus I-II
22M.27 Introduction to Linear Algebra
22M.36 Calculus III
22M.33 Regression Analysis
22M.153 Introduction to Probability
22C.154 Introduction to Mathematical
Statistics
22C.158 Analysis and Design of Experiments
At least two of the following:
63.163 Introduction to the Design of Sample
Surveys
225.156 Applied Time Series Analysis
225.161 Application of Multivariate
Statistical Techniques
22C.163 Nonparametric Statistical Methods
22C.165 Introduction to Stochastic
Processes
22C.169 Analysis and Design of Experiments
Students in this program are expected to take at least two introductory courses in an area in which statistics is applied, such as geography, biology, or business. Students also are expected to learn to use at least one statistical analysis computer package.
Mathematical Statistics
This program is designed to prepare students for graduate study in statistics. The required courses in the program are:
22M.25-26 Calculus I-II
or
22M.35-36 Engineering Calculus I-II
or
22M.45-46 Accelerated Calculus I-II
22M.27 Introduction to Linear Algebra
22M.36 Calculus III
22M.35 Fundamental Properties of Spaces
and Functions
22M.153 Introduction to Analysis I
22M.155 Introduction to Probability
22C.154 Introduction to Mathematical
Statistics
At least three of the following:
22C.152 Regression Analysis
22C.156 Applied Time Series Analysis
22C.158 Analysis and Design of Experiments
22C.154 Introduction to Discrete Probability
Models
22C.147 Introduction to Stochastic
Processes
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 120 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 3.35 in all departmental courses numbered 120 and higher, complete at least 290 level courses 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 mathematics by taking 15 semester hours in mathematics courses, 12 of which must be in courses taken at The University of Iowa numbered 225.105 and above. Students can earn a minor in actuarial science by completing 15 semester hours in Department of Statistics and Actuarial Science courses, including 225.120, 225.126, 225.133, and 225.134. For either minor, the grade-point average in departmental courses must be at least 2.0. An additional 15 semester hours is required for two minors (one in statistics, one in actuarial science).
Graduate Programs

Master of Science

Each M.S. candidate has a Committee of four members, who is responsible for recommending action on the candidate's degree. For credit-seeking programs, the committee's recommendation is usually based on two written examinations on topics covered in the required courses. For thesis programs, the committee's final recommendation is usually 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.

With the exception of certain two-course sequences approved by the department, graduate students may not state on their plan of study any course that they also took as an undergraduate student at The Pennsylvania State University. When approved, two-course sequences are repeated, the second course of the sequence may appear on the plan of study. At the present time, the only approved two-course sequences are 225.155-156, 225.175-176, and 225.190-191.

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. degree with thesis may earn up to 6 semester hours of credit for thesis preparation. Specific course requirements for the M.S. programs are given below.

Actuarial Science

Every graduate course is required. These courses are:

225.155 Introduction to Probability
225.154 Introduction to Mathematical Statistics
225.150 Math of Life-Contingencies
225.155 Mathematics of Life-Contingencies I
225.177 Numerical Analysis for Actuaries

Four courses from:

*225.175-176 Casualty Actuarial Science
*225.161-162 Life Actuarial Mathematics I, II
225.170 Advanced Casualty Insurance Topics
225.169 Advanced Life Insurance Topics

At least one of the sequences marked (*) must be included. The remaining courses may be any courses in statistics, management science, or finance approved by the advisor.

Theoretical Statistics and Probability

225.115 Introduction to Analysis I
225.193 Introduction to Probability
225.154 Introduction to Mathematical Statistics
225.122 Introduction to Stochastic Processes
225.201 Theory of Statistics I

At least two of these:

*225.146 Introduction to Stochastic Processes
225.172 Topics in Statistics
225.220 Theory of Statistical Inference
225.220 Introduction to the Theory of Nonparametric Statistics
225.253-254 Advanced Inference I, II
225.253 Linear Models
225.256 Multivariate Analysis
225.356-357 Theory of Probability I, II

Applied Statistics

Without Thesis

225.133 Regression Analysis
225.135 Introduction to Probability
225.134 Introduction to Mathematical Statistics
225.196 Analysis and Design of Experiments I

With Thesis

225.177 Data Analysis
At least two of the following:
225.156 Applied Time Series Analysis
225.161 Application of Multivariate Statistical Techniques
225.168 Analysis and Design of Experiments II

The remainder of the program consists of at least two additional courses numbered 225.130 or above, and other courses approved by the student's advisor.

The applied statistics program is designed to be flexible, so that students may concentrate on an area of application in addition to the required statistics courses. Students should work closely with their advisor in developing programs of study tailored to their specific interests. If the student's interest in a particular applications area is strong, a program in another department may be more appropriate, for example, educational measurement and statistics (education), operations research (industrial and management engineering), and biostatistics (preventive medicine and environmental health).

With Thesis

225.133 Introduction to Probability
225.154 Introduction to Mathematical Statistics

At least two of these:

225.136 Regression Analysis
225.156 Applied Time Series Analysis
225.158 Analysis and Design of Experiments II
225.161 Application of Multivariate Statistical Analysis Techniques
225.169 Analysis and Design of Experiments II

The remainder of the program consists of at least two additional courses numbered 225.130 or above, and other courses approved by the student's advisor. With the advisor's approval, courses in other fields related to the thesis may be substituted.

Experience in a computer language such as FORTRAN is required. If students totally lack the requisite programming course, that course may not be substituted toward the M.S. semester-hour requirement.

Theoretical thesis is a statistical presentation of the results of a meaningful research project in actuarial field, or a study of the characteristics of a new statistical method. It generally requires 3 semester hours of 225.191 Individual Study for two semesters.

Quality Management and Productivity

This innovative M.S. program is sponsored by the Department of Statistics and Actuarial Science in the College of Liberal Arts, Industrial and Management Engineering in the College of Engineering, and Management Sciences in the College of Business Administration. The M.S. program requires 36 semester hours, including at least 27 semester hours in the core, which consists of the following nine courses or reasonable substitutions.

225.130 Probability and Statistics
225.132-134 Introduction to Probability-Introduction to Mathematical Statistics
225.175-176 Operations Research I, II
225.141 Quality Control and Engineering Statistics
225.132 Regression Analysis
225.150 Analytical and Design of Experiments
225.250 Organizational Design, Change, and Transformation
225.254 Engineering Administration II

Students also must take at least 2 semester hours of seminars and/or seminars. Students are required to have a grade-point average of at least 2.50 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:

225.132 Regression Analysis
225.156 Analysis and Design of Experiments I
225.161 Introduction to Stochastic Processes
225.173 Data Analysis
225.261-262 Theory of Statistics I, II
225.253 Advanced Inference I
225.255 Linear Models
Qualification examination covers statistical theory, probability, mathematical statistics, and regression analysis. These topics generally are covered in 229:192, 229:193, 229:194, and 229:198; study guides are available from the department. Students who are unsuccessful in their first attempt may repeat the qualification examination only once.

Students take a comprehensive examination after completing most of the core work on their approved plan of study, typically during their third year. The comprehensive examination consists of a written core examination and an oral examination on statistical literature, linear models, and probability. These topics are generally covered in 229:201, 229:255, and 229:294. 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.

Special Features

Because statistics often are teamed with other sciences as research projects, it is important that students gain experience in group efforts. The department tries to provide this experience in several courses.

In addition to the above requirements, for each semester graduate students are registered for 6 or more semester hours, the final examination includes at least one course of at least 2 hours offered by the Department of Statistics and Actuarial Science other than 229:191. Individual study, 229:197 Readings in Statistics and Actuarial Science, or 229:197 Reading Research during the graduate program may count as work in seminars in other departments to fulfill certain auxiliary goals of the doctoral degree in statistics. These goals are to refine, in any area of specialization, to other fields of knowledge, to acquire the ability to use electronic digital computing equipment, to learn the language skills needed to read foreign scientific literature, and to develop the ability to function as personal contacts with foreign statisticians. Students are required to include in their programs of study that involves experience in other teaching or statistical computer courses.

Students who expect to request financial assistance or who anticipate being absent should take the qualification examination no later than the spring semester of their second year.

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Students who expect to request financial assistance or who anticipate being absent should take the qualification examination no later than the spring semester of their second year.
laboratories, research laboratories, and industrial laboratories (food, drug, chemical, pharmaceutical, and graphic engineering companies).

Students who continue beyond the bachelor's degree have career opportunities in food science, research and development, and academic teaching, and can pursue higher degrees in related fields.

**Undergraduate Program**

**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 5000- or 6000-level courses in microbiology, 6 semester hours of 5000- or 6000-level courses in chemistry, 3 semester hours of 5000- or 6000-level courses in mathematics, 3 semester hours of 5000- or 6000-level courses in computer science, and 3 semester hours of 5000- or 6000-level courses in physical science may be counted toward the requirement. Students who want to apply for certification by the NationalRegistry ofMicrobiologists are required to complete 30 semester hours of credit in microbiology, 20 of which must be in microbiology. Certification is required for employment as a microbiologist in the state. A grade of C or above in 5000- and 6000-level courses in microbiology, analytical chemistry, and mathematics is required for certification.

Students majoring in microbiology must take the following courses in addition to required microbiology courses:

- **413 Principles of Microbiology I** 3 s.h.
- **414 Principles of Microbiology II** 3 s.h.
- **415 Principles of Microbiology Lab** 3 s.h.
- **412 Organic Chemistry I** 5 s.h.
- **413 Organic Chemistry II** 5 s.h.
- **414 Organic Chemistry III** 5 s.h.
- **592 Biochemistry and Molecular Biology** 4 s.h.

Students majoring in microbiology must take the following courses in addition to required 5000- and 6000-level courses in microbiology:

- **22M5 Biochemistry for the Biological Sciences** 3 s.h.
- **22M5 Microbiology** 3 s.h.
- **22M5 Calculus I** 4 s.h.
- **22M5 Calculus II** 4 s.h.
- **22M5 Calculus III** 4 s.h.
- **22M5 Calculus IV** 4 s.h.
- **22M5 Calculus V** 4 s.h.
- **22M5 Calculus VI** 4 s.h.
- **22M5 Calculus VII** 4 s.h.
- **22M5 Calculus VIII** 4 s.h.

Recommended courses include the following:

- **88 88 Expository Writing** 3 s.h.
- **88 912 Writing for the Sciences** 3 s.h.
- **22C7 Introduction to Computing with FORTRAN** 3 s.h.
- **22C16 Introduction to Programming with Pascal** 4 s.h.
- **22C 17 Programming Techniques and Data Structures** 3 s.h.

**Undergraduate Program**

**Basic Course**

The ROTC basic course is designed primarily for freshmen and sophomores. It provides the fundamentals of leadership and management and introduces the roles of the military as affected by national and foreign policy. Students incur no obligation to the service for participation in the basic course. The following courses satisfy the basic course requirements.

- **23H1 The Prophets of Arms** 1 s.h.
- **23H2 The Military in a Modern Society** 1 s.h.
- **23H3 Military Survival Skills** 2 s.h.
- **23H4 Principles of Modern Warfare** 2 s.h.

Students who plan to pursue a commission as an officer should take 23H6 Leadership Laboratory with 23H7. All other basic course classes include a laboratory period. The laboratory course requirements may be completed over a one-year period or extended by attending a six-week paid course during the summer. Students with prior military training may be exempt from the basic course requirements.

**Advanced Course**

The ROTC advanced course, though open to students who are not seeking the prerequisites, is designed primarily for students who wish to prepare a commission as an officer in the U.S. Army upon graduation. It is open to both undergraduate and graduate students. Most students in the advanced course incur an obligation with the military that can be satisfied in the regular army or the reserve army.

A grant of First per month is provided to students who are assigned to the reserve forces. Additional financial assistance may be provided through participation in training with an army reserve unit.

To enter the advanced course, students must satisfy the basic course requirements, be academic sophomores and have at least a 2.0 grade-point average. A 4.0-credit paid camp, normally taken the summer before the senior year, is required for all students wishing to become army officers. The following courses are basic course requirements for completion of the advanced course:

- **23H5 Advanced Military Fitness Training** 3 s.h.
- **23H6 Warrior Training** 3 s.h.
- **23H7 Challenge of Leadership** 3 s.h.
- **23H8 Unit Tactics 1** 3 s.h.
- **23H9 Unit Tactics 2** 3 s.h.
- **23H10 Military Management** 3 s.h.
- **23H11 Orientation** 3 s.h.

Courses are open to all students. The course credit may be applied toward graduation requirements. In the College of Liberal Arts, up to 30 semester hours may be applied toward graduation.

**Graduate Programs, Faculty Roster, Courses**

See "Microbiology" in the College of Medicine section of the Catalog.
Additional Course Work
Students also must complete a course in the following areas through other University departments. These courses may be the same as those used to satisfy the College of Liberal Arts General Education Requirements.

Written Communications
Human behavior
Mathematics
Military history

Computer literacy

Financial Aid
The Military Science Department allows forteth-year and three-year merit scholarships for students who wish to enter the ROTC Program. These scholarships provide payment of tuition at The University of Iowa, $200 for books and supplies each year, up to $350 in academic fees per year, and a $100-per-month, tax-free subsistence allowance during the academic year. Additional scholarships are available for nursing students who wish to become army nurses.

Courses
2319 Leadership Laboratory 8 a.h.
Military skills and application of leadership theory and training, computer lab, sections. Prerequisite: 2315.
2321 The Profession of Arms 4 a.h.
Military skills and the application of leadership theory and practice. Prior to the 315th, basic training is required. Prerequisites: 2315.
2322 The Military in a Modern Society 1 a.h.
The military and how it-related involvements affect foreign policy. 2322 is offered in the spring semester. Prerequisites: 2315.
2325 Leadership: The Development of Motivation 3 a.h.
The development of motivation and leadership skills is emphasized. Prerequisites: 2315 or consent of instructor.
2326 Leadership and the Art of War 3 a.h.
Principles of military strategy and leadership. Current issues affecting military operations are discussed in a seminar format. Prerequisites: 2315 or consent of instructor.
2526 Advanced Military Fitness Training 1 a.h.
Involves the planning and conducting of periodic fitness training programs. Emphasis is placed on leadership and teamwork skills. Prerequisites: 2325 or consent of instructor.
2615 Foundations of Military Organization and Operation 2 a.h.
Organization, doctrine, and personnel management. Emphasis is on leadership in a small group setting. Prerequisites: 2315.
2315 Challenges of Leadership 3 a.h.
Spruce leadership skills on decision making, performance evaluation, personalization, delegation of authority, and responsiveness. Elective training in group management skills. Emphasis is on leadership. Consent of instructor required. Prerequisite: 2315.
2317 Small Unit Tactics 3 a.h.
Detailed instruction in small unit planning and preparation of military operations orders and taskers. Instructor is the field training officer. (Field training officer is the same as field training officer for training at the University of Iowa, $200 for books and supplies each year, up to $350 in academic fees per year, and a $100-per-month, tax-free subsistence allowance during the academic year. Additional scholarships are available for nursing students who wish to become army nurses.

MOLLEcular BIOLOGY
Graduate degree offered: Ph.D. in Molecular Biology
The Molecular Biology Ph.D. Program is an interdisciplinary program involving members of the Departments of Biochemistry, Biology, Microbiology, and Physiology and Biophysics. In addition to fulfilling the requirements as set for a list of participating faculty members, degree requirements, and courses.

MUSEUM TRAINING
Chair and director: George O. Schirmer
Assistant professor: George O. Schirmer
Associate professor: William H. Thompson

Museums collect and use the tangible objects of scientific, historical, and art in resources to provide a learning experience for discovery, learning, and interpretation. The University of Iowa museum training program offers courses that provide a fundamental background in the history, philosophy, organization, and administration of museums, museum functions and operations, and the conservation and techniques of exhibit preparation.

Courses
CO 6000 Cooperatives Education Internship 8 a.h.
Field work on a variety of cooperative education internships. Prerequisites: 2315 or consent of instructor.
2316 Principles of Exhibit Design 2 a.h.
Conservation, display, and exhibit design and construction. Prerequisites: 2316 or consent of instructor.
2317 Introduction to Museology 2 a.h.
Interdisciplinary course introducing the history, philosophy, and practice of museology. Prerequisites: 2315 or consent of instructor.
2318 Introduction to Conservation of Museum Objects 2 a.h.
Theoretical and laboratory studies in the conservation of museum objects. Prerequisites: 2316 or consent of instructor.
2319 Museum Collections and Administration 2 a.h.
Conservation, display, and exhibit design and construction. Prerequisites: 2316 or consent of instructor.
2320 Museum Collections and Administration 2 a.h.
Principles of museum collections and administration. Prerequisites: 2316 or consent of instructor.
2321 Museum Collections and Administration 2 a.h.
Principles of museum collections and administration. Prerequisites: 2316 or consent of instructor.
2322 Museum Collections and Administration 2 a.h.
Principles of museum collections and administration. Prerequisites: 2316 or consent of instructor.
Undergraduate Programs

The School offers the B.A. and B.M. degrees. Information on the B.A. degree may be found in the 6th semester of course work in music toward the 12-semester hours required for graduation; candidates for the B.A. may not.

Areas of concentration offered in the program are performance, composition, theory, music history, music studies, and music therapy. Programs leading to certification are also available in areas of education and music therapy.

General Requirements

At least a grade of C is required in all music courses. Entering undergraduate students whose majors plan to major in music are encouraged to audition either in person or by tape recording in advance of registration. Transfer students must provide evidence of acceptable levels of performance and must enroll with a representative from the theory area to organize their level of competence in that area.

Bachelor of Music

Course Work

All baccalaureate candidates must satisfy the College of Liberal Arts General Education Requirements, except that B.M. candidates are exempt from these historical perspectives requirements. The following School of Music course requirements also must be met.

25:1-4 Music Appreciation and Theory 16 s.h.
25:1-2 Group Instruction in Piano 2 s.h.
25:1-4 Techniques of Conducting 2 s.h.
25:1 History of Music I 3 s.h.
25:1-4 Music History of Music II 3 s.h.
25:1-4 Music Literature of Music 3 s.h.
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Performance Major

Performance majors are available in each of the orchestral areas—singing, dancing, acting, and composition. Students must take at least 17 additional seminars in areas beyond the school of Music to complete their course requirements. A performance major must maintain a GPA of 2.0 or better.

Music Therapy

Admission to the program in music therapy is based on successful completion (grade of 'B' or better) of 25.114 Orientation to Music Therapy and 25.744 Music Therapy Practice (three semesters, for 1, 1, and 2 credit hours, respectively). 25.96 Music Therapy: in Special Education and Behavior 3 s.h.

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 advisor in addition to their regular faculty advisor. Senior recital and recital attendance requirements are the same as those for the B.M. degree plus an additional 28 semester hours of jazz courses for performance majors, or an additional 16 semester hours for those in the music education certification program. Students in the jazz studies emphasis program must attend a weekly jazz seminar.

Music Therapy

Admission to the program in music therapy is based on successful completion (grade of 'B' or better) of 25.114 Orientation to Music Therapy and 25.744 Music Therapy Practice (three semesters, for 1, 1, and 2 credit hours, respectively). 25.96 Music Therapy: in Special Education and Behavior 3 s.h.

Composition Major

Applicants should submit examples of creation work facilitated by the composition faculty. Upon admission to the program, students are assigned a faculty advisor.

Students fulfill the general requirements of the Bachelor of Music degree or stated in the Catalog. Beyond these requirements, additional hours of electives are required, including audits in composition, experimental media, music history, music theory, and applied music. An appropriate plan of study is designed by the students in consultation with the advisor. The Bachelor's Thesis (25.99) replaces the recital requirement for the Bachelor of Music degree. This consists of one or more compositions, approved by a committee of three faculty members, and performed on regularly scheduled School of Music recitals.

Theory Major

Applicants should submit results (and other evidence of scholarly potential and evaluation by the faculty theory) upon admission to the program. Students are assigned a faculty advisor.

Students fulfill the general requirements for the Bachelor of Music degree as stated in the Catalog. Beyond these requirements, additional hours of electives are required, including studies in music theory, music history, composition, and applied music. An appropriate plan of study is designed by the students in consultation with the advisor. The Bachelor’s Thesis (25.99) replaces the recital requirement of the Bachelor of Music degree. It consists of a paper that deals scholarly writing with theoretical and critical matters, approved by the faculty theory.

Bachelor of Arts

The B.A., with its 50 semester hours of allowable electives, offers fine arts students an opportunity to develop skills in music education. The Bachelor of Music degree is offered in the arts and humanities. Admission to the program is available in the music education office. Course requirements for the major in music are as follows:

25.94 Music Therapy Practicum (three semesters, for 1, 1, and 2 credit hours, respectively) 5 s.h.

25.96 Music Therapy: in Special Education and Behavior 3 s.h.

25.114 Orientation to Music Therapy 2 s.h.

25.144 Psychology of Music 2 s.h.

25.145 Behavioral Research in Music 2 s.h.

25.158 Music Therapy Techniques: Applied Children 3 s.h.

25.190 Music Therapy Techniques: Adult Clients 3 s.h.

25.194 Internship in Music Therapy 2 s.h.
Vocal and Keyboard Majors

Vocal performance majors should consult the music office for recommendations. 75-130 Child and Adolescent Voice Production 2 s.h.
75-147 Choral Methods 3 s.h.
75-148 Choral Conducting and Literature 3 s.h.
75-155-156 Electives for Singers I-II 4 s.h.
75-96 Introduction to Teaching Music 2 s.h.
75-145 Methods and Materials: Elementary School General Music 3 s.h.
75-142 Methods and Materials: Secondary School General Music 3 s.h.
75-151 Observation and Laboratory Practice in the Secondary School 6 s.h.
75-162 Special Area Music Teaching 6 s.h.
75-197 Seminar Curriculum and Student Teaching 1 s.h.

Vocal and Keyboard majors preparing for music teacher certification must pass the proficiency examination of 25-71-12 Group Instruction in Piano I-II. In addition, keyboard majors should register for 25-17 Non-Major Voice for the two semesters. Vocal majors should register for 25-14 Non-Major Piano for two semesters.

Keyboard Majors (Nonvoice)

Keyboard majors who elect to teach in the nonvoice area must complete the requirements in either the drama, woodwind-percussion or string areas and pass the proficiency examination of 25-71-12 Group Instruction in Piano I-II.

Elementary Education Music Endorsement

Students majoring in elementary education may earn an area of specialization in music by completing the approved certification program for elementary teachers and 24 semester hours as follows:
All of these (8 semester hours): 25-125 Musicapparatus and Theory 6 s.h.
25-245 Musicapparatus and Theory II 6 s.h.
Students with limited experiences in music may find it helpful to register for 2510 Fundamentals of Music (3 s.h.), offered fall and spring semesters, before registering for 2511-12.
Two of these (4 semester hours): 25-71-72 Group Instruction in Piano I-II (for successful completion of proficiency exams I and II) 2 s.h.
25-280 Beginning Folk Guitar 2 s.h.
25-17 Non-Major Voice (2 semesters) 6 s.h.
25-18 Non-Major Piano (2 semesters) 6 s.h.
One of these (1 semester hour): 25-95 Old Gold Singers 0.2 s.h.
25-145 Kauai/University Choir 1 s.h.
25-149 Cantones Singers 1 s.h.
25-191 University Chorale 1 s.h.

All students must audition prior to registering for choral ensemble.

Two of these (6 semester hours):
25-103 World Music I 3 s.h.
25-104 World Music II 3 s.h.
25-106 History of Black Music 3 s.h.
25-107 Masterpieces of Music I 3 s.h.
25-144 Masterpieces of Music II 3 s.h.
Both of these (5 semester hours):
75-145 Methods and Materials: Elementary School General Music 3 s.h.
75-102 Special Area Student Teaching 2 s.h.
Total 24 s.h.

Students who want to complete the area of specialization in music without certification endorsement may substitute other coursework for 25190 with the advisor's approval.

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 (the "College of Liberal Arts" section of the Catalog). They may also take part in the honors program of the School of Music, since entering freshmen have already been invited to join on the basis of their high school record and ACT scores.

Throughout undergraduate residence, honors music students may take advantage of selection in honors sections of courses in the college and in the college, and may seek honors designations for any course, with the consent of the course instructor.

Students with a junior standing who are in the honors program may undertake work leading to the bachelor's degree (B.M. or B.A.) with honors. Undergraduate honors in major is awarded after completion of 6-8 semester hours in the major. The honors projects for which credit is given in 2510 include honors performances (duo and/or ensembles), honors compositions (or transcriptions, orchestrations, arrangements), and honors essays, research papers, editing, translations. A combination of at least two of these types of projects is required. None of the projects may duplicate projects assigned in other courses, nor may they be required for graduation (e.g., 25-114 Senior Recital). Students majoring in music are encouraged to take graduate-level courses. Advanced course work in music history, music theory, and languages is particularly recommended. As honors committee appointed by the honors advisor and the student's faculty sponsor evaluates the student's work, see the music honors advisor for more information.

Financial Aid

A number of music activity scholarships are available to outstanding undergraduate music majors. For information, write to the School of Music.

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 music office.

Graduate Programs

Enrolling graduate students must take the School of Music advisory examination in music theory ( Harmony, ear training, form, and counterpoint) and history and literature before registering. The advisory examination is given each session on the two days (excluding Sunday) before registration with students who have completed the theory exam must register for 25-11 Review Theory. A detailed description of the content of this test is available from the director's office, School of Music. General graduate admission, degree, and examination requirements are stated in the "Graduate College" section of the Catalog.

Theory Pedagogy Minor

Candidates for graduate degrees in music may elect a minor in music theory pedagogy by completing the following courses:
25-145 Counterpoint before 1600 3 s.h.
25-147 Counterpoint after 1600 3 s.h.
25-234 Observation and Laboratory Teaching in Theory 1-2 s.h.
25-230 Methods and Techniques of Teaching Static Theory 3 s.h.
Three of these:
25-146 Analysis of Music Literature 3 s.h.
25-149 Analysis of Music Literature 3 s.h.
25-150 Analysis of Music Literature 3 s.h.
25-153 Analysis of Music Literature 1 s.h.
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25-152 Analysis of Music Literature 1 s.h.
25-152 Analysis of Music Literature 1 s.h.
Total 3 s.h.

Master of Arts

The Master of Arts is offered in performance (including conducting), composition, musicology, and music education. Performance majors present a public recital in lieu of a written thesis. The Master of Arts without thesis is offered in music education. Both theses/thesis and nonthesis degree require a minimum of 30-33 postbaccalaureate semester hours. Information about specific admission and curricular requirements for each degree is available from the School of Music. All curricula must include the requirements listed below.

General Requirement

25-231 Introduction to Graduate Study in Music 2 s.h.
Music Theory
25:240 Introduction to Contemporary Analysis and Theory
3 s.h.
3 s.h.
Music History
25:361:00 Advanced History and Literature of Music 14-18 or satisfactory
history examination score.
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 senior year, students may withdraw and enroll in another musicology course.
Requests for adjustment of this requirement must be made in writing to a review committee consisting of the ensemble director, the advisor, the major teacher, and a representative from the student's major. The committee meets regularly at the end of each registration period.
Admission
Before applicants are considered for admission, they must submit satisfactory evidence of completion of at least one semester of music foundation courses, as follows:
Composition—representative musical scores
Theory—a sample of written musical scores
Performance—audition
Research—research papers, thesis
Pedagogy—contact School of Music
Information about specific admissions and curricular requirements for each area is available from the director's office.
Master of Fine Arts
The M.F.A. is for students of superior ability in composition, instrumental or vocal performance, conducting, and opera theater. It requires a minimum of 60 postgraduate semester hours. In addition to the entrance and curricular requirements for the Master of Arts degree, students who also must present at least two full-length recitals or programs (25:400, M.F.A. Thesis) for which a minimum of 6 semester hours of credit are granted. Students may earn a Master of Arts degree while working toward the Master of Fine Arts degree, but all requirements for each degree—including any final examinations—must be met separately, with a minimum combined total of 60 semester hours of graduate credit. (See "Graduate College" section of the Catalog for further details.)
Doctoral Degrees
General Requirements
All doctoral study in music includes:
Masters course requirements listed under the M.A. degree.
One of more additional electives from the following:
One or more additional courses in the history of music chosen from those listed in the master's degree requirements.
Reading proficiency in at least one foreign language (must be completed before comprehensive examinations; music education students may substitute two courses in statistics for this requirement).
Dissertation.
Doctoral students must participate in a major ensemble during each term of registration unless excused by their advisors (see list of major ensembles in this section of the Catalog). During the summer semester, students should be available for ensemble participation as needed. Knowledge may substitute for accompaniment in place of a major ensemble, at the advisor's discretion.
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. They are required to audition in their major performance area.
Information about specific admissions and curricular requirements for each area is available from the director's office.
Doctor of Musical Arts
Requirements for the D.M.A. degree in performance and pedagogy are 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. Vocalists may substitute the examination of one or more major roles in a large-scale work for one of their recitals. Co-factors present two final examinations.
D.M.A. candidates also must complete a scholarly investigation of limited scope in a written thesis.
Admission
Before students are considered for admission to a doctoral program, they must have demonstrating elementary skills in their intended area of concentration, as follows:
Composition—representative musical score
- theory-analyses or research papers
Music education—research papers and audition
Musicology (including conducting)—audition
- Music history and musicology—research papers, thesis
Graduate Awards
Qualified graduate students are invited to apply for teaching and research assistantships. Inquiries should be directed to the School of Music.
Music for Nonmajors
Courses particularly recommended for students who are not majoring in music but who have an avocational interest in it include 25:13-14 Masterpieces of Music; 25:150 Late Eighteenth- and Nineteenth-Century Composers; 25:160 Twentieth-Century Composers; 25:161 Eighteenth- and Nineteenth-Century Composers; the sequence 25:160-164 World Music 1B; for students interested in non-Western music; and 25:10 Fundamentals of Music. 25:78 Beginning Folk Guitar is available for nonmajors who wish to develop elementary musical 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 (see list of major ensembles in this section of the Catalog). Nonmajors interested in participating should consult music advisors and register for appropriate courses in applied music.
Special Programs
The Center for New Music is a performance ensemble within the School of Music. Begun in 1966 with a grant from The Rockefeller Foundation, the center provides an outlet for skillful resident muscians who form a voluntary ensemble for the purposes of performing twentieth-century music. As a vital component of the School of Music's composition program, the Center for New Music functions as a research and performance laboratory for staff and students, and as a showcase ensemble for
Graduate Major

25.102 Major Voice
arr. 1 a.
25.104 Non-Major Voice
arr. 1 a.
25.105 Major Piano
arr. 1 a.
25.106 Non-Major Piano
arr. 1 a.
25.201 Major Voice
arr. 1 a.
25.202 Non-Major Voice
arr. 1 a.
25.203 Major Harp
arr. 1 a.
25.204 Non-Major Harp
arr. 1 a.
25.205 Major Organ
arr. 1 a.
25.206 Non-Major Organ
arr. 1 a.
25.207 Major Strings
arr. 1 a.
25.208 Non-Major Strings
arr. 1 a.
25.209 Major Woodwinds
arr. 1 a.
25.210 Non-Major Woodwinds
arr. 1 a.
25.211 Major Percussion
arr. 1 a.
25.212 Non-Major Percussion
arr. 1 a.
25.213 Major Drums
arr. 1 a.
25.214 Non-Major Drums
arr. 1 a.
25.215 Major Strings
arr. 1 a.
25.216 Non-Major Strings
arr. 1 a.
25.217 Major Winds
arr. 1 a.
25.218 Non-Major Winds
arr. 1 a.
25.219 Major Brass
arr. 1 a.
25.220 Non-Major Brass
arr. 1 a.
25.221 Major Percussion
arr. 1 a.
25.222 Non-Major Percussion
arr. 1 a.
25.223 Major Drums
arr. 1 a.
25.224 Non-Major Drums
arr. 1 a.
25.225 Major Percussion
arr. 1 a.
25.226 Non-Major Percussion
arr. 1 a.
25.227 Major Drums
arr. 1 a.
25.228 Non-Major Drums
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25.229 Major Percussion
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25.230 Non-Major Percussion
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25.231 Major Percussion
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25.232 Non-Major Percussion
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25.233 Major Percussion
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25.243 Major Percussion
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25.244 Non-Major Percussion
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25.245 Major Percussion
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25.246 Non-Major Percussion
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25.247 Major Percussion
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25.248 Non-Major Percussion
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25.249 Major Percussion
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25.250 Non-Major Percussion
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25.251 Major Percussion
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25.252 Non-Major Percussion
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25.253 Major Percussion
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25.254 Non-Major Percussion
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25.255 Major Percussion
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25.256 Non-Major Percussion
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25.275 Major Percussion
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25.276 Non-Major Percussion
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25.278 Non-Major Percussion
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25.284 Non-Major Percussion
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25.285 Major Percussion
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25.286 Non-Major Percussion
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25.287 Major Percussion
arr. 1 a.
Students interested in enrolled in the PEOPLE program should contact the Office of Academic Programs, College of Liberal Arts.

Program Requirements

Students must complete 36 semester hours to earn the PEOPLE certification. Those who having a minor in one of the program's core departments and a minor in another may participate as long as they can fulfill the certificate requirements.

A major that meets a General Education Requirement and/or a requirement in the major or minor may also be used to meet a PEOPLE requirement.

Students must complete the following course of study:

Foundation

Each PEOPLE student must complete a major or minor in economics, philosophy, or political science. Within the chosen discipline, the student must take courses that provide basic familiarity with issues and methods of the discipline and that emphasize causes, reasons, or values. Requirements for each discipline are as follows:

Economics

Students must choose either the microeconomics or the macroeconomics track.

Microeconomics

6E.1 Principles of Microeconomics
6E.103 Microeconomics
6E.161 History of Economic Thought or
6E.166 The Political Economy of Socialism
One course on issues in microeconomics, chosen from:
6E.111 Labor Economics
6E.120 Environmental Economics
6E.111A International Legal and Economic Analysis
6E.123 Advanced International Economics
6E.150 Economic Analysis of Labor Markets
6E.172 Industrial Organization

Macroeconomics

6E.2 Principles of Macroeconomics
6E.105 Macroeconomics
6E.161 History of Economic Thought or
6E.166 The Political Economy of Socialism
One course on issues in macroeconomics, chosen from:
6E.113 Money and Banking
6E.119 Economics of the Government Sector
6E.122 Political Economy of the Military-Industrial Complex
6E.125 International Economics
6E.128 Economic Development

Underdeveloped Areas

6E.123 Agricultural and Food Policy
6E.125 Regional and Urban Economics
6E.141 Economics of American Industries
6E.175 Advanced International Economics
6E.174 Monetary Economics

Philosophy

6E.154 Philosophy and Human Nature
6E.102 Introduction to Ethics

One course in the history of philosophy, chosen from:

6E.111 Ancient Philosophy
6E.112 Medieval Philosophy
6E.114 Seventeenth-Century Philosophy
6E.116 Eighteenth-Century Philosophy
6E.117 Nineteenth-Century Philosophy
6E.128 Twentieth-Century Philosophy
6E.125 American Philosophy
6E.141 Continental Philosophy

One course on religious issues, chosen from:

6E.104 Introduction to Philosophy of Science
6E.102 Political Philosophy
6E.103 Philosophy of History
6E.187 Epistemology
6E.186 Philosophy of the Human Sciences

Political Science

30.36 Introduction to Political Thought and Political Action

One course on methods of political analysis, chosen from:
30.116 Law and Social Change
30.15 Introduction to Positive Political Theory
30.180 Honors Seminar on the Study of Politics

One course on the history of political theory, chosen from:
30.131 Foundations of Political Theory
30.132 Modern Political Theory
30.133 Postmodern Political Theory
30.134 American Political Theory

One course on issues in political theory, chosen from:
30.191 Origins of Unconstitutional Thought
30.138 Current Political Theory
30.139 Political Issues

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:
91.288 or 144.201 Jurisprudence
91.350 or 144.302 Issues in Law and Philosophy
91.267 or 144.203 Social Science in the Law
91.317 or 141.205 Legal Reasoning
One course on the history of legal theory, chosen from:
143.114 or 143.214 Foundations of Anglo-American Law
143.116 American Constitutional Law and Politics
143.290 or 143.110 Law in American History I
143.291 or 143.111 Law in American History II
143.661 or 144.206 Legal History Seminar
143.667 or 144.207 Modern Constitutional History
One course on issues in legal theory, chosen from:
30.118 Law and Social Change
30.117 The Politics of Civil Rights and Liberties
30.174 or 131.180 Women and the Law
91.190 or 144.286 Human Rights in the World Community: Problems of Law and Policy
91.367 or 144.209 Legal Control of Sexuality and Sexual Conduct
91.345 or 144.210 Hard Cases: Science, Policy and Values
91.319 or 144.211 Native American Law
91.660 or 144.222 Law, Medicine, and Public Policy
91.659 or 143.29 Law and Lawyers in Literature

Integration
The following are required.

Theory of Inquiry
One course chosen from:
25.104 Introduction to Philosophy of Science
25.105 Philosophy of the Human Sciences
30.180 Honors Seminar on the Study of Politics

Senior Seminar
144.144 Seminar: Philosophies and Ethics of Politics, Law, and Economics

Courses
144.114 Seminar: Philosophies and Ethics of Public Law, Law, and Economics
3.00 x 12
This course introduces students to the philosophical tasks that cross the boundaries between philosophy, political science, law, and economics. Open only to seniors in the PROGRAM. 3.00

144.161 Independence
3.00 x 12
Philosophy courses that focus on the theme of independence in law, political science, or economics. Open only to seniors in the PROGRAM. 3.00

144.601 Law and Political Theory
3.00 x 12
A survey of political philosophy, with emphasis on legal philosophy and social theory. Topics may include the nature of political order, the relationship between law and morality, authority, community, the institutional status of law, and political obligation. Same as 11.268. 3.00

144.639 Issues in Law and Philosophy
2.00 x 12
Topics in the relationship between law and various philosophical topics. Focus will vary from year to year. Same as 11.308. 2.00

144.653 Social Science to the Law
3.00 x 12
The use of empirical research in the law of a variety of legal areas. The law can be studied, evaluated, and used such information. student study of methodology and estimation of the role of such knowledge in current legal issues. 3.00

144.685 Legal Reasoning
3.00 x 3
Recent theories, philosophical underpinnings, recent philosophical work on reasoning, knowledge, language, argument, and moral theory. Same as 114.317. 3.00

144.206 Legal History Seminar
3.00 x 12

144.207 Modern Constitutional History
3.00 x 12
Civil rights and civil liberties issues in American legal and cultural history from World War II through the 1980s. Research paper and term papers. Same as 35.233 or courses of instructor. Same as 143.214. 3.00

144.209 Legal Control of Sexuality and Sexual Conduct
3.00 x 12
Legal and political control of sexuality and sexual conduct are increasingly more and more controversial and more and more important. same topics as in 143.319. 3.00

144.210 Hard Cases: Science Policy and Values
2.00 x 12
This course will examine ethical issues that are common to many disciplines. Lectures and discussions will focus on current political issues. 2.00

144.211 Native American Law
3.00 x 12
This course covers the history and philosophy of Native American Law. 3.00

144.225 Law, Medicine, and Public Policy
3.00 x 12
This course will cover the history of medical ethics and the legal and ethical analysis of the changing legal framework for organization and regulation of health care. Same as 11.308. 3.00

144.226 Undergraduate Program
2.00 x 12

Undergraduate Program
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—so that for any situation requiring clear, systematic thinking. A graduate degree is necessary for college teaching in philosophy. 2.00

Bachelor of Arts
The B.A. degree requires at least 27 semester hours of credit in courses numbered from 26.107 through 26.196 and must include 26.103 Introduction to Symbolic Logic, 26.113 Ancient Philosophy, and either 26.114 Seventeenth-Century Philosophy or 26.116 Eighteenth-Century Philosophy. The first 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 credit hour requirements will be taken into account in the selection of a major. The director of undergraduate studies can provide more information.

Minor
In order to achieve a minor in philosophy, a student must complete a minimum of 15 semester hours in philosophy with a 2.00 minimum grade-point average. Of these, a minimum of 12 semester hours must be in courses that are numbered above 100 and are taught in the Department of Philosophy at The University of Iowa. The director of undergraduate studies can provide more information.

Honors Program
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 registered in the College of Liberal Arts 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 the major in philosophy with a grade-point average of at least 3.00 in philosophy courses and must write an acceptable honors thesis on a significant topic. The thesis is at least 20 pages. The director of undergraduate studies can provide more information.

Graduate Programs
The graduate program is designed to train teachers and scholars in philosophy. The main areas in the graduate curriculum are classical and contemporary philosophy, history of philosophy, ethics, logic, and philosophy of science.

Master of Arts
The M.A. degree requires a minimum of 30 semester hours and may be taken without thesis. Requirements include courses in metaphysics and epistemology, history of philosophy, logic and philosophy of science and ethics. An oral final examination also is required. There is no foreign language requirement. The director of graduate studies can provide more information.

Doctor of Philosophy
The Ph.D. degree requires a minimum of 72 semester hours of graduate credit by the time the dissertation is completed. Courses for the doctoral program is determined by a formal vote of the entire faculty of the Department of Philosophy, usually after the student has completed
For Undergraduates Only

36.1 Problems of Moral Reasoning
Philosophical introduction to ethical thought, emphasizing on its implications for contemporary moral problems.

36.3 Problems of Political Philosophy
Philosophical study of the political activity and the relation to the individual in the state.

36.38 Philosophy and Human Nature
Philosophical and historical treatment of recent theories of nature and the relation to society, knowledge, religion, science, and freedom. GeH intellectual perspectives.

36.39 Philosophy and Human Nature
Theories of the nature of human nature and the obligations they have to each other, functions examined in the human condition, subject to which they have to each other. GeH intellectual perspectives.

36.48 Principles of Philosophy
Introductory study of logic and applicability. GeH questions or critical reasoning.

36.49 Introduction to Philosophy
Philosophical introduction to analytical philosophy and are thinking. Topics may include modern and historical. GeH intellectual perspectives.

For Undergraduates and Graduates

Introduction to Ethics
Analytical and practical introduction to ethical theories should be firm on the nature of goodness and the good life. Course for philosophy. GeH fundamentals.

Introduction to Socrates, Plato, and Aristotle
Socrates, Plato, and Aristotle.

Introduction to Socrates, Plato, and Aristotle
Socrates, Plato, and Aristotle.

Introduction to Socrates, Plato, and Aristotle
Socrates, Plato, and Aristotle.

Ancient Greek Philosophy
An in-depth look at the development of Greek metaphysics and its role in the history of Western philosophy. Course for instructor required.

Andrea Luca
An in-depth look at the development of Greek metaphysics and its role in the history of Western philosophy. Course for instructor required.

Benedicto Petrov
An in-depth look at the development of Greek metaphysics and its role in the history of Western philosophy. Course for instructor required.

Graduate students only.

Primary for Graduates

Philosophical Metaphysics
May be repeated.

Seminar in Epistemology
May be repeated.

Seminar in Philosophy
May be repeated.

Philosophical Analysis
May be repeated.
EXERCISE SCIENCE

Chair: Jerry A. Meyendorf

Professors: James G. Anderson, Gene R. Ayer, Donald R. Candy, Carl V. Gosnell, James C. Hay, Jerry A. Meyendorf

Associate professors: Leslie E. Allen, Gary J. Harper, Leslie E. Melding

Assistant professors: Ernest G. Bright, Richard N. Harmer, Donald D. Stets, James M. Whorton

Instructor: Thomas W. Balon, Kelly J. Cole, Warren G. Denton

Assistant in Instruction: Darra E. Banka, Gary E. Davis, Donald T. Foster, Mark A. Johanson, Robert T. Luep, Paul T. Luongo, Glenn E. Patrick, Warren G. Denton, Theodore S. Wharton

Graduate research assistants: Ann L. Bynum, Robert C. Hayes, James T. Rings, Larry J. Lawrence

Undergraduate degrees offered: B.S. in Exercise Science, Physical Education

Graduate degrees offered: M.A., Ph.D. in Physical Education (Exercise Science)

The Department of Exercise Science offers Bachelor of Science degree programs in both exercise science and physical education. The graduate program includes the Master of Arts degree without thesis, the Master of Science degree with thesis, and the Ph.D. degree. Students may select from several different areas of specialization for the M.A. with thesis and the Ph.D.

Undergraduate Programs

Bachelor of Science degree programs provide preparation for continuing education at the graduate level in exercise science or physical education and for careers in physical education and/or athletic training.

Candidates for the B.S. degree in exercise science are required to satisfy the College of Liberal Arts General Education Requirements in natural sciences by taking 4.15-14 Chemistry and 37.3 Principles of Animal Biology. The social sciences General Education Requirement should be satisfied by taking 31.2 Elementary Psychology.

Candidates for the B.S. degree in physical education are required to satisfy the College of Liberal Arts General Education Requirement in natural sciences by taking Chemistry 4.1 and Animal Biology 37.1. The social sciences General Education Requirement should be satisfied by taking 31.1 Elementary Psychology.

Bachelor of Science in Exercise Science

The exercise science major is 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, or physical therapy). The subspecialties in the program are anatomy, biomechanics, exercise physiology, and motor control.

Qualifications for admission to the major program include completion of a minimum of 90 semester hours of course work with a cumulative grade point average of 2.75 or higher, and attainment of a cumulative grade point average of 3.00 or higher for the following courses: 101.1, 101.2, 101.3, 101.4, 120.1, 120.2, 120.3, 31.1, and 37.3.

Exercise science majors must complete the following core courses plus 12 semester hours in their electives subcategory.

4.14 Principles of Chemistry II 3 s.h.
79.143 Introduction to Statistical Methods 3 s.h.
225.102 Introduction to Statistical Methods 3 s.h.
225.100 Biostatistics 3 s.h.
225.117 Introduction to Computing with FORTRAN 3 s.h.
88.705 Computer Analysis 3 s.h.
29.101 College Physics 4 s.h.
29.111 College Physics 4 s.h.
37.3 Principles of Animal Biology 3 s.h.
72.119 Human Physiology 4 s.h.
72.150 Introductory Physiology 4 s.h.

The following courses should be completed prior to the senior year:
23.150 Cross Anatomy for Exercise Science 2 s.h.
23.150 Cross Anatomy Lab for Exercise Science 2 s.h.
27.101 Biomechanics of Human Motion 3 s.h.
27.101 Exercise Physiology 3 s.h.
27.142 Exercise Physiology Laboratory 1 s.h.
27.160 Motor Control I 3 s.h.
27.160 Neurophysiological Basis 3 s.h.

Course electives for the 17 semester hours in the subspecialties in exercise science are listed below:

Anatomy Specialization
27.153 Advanced Anatomy 2 s.h.
27.153 Anatomy and 2 s.h.
27.153 Anatomy and 2 s.h.
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<th>Exercise Science</th>
<th>Liberal Arts</th>
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**Biomechanics Specialization**
- 317706: Biomechanics Laboratory 2 s.h.

**Exercise Physiology Specialization**
- 4121: Nutritional Chemistry I 2 s.h.
- 4122: Nutritional Chemistry II 3 s.h.
- 2155: Nutritional Science I 3 s.h.
- 2156: Nutritional Science II 3 s.h.

**Athletic Training Program**

The athletic training program provides concentrated studies and clinical experiences leading to National Athletic Training Association certification in athletic training. Employment opportunities for graduates include serving as trainers for professional teams as well as university, college, and secondary school athletic teams. Teacher certification is recommended but not required.

Students who have not formally contacted the athletic training program director prior to registering at The University of Iowa should talk to an athletic training advisor or their college advisor upon entering the University. Early advising should be sought for course counseling since prerequisites and sequenced skill development must be completed along with general education course work.

Students are formally admitted into the programs and begin clinical experience as sophomores. Application is made between January 1 and April 1 of the freshman year. To be considered for admission, students must be certified in first aid and CPR and must complete at least one college-level course in each of the following areas: animal husbandry, chemistry, mathematics, physics, introductory psychology, human anatomy, human growth and development, and introductory athletic training.

Program requirements include:
- 70 195 Counseling for Related Professions 3 s.h.
- 71 194 Introductory Nutrition 3 s.h.
- 136 142 Contemporary Issues of Health Education 3 s.h.
- 71 110 Drugs: Their Nature, Action, and Use 3 s.h.
- 72 130 Human Physiology 3 s.h.
- 27 140 Exercise Physiology for Practitioners 3 s.h.
- 72 130 Human Physiology 3 s.h.

**General Major**

Students who elect the general major in physical education must complete the core requirements listed below and the following courses.

- 136 110 Administration of Physical Education and Athletics 2-3 s.h.
- 27 145 Physical Education for the Handicapped 3 s.h.
- 28 140 Physical-Social Dimensions of Physical Activity 3 s.h.
- 136 142 Contemporary Issues of Health Education 3 s.h.

**Graduate Programs**

Master of Arts without Thesis

The program leading to the M.A. degree without thesis is designed as a terminal unit of advanced study for physical education teachers, physical education coaches, and physical educators. The program requires a minimum of 30 semester hours and is open to both full-time and part-time students. The program is designed to provide an advanced level of knowledge and understanding in the field of physical education and to prepare the student for leadership roles in the profession. The program requires a minimum of 30 semester hours and is open to both full-time and part-time students. The program is designed to provide an advanced level of knowledge and understanding in the field of physical education and to prepare the student for leadership roles in the profession.
hours. At least 24 must be in physical education, including 27301 Non-Thesis Seminar, and at least one course must be chosen from each of these three groups:

**Group 1**
27105 Physical Education for the Handicapped
3 s.h.
27107 Measurement and Evaluation in Physical Education
1 s.h.

**Group 2**
27207 Public School Curriculum in Physical Education
3-3 s.h.
27242 Supervision of Physical Education
3 s.h.

**Group 3**
27140 Exercise Physiology for Practitioners
3 s.h.
27150 Gross Anatomy for Exercise Science
3 s.h.
27151 Gross Anatomy Lab for Exercise Science
2 s.h.
27157 The Qualitative Analysis of Human Motion
3 s.h.
27160 Motor Control I: Non-neurological Bases
3 s.h.

**Master of Arts with Thesis**

The thesis program leading to the M.A. degree in exercise science or physical education is designed primarily as a first step in graduate study leading to the doctor of philosophy. It also provides advanced preparation for persons who are teaching or who intend to teach undergraduate physical education in four-year colleges but do not plan to pursue doctorates.

The thesis program for the M.A. degree in exercise science or physical education is a research-oriented program. It introduces students to the nature and extent of research in exercise science and physical education, and gives them an opportunity to specialize in an area of interest.

Because the M.A. degree with thesis is regarded as the first step toward the Ph.D. degree in one of nine areas of specialization, the undergraduate course work required depends on the area in which the candidate intends to specialize for doctoral study. Specific courses in mathematics, chemistry, physics, biology, physiology, or psychology are required in some areas of specialization. These courses must be approved by the M.A. advisor and the professor in charge of the emphasis area selected by the candidate.

The following courses are required for the M.A. degree with thesis:

Two courses outside the area of specialization, from the following:
27141 Exercise Physiology
5 s.h.
27142 Exercise Physiology Laboratory
1 s.h.
27153 Advanced Anatomy and Kinesiology
2 s.h.
27157 Biomechanics of Human Motion
4 s.h.
27265 Adapted Physical Education: Special Topics and Research
3-4 s.h.
27272 Public School Curriculum in Physical Education
2-5 s.h.
27282 Supervision of Physical Education
3 s.h.
27287 Advanced Measurement and Evaluation in Physical Education
3 s.h.

Three courses related to basic research tools, from the following:
79143 Introduction to Statistical Methods
3 s.h.
63161 Introduction to Biostatistics
3 s.h.
An approved graduate-level course in computer science
2-4 s.h.
An approved graduate-level course in scientific writing
3 s.h.
Specialization area:
27404 Thesis: M.A.
4 s.h.
Specialization courses approved by advisor
5-7 s.h.
Electives
4-5 s.h.
Total
30 s.h.

**Doctor of Philosophy**

**Admission**

Admission to the Ph.D. program is based on applicants' grade point average on work completed for the B.A. or B.S. degree and their 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 therapeutic exercise, 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 and physical education and 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 or physical education.

Specialization areas (offered include adapted physical education, administration, curriculum, and supervision in physical education, anatomy, biomechanics, exercise physiology, measurement and evaluation in physical education, motor control, and therapeutic.

The thesis program for the Ph.D. degree, together with the Ph.D. core courses, provides students with additional training for the Ph.D. candidate's specialization. Candidates must complete a minimum of 71 semester hours beyond the B.A. or B.S. degree. This must include the completion of a dissertation on a problem in the area of specialization. It is expected that an appropriate manuscript of the dissertation will be submitted at an approved professional journal for publication.

Many of the courses in the specialization areas are also offered by departments other than the Department of Exercise Science. Professionals from these departments frequently serve on comprehensive examination committees and on dissertation committees for the initial presentation of the candidate's proposed problem. They also participate in the final oral examination in which the candidate defends the dissertation.

**General Requirements**

Ph.D. candidates must fulfill the following requirements:

Completion of the M.A. or M.S. degree with thesis; this may or may not include The University of Iowa M.A. M.S. degree requirements in the Department of Exercise Science.

Ph.D. degree courses include a minimum of 15 semester hours of independent research excluding the thesis requirement; the rest of the independent study is to provide students with additional opportunities to conduct research projects; enabling them to submit such completed projects for publication.

At least 72 semester hours of graduate credits beyond the B.A. degree. Ph.D. degrees in exercise science typically exceed 80 semester hours.

**Core Course Requirements**

Two approved courses in statistics
One approved computer science course
27707 Seminar in College Teaching (minimum of 3 s.h.)
27706 Research Methods (10 s.h.)
27405 Thesis: Ph.D. (12 s.h.)

In order to ensure that exercise science majors gain a minimal 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 below. Three must be included in coursework.

Students specializing in other areas must select one course in each of the four areas. Two must be second-level courses.
Students specializing in therapeutics may submit a formal request to the Exercise Science faculty to substitute specific courses from their program for the scientific arts courses listed below, provided the substitute courses contain both a lecture and a laboratory format.

Anatomy
First-Level: 27.159 and 27.15 (4 s.h.)
Second-Level: 27.253 (6 s.h.)

Biomechanics
First-Level: 27.166 (3 s.h.)
Second-Level: 27.197 (4 s.h.)

Motor Control
First-Level: 27.186 (3 s.h.)
Second-Level: 27.205 (3 s.h.)

Exercise Physiology
First-Level: 27.176 and 27.142 (4 s.h.)
Second-Level: 27.274 and 27.303, or 27.275 and 27.304, or 27.276 and 27.305 (6 s.h.)

Outlining and Comprehensive Examinations
To assure general background knowledge, all Ph.D. candidates must pass an initial qualifying examination, which should be taken prior to the start of the second semester of graduate study (prior to the fifth semester if the student 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 semester for students entering with only the bachelor’s degree). Candidates specializing in exercise physiology who wish a major in physiology may write a separate comprehensive examination prepared and evaluated by faculty members of the Department of Physical Education and Biophysics in the College of Medicine. Candidates are expected to obtain a broad knowledge base within their area of specialization. This normally entails approximately 20 semester hours. Recommended courses for each area of specialization are as follows:

Adapted Physical Education
77.130 Exceptional Persons
27.270 Adapted Physical Education Special Topics and Research
60.198 Human Anatomy
27.253 Laboratory in Advanced Anatomy

Administration, Curriculum, and Supervision
27.242 Supervision of Physical Education
70.203 Foundations of School Administration
27.292 Advanced Administration of Physical Education
27.357 Research Methods in Physical Education and Professional Curriculum

Anatomy
27.253 Laboratory in Advanced Anatomy
60.217 Developmental Anatomy
60.234 Medical Neuroanatomy

Cell, Tissue, and Organ Biology
27.150 Advanced Anatomy and Kinesiology
59.110 Biochemistry and Molecular Biology I
27.186 Electromyography in Kinesiology and Biomechanics
59.111 Biochemistry and Molecular Biology II
59.110 Biochemistry
77.103 Introduction to Radiobiology
77.224 Radiobiology in Biological Research

Biomechanics
57.110 Mechanics of Deformable Bodies
57.110 Mechanics of Fluids and Transfer Processes
57.21 Principles of Design I
58.150 Intermediate Dynamics
50.105 Design and Analysis of Experiments in the Biomedical Sciences
27.203 Laboratory in Advanced Anatomy
57.280 Electromyography in Kinesiology and Biomechanics
57.207 Research Techniques in Biomechanics
57.210 Biomedical Instrumentation

Exercise Physiology
37.112 Cell, Tissue, and Organ Biology
60.246 General Physiology for Graduate Students
57.110 Introductory Endocrinology
57.205 Introductory Endocrinology Laboratory
71.105 Pharmaceutical Science for Physical Medicine
72.112 Medical Physiology
72.214 Enzyme Physiology Seminar
50.120 Biochemistry and Molecular Biology I
50.110 Biochemistry and Molecular Biology II
77.103 Introduction to Radiobiology
77.224 Radiobiology in Biological Research

Measurement and Evaluation
70-243 Intermediate Statistical Method
70-244 Correlation and Regression
125-153 Introduction to Probability and
125-154 Introduction to Mathematical Statistics
70-245 Design of Experiments
70-246 Construction and Use of Evaluation Instruments
70-247 Educational Measurement and Evaluation
77-217 Seminar: Research in Measurement and Evaluation in Physical Education

Motor Control
27.295 Electromyography in Kinesiology and Biomechanics
37.314 Seminar in Motor Control
37.318 Introduction to the Neurosciences
10.212 Biomedical Instrumentation

Three courses must be selected from the following areas: computer science, neuroscience, biomechanics, anatomy, and exercise science.

Therapeutics
Candidates for this specialization must be accepted into the graduate program in physical therapy education as well as in exercise science. Requirements 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
221.100 Introduction to Computing with Fortran
63.203 Research Data Management
27.400 Data Processing
27.405 Thesis, Ph.D.
101.214 Advanced Seminar in Physical Therapy
101.215 Advanced Seminar in Physical Therapy
195.327 Research in Therapeutics

Specialty Emphasis
Individual plans of study are developed jointly by the graduate student and faculty advisor. Course requirements depend on the student’s specific specialty area (cardiopulmonary, ergonomics, musculoskeletal, neurorehabilitation, age).

Facilities
The Field House, Recreation Building, and Indoor Practice Facility provide excellent facilities for the physical education skills program and the undergraduate and graduate instructional programs. Research laboratories for anatomy, biomechanics, physiology of exercise, 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 and physical education students to use additional special facilities and research equipment.
Undergraduate Program

Applicants to the undergraduate program in leisure studies must have a minimum cumulative grade-point average of 2.00 based on at least 30 semester hours of completed course work. They must submit a transcript and a mid-term statement of their interest in leisure studies and significant work or volunteer experience. Exceptional personal qualities and other pertinent information, letters of reference are optional. Applications are available from the department office. Deadline for full semester admission is March 1, for spring semester, October 1.

Requirements

Students must complete 34 semester hours of core courses, including:

104-00 Leisure in Contemporary Society 3 a.
104-05 Recreation Leadership and Programming 4 a.
104-10 Leisure Research 3 a.
104-15 Introductory to Therapeutic Recreation 3 a.
104-16 Administration of Recreation I 3 a.
104-170 Social Psychology Seminar 1 a.
104-115 Internship in Recreation 7 a.
104-151 Internship in Recreation 3 a.
2516 or 2537 First Aid and CPR 2 a.

Students also must complete 9-15 semester hours of courses in one of the following areas of concentration.

Community Recreation

The community recreation concentration is designed for students preparing for positions as administrators and organizers of recreation programs, facilities, and departments. It is oriented primarily to local government, civic, and nonprofit recreation and park departments.

Required courses are:

104-130 Park and Recreation Facility Management 3 a.
104-134 Introduction to Planning and Design of Recreation and Park Areas and Facilities 3 a.

Three courses selected with advisor

Therapeutic Recreation

Therapeutic recreation prepares students to organize, plan, and lead recreation programs in treatment and recreational settings for people who are ill, handicapped, aged, disabled, and disadvantaged.

Required courses are:

104-121 Orientation to Special Populations vs Therapeutic Recreation 4 a.
104-125 Role of Therapeutic Recreation in Rehabilitation 5 a.

Three to six courses, selected with the advisor, that satisfy pre-emergency requirements for certification by the National Council for Therapeutic Recreation Certification.

Leisure Studies

The leisure studies concentration is designed for students preparing for graduate work or who have a major interest in leisure research or leisure as a contemporary social issue. It is the most flexible of all concentrations and makes maximum use of courses outside of the Department of Leisure Studies. Together, the student advisor and design the leisure studies concentration according to individual needs.

Commercial/Industrial

The commercial/industrial track is the newest emphasis area. Students seeking careers in commercial recreation operations, such as health spas and clubs, sales of recreation goods and services, or recreation-related businesses find this specialization well-suited to their needs, as do those interested in institutional recreation and employer-provided recreational services and opportunities for employees. Students are urged to select a concentration of guided electives in business, fitness, and health-related areas.

Required courses are:

104-838 Health Promotion in Corporate, Hospital, and Private Settings 5 a.
104-839 Managing the Commercial Recreation Enterprise 3 a.

Three courses selected with advisor

Internship Opportunities

The Department of Leisure Studies places special emphasis on practical experience on the job. Both internships and job opportunities exist in public recreation agencies, private recreation agencies, and commercial recreation agencies.

The practical emphasis is completed by a professional internship for a full semester in an agency compatible with the student's area of concentration. The internship is designed to lead to professional placement.

Several hundred local, state, and national departments, agencies, and services provide field work and internship opportunities for students in the department.

Honor

Admission to the honors program in leisure studies requires a formal application, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34 semester hours of course work at The University of Iowa, completion of at least 9 of the 34
Primary for Graduates

Academic

B.A. or B.S. with Teacher Certification

Coaching Endorsement

The Iowa Department of Education requires that all beginning teachers earn a basic athletic endorsement. The following program has been approved by the Iowa Department of Education and is available to students who also complete the requirements for a teaching major.
Health Endorsement

The full-time program has been approved by the Iowa Department of Education for certification to teach health. The following courses are required.

17:41 Introduction to Nutrition 3 s.h.
17:55:03 Human Anatomy 3 s.h.
17:51 Human Growth and Motor Development 3 s.h.
17:54:02 Contemporary Issues of Health Education 3 s.h.
17:53:07 First Aid and CPR 2 s.h.
or Red Cross or comparable certification in first aid and CPR
77:192 Coaching Practicum 1.5 s.h.

Courses

120:14 Theory of Coaching 3 s.h.
including fitness strategies, teaching the sport, including rules of games, organization of practice, and supervision.
120:15 Introduction to Physical Education 2 s.h.
The pedagogy of physical education and related education. Job search in preparation for advanced level coaching positions.
120:21 Theory and Principles of Fitness 3 s.h.
Teaching the sport, including rules of games, organization of practice, and supervision.
120:23 Laboratory in Teaching of Physical Education 1 s.h.
Teaching of Dance 2 s.h.
Methods for teaching dance, and creative dance and choreography. Teaching of dance, including safety and legal issues. Prerequisite: 120:15.
120:25 Coaching of Football 2 s.h.
120:24 Coaching of Baseball 2 s.h.
120:25 Coaching of Track and Field Activities 2 s.h.
120:24 Coaching of Basketball 2 s.h.
120:27 First Aid and CPR 2 s.h.
124:19 First Aid and CPR 2 s.h.
124:33 Coaching of Competitive Swimming 2 s.h.
124:30 Coaching of Wrestling 2 s.h.
124:31 Track 1 s.h.
124:30 Wrestling 1 s.h.
124:30 Field Sports 1 s.h.
124:30 Softball 1 s.h.
124:33 Sailing 1 s.h.
124:33 Basketball 1 s.h.
124:33 Human Anatomy 2 s.h.

The Department of Physical Education and Sports Studies offers bachelor's degree programs in a variety of areas, including fitness, wellness, and sport management. Undergraduate degrees offered include the Bachelor of Arts and Bachelor of Science degrees in physical education.

Undergraduate Programs

Each undergraduate student in physical education elects a wide variety of courses and activities in preparation for careers in corporate fitness programs, wellness centers, private health clubs, YM-YWCAs, and sport programs. Students acquire the background through anatomy, kinesiology, physiology, and health courses, with implications for the pursuit of teaching and coaching fitness and sport specialties.

The undergraduate programs are designed to prepare students for graduate work in physical education. (See "Graduate Programs" for areas of specialization.) The professional major in physical education may lead to either the Bachelor of Arts or Bachelor of Science degree.
Master of Arts
The M.A. degree is awarded on completion of at least 30 semester hours of graduate work including thesis, or 35 semester hours of course work without thesis. The curriculum leads to teaching, administration, coaching, certification, or preparation for advanced degree work.

Core Requirements
Students must demonstrate competence in physiology of exercise and kinesiology. Competence may be demonstrated by completion of a course at the undergraduate or graduate level or satisfactory performance on a written examination.

The following courses are required.

28920 Techniques of Research 3 s.h.
28920 Seminar: Perspectives in Human Movement 2 s.h.
28921 Thesis (for students on thesis option) 4 s.h.

A 4 statistics course 3 s.h.

The sport studies core consists of four areas: philosophy of sport, psychology of sport, sociology of sport, and history of sport. Students are required to take one course from at least three of these areas. Students in the fitness/wellness program may choose to select courses from only two areas. The following courses satisfy the sport studies core requirements.

28947 Psychology of Sport 28927 Social Psychology and Sport 28928 Sociology of Sport 28927 Sociology of Women in Sport 28926 Minorities in Sport 28924 History of Sport in the United States 28947 Sport in Western Civilization. Geeks 28925 Program Options
M.A. students may elect a general sport studies curriculum or a specialization in the administration of athletics or physical education, administration of fitness/wellness programs, coaching, education, psychology of sport or sociology of sport. Students interested in other specializations may submit a course of study to the graduate committee for consideration.

In addition to the required courses listed above, students must take 2-3 core courses in their area of specialization as indicated below and electives selected in consultation with the advisor.

Administration of Physical Education and Athletics
28906 Principles of Administration 3 s.h.
28925 Administration 3 s.h.

28955 Advanced Athletic Administration 3 s.h.

3 s.h.

28920 Introduction to Physical Education 2 s.h.
28783 Sport and the Media 3 s.h.
28944 Survey of Computing 5 s.h.
28911 Introductory Nutrition 3 s.h.
28943 Theory of Coaching 2 s.h.
28983 Psycho-Social Dimensions of Sport Activity 3 s.h.
28955 Physical Education Systems 3 s.h.
28954 History of Sport in the United States 2-3 s.h.

Graduate Programs
This UI physical education department has been a pioneer in providing graduate physical education programs for women, especially at the doctoral level. It has awarded more than 400 master’s degrees and more than 150 doctoral degrees during the past 30 years. Its graduates have provided distinguished service through teaching, coaching, research, administration, and other leadership roles in physical education, dance, and athletics. The department’s proud tradition of producing leaders has been furthered by recent graduates, and it continues to encourage high achievement of the young women and men who pass through.

The curricula assume previous education in the respective fields. A program is proposed individually with close consultation given to the student’s previous education and anticipated career. Completion of the graduate degree usually leads to teaching, research, coaching, or administration in a school or university.

The outstanding characteristics of the graduate programs in the Department of Physical Education and Sports Studies, but the minimum of the Division of Physical Education and the entire University are available at Indiana. Work outside the department provides a broad view and an understanding for limited specializations of master’s and doctoral candidates.

Internships are available in many areas and are strongly encouraged for students specializing in administration and coaching. The graduate student group is cosmopolitan and international.

Physical Education Program (Non-teaching)
Core Requirements
28914 Introduction to Physical Education 1 s.h.
28915 First Aid and CPR 5 s.h.
28916 Theory and Principles of Weight Training 3 s.h.
28981 Kinesiology 3 s.h.
28983 Psycho-Social Dimensions of Physical Activity 3 s.h.
28916 History of Sport in the United States 3 s.h.
28925 Thespians (optional) 6-12 s.h.
28983 Exercise and Materials for Sport/Wellness Promotion 3 s.h.
28912 Stress Management 2 s.h.
28912 Administration of Sport/Wellness Programs 3 s.h.

Activity Requirements
All students specializing in fitness/wellness or sport management complete core requirements sport, one core activity, one recapt activity, one fitness activity, one individual activity, and two additional activities of their choice. Any or all of these requirements may be satisfied by making skill and knowledge tests for the sport or activity.

Fitness/Wellness
28953 Rhythms: Design for Exercise Programs 2 s.h.
28945 Contemporary Issues of Wellness 3 s.h.
28944 Principles of Exercise for Wellness Promotion (Lab) 4 s.h.
22921 Survey of Computing 3 s.h.
28945 Introductory Nutrition 3 s.h.

Sport Management
28916 Theory of Coaching 2 s.h.
28955 Minutes in Sport 2 s.h.
28965 Sport and the Media 5 s.h.
28914 Survey of Computing 5 s.h.
28914 Communication and Public Relations 3 s.h.
28955 Psychology and Professional Speaking 3 s.h.
28915 Design and Production of Media for Instruction 2 s.h.

Minor In Physical Education
The minor in physical education requires at least 15 semester hours with at least a 2.0 grade point average or 2.0. Twelve of the 15 semester hours must be taken at the University of Iowa in advanced courses. Students may choose from the following courses.

28920 Human Anatomy 3 s.h.
28931 Psycho-Social Dimensions of Physical Activity 3 s.h.
28955 Physical Education Systems 3 s.h.
28955 Special Program of Sport/Wellness Programs 3 s.h.
28954 History of Sport in the United States 2-3 s.h.

Contemporary Issues of Health Education 3 s.h.
37957 Biomechanics of Physical Education 3 s.h.

Honors
The honors program is designed to serve the interests of superior students. It gives participants some research experience and a perspective on some aspects of graduate work. Honors students in physical education take 28930 Honors Readings, complete a reading or research project under supervision of a physical education faculty member, and prepare a paper summarizing project results. To be eligible for honors study in physical education, students must have at least a 3.20 grade-point average at the beginning of the junior or senior year, when the honors courses are taken. To qualify for honors degree, students must maintain at least a 3.20 grade-point average through the remainder of their degree work.
The University of Iowa. Students may choose either a foreign language or computer science as their second research tool. The language requirement may be satisfied by taking two semesters of a given language with a minimum grade of C, by passing a Graduate Record Examination (GRE) General Test in a given language, or by passing a Ph.D. language examination. The computer tool requirement option may be satisfied by taking 3 semester hours as approved by the departmental graduate committee.

Challenged?
All students must have or earn a coaching endorsement.

28:102 Psychological Research on Women in Sport 2 3
28:103 Interdisciplines 1 2
28:105 Current Issues 2 5
28:118 Advanced Coaching 2 2

Sociology of Sport
28:155 Sociology of Women in Sport 2 3
28:156 Sociologies of Sport 2 3
28:163 Sport and the Media 2 5
28:154 Seminar in Sociology of Sport 2 5
28:148 A Cultural Analysis of Sport

Sport Psychology
28:131 Stress Management 2 2
28:100 Seminar in Sport Psychology or Psychology of Physical Activity 3 5
28:101 Selected Issues in Social Psychology or Physical Activity 3 5
28:108 Psychobiology of Sport

Doctor of Philosophy
All doctoral students must complete a minimum of 72 semester hours of graduate work, including general requirements for the master’s degree and credit for the dissertation.

Doctoral Research
Doctoral students must complete two semester of at least 9 semester hours each in residence at The University of Iowa.

Faculty
Faculty members represent diverse backgrounds and specializations; their abilities and interests are complementary. All hold advanced degrees, several have educational backgrounds from abroad, and all are experienced teachers. Graduate faculty members have experience in research and writing and are available to guide graduate students in their areas of specialization. Many hold influential leadership positions and are frequently called upon for lectures, speeches, and research presentations.

Facilities
Gymnasium, dance studio, special exercise rooms, and fitness areas are used in the various programs at Halsey Hall, North Hall, the Field House, and the Recreation Building. A variety of fields for outdoor sports are available on campus. The proximity of the Iowa River makes canoeing instruction feasible in a regular class schedule. The archery range is located along the river in a rustic setting; outdoor fields and a track are available. The University golf course is used for some classes. A research laboratory equipped for psychometric, measurement, and motor learning research is available in the department, and laboratories dealing with virtually all aspects of physical education are available within the division. The division also houses computer terminals, and students may use facilities of the University’s West Computing Center for research. A physical education library is located in the Field House.

Courses
Physical Education and Sports Studies—Primarily for Undergraduates

Promotional Exercise Interventions 3 5
Promotional Exercise Interventions 3 5

Psychological, Social, and Motor Development 3 5

Water Safety Instructor
Needs a Red Cross Board Water Safety Certificate or equivalent. Certification of instructor required.

Instructing in Physical Education 3 5

Officiating

Officiating for selected sports 3 5

Residency Requirement
Doctoral students must complete two semesters of at least 9 semester hours each in residence at The University of Iowa.

Faculty
Faculty members represent diverse backgrounds and specializations; their abilities and interests are complementary. All hold advanced degrees, several have educational backgrounds from abroad, and all are experienced teachers. Graduate faculty members have experience in research and writing and are available to guide graduate students in their areas of specialization. Many hold influential leadership positions and are frequently called upon for lectures, speeches, and research presentations.
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 select specialties.

Total enrollment typically is 3,000 each semester of the academic year and 200 during the summer. All courses and advanced laboratories are taught by full-time faculty members. Faculty members also teach introductory courses and supervise associated laboratories taught by graduate students.

Beyond the introductory level, typical course enrollment is 300; there is little 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 100 undergraduate majors—25 of whom are physics students—and 90 graduate students in physics or astronomy.

About 50 percent of graduates with bachelor’s degree 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 many 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 degrees and an interdisciplinary major in 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 prepares 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 degree with a major in physics. Students must select Group 1 or Group 2.

**Group 1**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>22M-35-36</td>
<td>Calculus I &amp; II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>22M-45-46</td>
<td>Accelerated Calculus I &amp; II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>22M-27</td>
<td>Introduction to Linear Algebra</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M-38</td>
<td>Calculus III</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

**Group 2**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>22M-35-36</td>
<td>Engineering Calculus I &amp; II</td>
<td>8 s.h.</td>
</tr>
</tbody>
</table>

**Minor Required Courses**

Students also must take the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>22M-37-38</td>
<td>Introductory Physics I &amp; II</td>
<td>12 s.h.</td>
</tr>
<tr>
<td>22M-39</td>
<td>Intermediate Mechanics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22M-41</td>
<td>Differential Equations</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22M-42</td>
<td>Vector Calculus</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Other Required Courses**

Students also must take the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>22M-10</td>
<td>Matrix Algebra for Engineers</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>22M-29</td>
<td>Statistical Physics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22M-24</td>
<td>Electrodynamics</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M-31</td>
<td>Electricity and Magnetism</td>
<td>6 s.h.</td>
</tr>
</tbody>
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</tr>
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<tbody>
<tr>
<td>22M-12</td>
<td>Intermediary Laboratory (two semesters)</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>25M-17</td>
<td>Mathematical Methods of Physics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>25M-19</td>
<td>Atomic Physics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>25M-21</td>
<td>Elementary Particles and Nuclear Physics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>25M-15</td>
<td>Introductory Solid State Physics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>25M-19</td>
<td>Particle Physics</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

An additional 5 semester hours of introductory course work in another science or engineering field, including computer science but not mathematics, is required. Undergraduates 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 200-level course credit 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 considerable 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 secondary-school science teaching (see “Science Education” in this section of the Catalog and in the College of Education section). The B.A. program requires fewer course hours 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 degree with a major in physics, and thus provides for a wider choice of electives.

<table>
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<tr>
<td>22M-35-36</td>
<td>Calculus I &amp; II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>22M-37-38</td>
<td>Introductory Physics I &amp; II</td>
<td>12 s.h.</td>
</tr>
<tr>
<td>22M-41</td>
<td>Differential Equations</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22M-42</td>
<td>Vector Calculus</td>
<td>3 s.h.</td>
</tr>
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</table>

**Other Required Courses**

Students also must take the following:

<table>
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<td>Statistical Physics</td>
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<td>25M-21</td>
<td>Elementary Particles and Nuclear Physics</td>
<td>3 s.h.</td>
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<tr>
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<td>Introductory Solid State Physics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>25M-19</td>
<td>Particle Physics</td>
<td>3 s.h.</td>
</tr>
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</table>

An additional 12 semester hours or more of science in a thematic area as approved by the student’s advisor or the course work required for teacher certification.

**Minor in Physics**

A program of physics courses satisfying the 15 semester hours, with a minimum grade-point average of 2.00, is required for a minor by the College of Liberal Arts must include 12 semester hours of upper-level physics courses (courses at the University of Iowa, including 22M-19 [preparatory to 22M-17 and 22M-18] and all 200-level physics courses).

**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 careers in astronomy, radio astronomy, or astrophysics.

The following courses, or their equivalents, are required for the Bachelor of Science degree with a major in astronomy. Students must select Group 1 or Group 2.

**Required Courses**

**Group 1**

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<td>Differential Equations</td>
<td>3 s.h.</td>
</tr>
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<td>22M-42</td>
<td>Vector Calculus for Engineers</td>
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**Other Required Courses**

Students also must take the following:

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</table>

An additional 12 semester hours or more of science in a thematic area as approved by the student’s advisor or the course work required for teacher certification.
Physics and Astronomy • Liberal Arts

29:129-130 Electricity and Magnetism 6 s.h.
25:132 Intermediate Laboratory 2 s.h.
25:137 Astronomical Laboratory 2 s.h.
25:139 Atomic Physics 3 s.h.
or 25:194 Plasma Physics 3 s.h.

Undergraduate majors who plan to pursue graduate study are advised to go as far beyond the minimum requirements listed as above as feasible, by taking one or more of the courses listed below. However, only 50 semester hours of 200-level courses can count toward a single major-bachelor’s degree.

29:117 Optics 3 s.h.
29:118 Statistical Physics 3 s.h.
25:121 Introduction to Astrophysics I 3 s.h.
25:137 Astronomical Laboratory (additional semester) 2 s.h.
29:111-112 Mathematical Methods of Physics 6 s.h.
or 25:195 Plasma Physics 3 s.h.

Bachelor of Arts in Astronomy

The B.A. degree program is designed for students who wish to gain considerable knowledge in astronomy but who do not plan a research-oriented career in astronomy. This degree program is appropriate for those planning careers in science-oriented K-12 teaching, technical writing, and science-related administration (see "Science Education" in this section of the Catalog and in the College of Education section). 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. degree with a major in astronomy:

22:081-22:082 Geology I-II or 8 s.h.
22:097-22:098 Engineering Calculus I-II or 8 s.h.
29:116-121 Introductory Physics I-II or 8 s.h.
or 25:111-12 College Physics 8 s.h.

25:119 Introduction to Physics I 4 s.h.
25:141-142 General Astronomy 4 s.h.
25:115 Intermediate Mechanics 3 s.h.
25:117 Optics 3 s.h.
or 25:134 Statistical Physics 3 s.h.
25:119-120 Introduction to Astrophysics I-II 6 s.h.
or 25:128 Electronics 3 s.h.
or 25:129 Electricity and Magnetism 3 s.h.
or 25:132 Intermediate Laboratory 2 s.h.
or 25:137 Astronomical Laboratory 2 s.h.

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. The 15 semester hours should include 6 semester hours selected from the following:

25:115-121 Introduction to Astrophysics I-II
25:121 Laboratory Astronomy

An additional 6 semester hours of these courses or of 100-level physics courses may be taken. These 12 semester hours must be taken at The University of Iowa.

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 the degree 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 College of Liberal Arts Honors Program may take 6-8 semester hours of 25:00-level honors seminars and conduct an investigation with the guidance of a faculty mentor as part of their program 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.

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 career in astronomy beyond the B.S. level have quality for a Ph.D. degree in physics with specialization in a dissertation in astronomy or astrophysics. A M.S. degree is not prerequisite to the Ph.D.

The Department of Physics and Astronomy participates in an interdisciplinary doctoral program with the programs 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 or astronomy at the level of advanced undergraduate work. The examination is given during the first week of the academic year 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 determines the candidate’s general adviser and the chair of the final examination committee.

Master of Science in Physics

The M.S. degree in physics is offered with either thesis or critical essay. The degree may be terminated as an intermediate step toward a Ph.D. degree. 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. degree with thesis requires 30 semester hours of graduate work (200- or 300-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. degree with a critical essay requires 35 semester hours of graduate work (150- 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 (29:292 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. degree programs must have satisfactorily completed the following courses or their equivalents as undergraduates or graduate students:

25:115 Intermediate Mechanics 3 s.h.
25:115 Intermediate Quantum Mechanics 3 s.h.
25:118 Statistical Physics 3 s.h.
25:129-130 Electricity and Magnetism 6 s.h.
or 25:132 Intermediate Laboratory (two semesters) 4 s.h.
or 25:130 Advanced Laboratory (two semesters) 4 s.h.
or 25:171-172 Mathematical Methods of Physics 6 s.h.
or 25:171-172 Nuclear Physics 3 s.h.

Two additional courses selected from:

25:192 Electromagnetic Fields and Particles and 3 s.h.
25:193 Introductory Solid State Physics 3 s.h.
or 25:194 Plasma Physics 3 s.h.

The student’s plan of study should provide for research advanced work as soon as practicable and as soon as practicable and as soon as practicable.

Master of Science in Astronomy

The M.S. degree in astronomy is offered with either thesis or critical essay. The general requirements are the same as those for the A.S. in physics (see above).
Course requirements or their equivalents for undergraduate or graduates are:

25:15 Intermediate Mechanics 3 s.h.
25:16 Introductory Quantum Mechanics 3 s.h.
25:17 Optics 3 s.h.
25:18 Advanced Theoretical Physics 3 s.h.
25:19-121 Introduction to Astrophysics I 9 s.h.
25:120-121 Electricity and Magnetism 6 s.h.
25:130 Laboratory 2 s.h.
25:137 Astronomical Laboratory 2 s.h.
25:117 Mathematical Methods of Physics 6 s.h.
25:161 Atomic Physics 3 s.h.
25:14 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.

25:195 Plasma Physics 3 s.h.
25:203-223 Theoretical Astrophysics I & II 6 s.h.
25:254 Stellar Structure and Evolution 3 s.h.
25:288 Special Topics in Astrophysics 2 s.h.
25:290 Seminar: Astrophysics ARR.

Doctor of Philosophy in Physics

The program of study for the Ph.D. degree with a specialization in astrophysics will consist of coursework in both classical and quantum mechanical physics for all candidates, whether their specialized research is to be in experimental or in theoretical areas. All candidates must take comprehensive examinations in nuclear physics, particle physics, astrophysics, and prepare and defend a written dissertation based on this work.

They must also take at least 27 semester hours of 200-level courses in the department, excluding 25:291, 25:292, and seminars. The following minimum program is recommended for preparation for the comprehensive examinations.

25:191 Atomic Physics 3 s.h.
25:192 (Modern) Particles and Nuclear Physics 3 s.h.
25:203-223 Theoretical Solid State Physics 3 s.h.
25:214 Plasma Physics 3 s.h.
25:205 Classical Mechanics 3 s.h.
25:211-212 Classical Mechanics I & II 3 s.h.
25:213-214 Classical Electrodynamics 6 s.h.
25:215-246 Quantum Mechanics I & II 6 s.h.

Advanced mathematics, such as the theory of functions of a complex variable and vector and tensor analysis, is used freely in these courses. An introduction to these fields is given in 25:171-172 Mathematical Methods in the Physical Sciences. The successful completion of this advanced course 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 21 of the minimum 27 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 advisor, to a widely distributed, refereed scientific journal.

Financial Aid

Students qualified for graduate study are encouraged to apply for fellowships and scholarships. Inquiries should be directed to the departmental chair.

Research and Facilities

The department has an excellent library and a number of well-equipped laboratories and observatories. Several VAX computers are available within the department, and the associated facilities of the university's Computing Center are available for research by students and faculty. Oscilloscopes and supercomputers are accessed via telephone. The campus-located 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 astrophysics (optical and radio), atomic and molecular physics, elementary particle physics, high-energy nuclear physics, plasma physics, solid state physics, and space physics. Extensive facilities are available for construction of equipment for satellites and spacecraft and for computerized recording and analysis of data.

A versatile SAVR Van de Graaf accelerator, which has been modified for energies up to 14 MeV, is used in a studies of nuclear reactions induced by deuterium, helium, lithium, and beryllium ions. 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 experimental plasma devices, including Q-machine, are used to conduct research, nonlinear waves, and turbulence effects in low-temperature, steady-state plasmas.

State-of-the-art laser systems are available for high resolution spectroscopic measurements and neutron-pump probe studies of magnetic materials, collisional relaxation, and nonlinear optical effects in atomic and molecular systems and semiconductors, and for planar diagnostics.

Experimental research in elementary particle physics is carried out at Fermi National Accelerator Laboratory, Los Alamos Physical 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 astrophysics. The primary optical instrument, a 24-inch reflector with a computer-controlled photometer, is used for stellar, planetary, and cometary observations. Research programs in galactic and extragalactic radioastronomy are carried out using an 18.3-metre parabolic reflector located at the U.S. National Radio Observatory near Socorro, N.M., one of the radiotelescopes in the U.S. Very Long Baseline Interferometry network. Current long-term research activities include studies of extragalactic radio sources and OH masers. Students and faculty also conduct research programs using the Very Large Array, the National Radio Astronomy Observatory, the Kitt Peak National Observatory, the Arecibo Observatory, the Infrared Telescope Facility, the International Ultraviolet Explorer, and the Very Long Baseline Interferometry network.

Active theoretical research is carried on in astrophysics, atomic, molecular, and optical physics, high-energy nuclear physics, plasma physics, solid state physics, and space physics. Much of the numerical work for this research is performed on supercomputers located around the United States. Students and faculty who pursue numerical analysis are often asked to offer the exchange of ideas between mathematics and physics.

Courses

Preliminary and prerequisite courses are specified as a guide only by the instructor. Students may not repeat an examination course for credit if they have already completed a higher level course for which the examination course was considered a prerequisite. Courses 25:3, 25:9, 25:11-12, 25:17-18, 25:20, and 25:9-12 are accepted toward the College of Liberal Arts General Education Requirement for the natural sciences.

Physics—Primary for Undergraduates

25:00 Cooperative Education 6 s.h.
25:01 Survey and Philosophy of the Natural Sciences 3 s.h.
25:161 Atomic Physics 3 s.h.
25:14 Plasmas and the Physics of the Earth's Atmosphere 4 s.h.
25:171-172 Mathematical Methods in the Physical Sciences 3 s.h.
25:20 Classical Mechanics 3 s.h.
25:211-214 Classical Electrodynamics 6 s.h.
25:215-246 Quantum Mechanics I & II 6 s.h.
25:261 Quantum Mechanics 3 s.h.

25:288 Special Topics in Astrophysics 2 s.h.
25:291 Seminar: Astrophysics ARR.

25:3 Physical Processes of Concretion, electric, heat, fluid, light, sound, and nuclear, and elementary.
Astronomy—Primarily for Undergraduates

3504 Modern Astronomy
Survey of astronomy, including its development in the ancient world, the solar system, stars, galaxies, and cosmology. Students registered for 4 credits must enroll for 14 for a total of 16 credits. Offered in fall, winter, and spring semesters. prerequisite: MATH 15000 or equivalent. 3 credit hours. 245.300 Astronomy Laboratory. 1 credit hour. 3 semester hours credit in 2016. 2016-2018 academic year.

361 General Astronomy
Introduction to the evolution and structure of astronomical objects, their motions, and the radiation they emit and reflect. Topics include the formation and evolution of the solar system, stars, galaxies, and the universe as a whole. Offered in fall, winter, and spring semesters. prerequisite: Satisfactory completion of the prerequisite course. 3 credit hours. 245.310 Introduction to Astronomy. 1 credit hour. 3 credit hours. 245.310 Introduction to Astronomy Laboratory. 1 credit hour. 3 semester hours credit in 2016. 2016-2018 academic year.

3704 Reading in Astronomy

Astronomy—for Undergraduates and Graduates

3216 Introduction to Atmospheric Sciences
Introduction to atmospheric sciences and atmospheric dynamics. Topics include the Earth's atmosphere, weather and climate, and the interactions between the atmosphere and the oceans. prerequisites: MATH 16500 or 20100. 3 credit hours. 245.300 Meteorology Laboratory. 1 credit hour. 3 semester hours credit in 2016. 2016-2018 academic year.

3217 Introduction to Earth Sciences
Introduction to Earth sciences, including the study of the Earth's crust, the oceans, and the atmosphere. prerequisites: MATH 15000 or equivalent. 3 credit hours. 245.310 Introduction to Geology Laboratory. 1 credit hour. 3 semester hours credit in 2016. 2016-2018 academic year.

3224 Introduction to Earth Sciences
Introduction to Earth sciences, including the study of the Earth's crust, the oceans, and the atmosphere. prerequisites: MATH 15000 or equivalent. 3 credit hours. 245.310 Introduction to Geology Laboratory. 1 credit hour. 3 semester hours credit in 2016. 2016-2018 academic year.

3224 Introduction to Environmental Science
Introduction to environmental science, including the study of the Earth's environment and the interactions between humans and the environment. prerequisites: MATH 15000 or equivalent. 3 credit hours. 245.310 Introduction to Geology Laboratory. 1 credit hour. 3 semester hours credit in 2016. 2016-2018 academic year.

3224 Introduction to Environmental Science
Introduction to environmental science, including the study of the Earth's environment and the interactions between humans and the environment. prerequisites: MATH 15000 or equivalent. 3 credit hours. 245.310 Introduction to Geology Laboratory. 1 credit hour. 3 semester hours credit in 2016. 2016-2018 academic year.

3302 Introduction to Physics
Introduction to physics, including the study of motion, forces, energy, and waves. prerequisites: MATH 15000 or equivalent. 3 credit hours. 245.310 Introduction to Geology Laboratory. 1 credit hour. 3 semester hours credit in 2016. 2016-2018 academic year.

3302 Introduction to Physics
Introduction to physics, including the study of motion, forces, energy, and waves. prerequisites: MATH 15000 or equivalent. 3 credit hours. 245.310 Introduction to Geology Laboratory. 1 credit hour. 3 semester hours credit in 2016. 2016-2018 academic year.

3302 Introduction to Physics
Introduction to physics, including the study of motion, forces, energy, and waves. prerequisites: MATH 15000 or equivalent. 3 credit hours. 245.310 Introduction to Geology Laboratory. 1 credit hour. 3 semester hours credit in 2016. 2016-2018 academic year.

3302 Introduction to Physics
Introduction to physics, including the study of motion, forces, energy, and waves. prerequisites: MATH 15000 or equivalent. 3 credit hours. 245.310 Introduction to Geology Laboratory. 1 credit hour. 3 semester hours credit in 2016. 2016-2018 academic year.
Graduate Programs

At the graduate level, the department has a program leading to a Doctor of Philosophy in political science by students planning academic careers. The Master of Arts in public affairs is a nontechnical program designed for students planning careers in government service, public affairs, or in private and community colleges. The general M.A. degree usually is pursued by persons whose ultimate degree objective is the Ph.D.

Master of Arts in Public Affairs

Completion of this degree requires a minimum of 45 semester hours of credit. Of these, 24 are in core courses prescribed for all students, and 11 are earned in electives chosen individually to fulfill special interests. Students are encouraged to use all 31 elective hours in developing applied knowledge and skills in a particular subject.

The degree does not require a final thesis. In the last semester of course work, student take a written examination that tests both core and specialized knowledge. Students must pass the examination as well as complete all course work with at least a 3.00 grade-point average. All degree requirements must be met by the end of the semester in which the comprehensive examination is taken.

During the final semester, students usually gain practical experience in administrative and policy work through internships in governmental or other public institutions. The internship is jointly supervised by the director of the Master of Arts in Public Affairs and by the relevant agency head. At this time, students also submit a data report to the M.A. program director.

Students who do not participate in internships may complete practice—applied seminars focusing on areas such as policy studies or public affairs teaching—as their final term.

Master of Arts with Thesis

Except for the Ph.D. in public affairs and the M.A. with a joint program under a joint program, the College of Law (see the "College of Law" section of the Catalog), the degree usually offers the master's degree only as a preliminary step toward the Ph.D.

Students obtain the M.A. degree by completing at least 35 semester hours with a grade-point average of at least 3.25, submitting a thesis, and passing a final oral examination. A minimum of three semester hours of credit for thesis preparation will be counted toward the 35-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 4th year of course and research finds that a student's work provides sufficient evidence of the ability 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 35 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 five-year evaluation committee finds that the quality of a student's work is inadequate for either extending 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 nontechnical 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 endeavors in academic settings and private or governmental institutions. It produces graduates who are deeply committed to the study of politics, familiar with fundamental knowledge of political processes, well trained in the 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. An applicant for the Ph.D. degree usually secures an advisor, often collaborating with faculty members in research and public work. Graduates students know one another and enjoy supportive and congenial working conditions.

Curriculum

Doctoral study usually lasts four years. In the first year of the curriculum for the Ph.D student, courses of core courses equally divided between substantive and methodology. Emphasis is on basic research methods—including quantitative methods—that today's political scientist must thoroughly understand. Special attention is given to research design, collection of observations, analysis and interpretation of data, research and database, and social science software. Most first-year students complete this training with service as research assistants in investigative projects directed by the faculty.
Bachelor of Science

Students must satisfy the College of Liberal Arts requirements for the B.S. degree and must complete at least 32 semester hours of credit in a minor. A minimum of 32 semester hours must be completed at least 16 semester hours of the major at The University of Iowa. The B.S. program must include the following courses, or equivalents: 31:1 Elementary Psychology or 31:3 General Psychology; 31:14 Introduction to Statistical Methods (same as 33:143, 225:101); 31:43 Evaluating Psychological Research or 31:120 Experimental Psychology I; one course from four of the five areas elective courses below, with at least two of these four having 100-level courses. For students who plan to pursue graduate work in psychology or related areas, 31:120 Experimental Psychology I is recommended along with additional 100-level electives.

Minor

A minor in psychology is an attractive option to students from a variety of disciplines who wish to pursue graduate training or employment careers in psychology. A minor requires a total of 15 semester hours of credit with a minimum grade-point average of 2.00. At least 9 of these 15 semester hours must be in upper-level courses in the department. This includes all 100-level courses and 33:43. Departmental activities and seminars are open to all psychology majors.

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 Education Bulletin for the area offerings.

An approved statistics course in introductory level courses for psychology majors, the statistics course must be 31:142 Introduction to Statistics in Psychology or 31:143 Introduction to Statistical Methods (same as 37:143, 225:101). Other statistics options are available to non-psychology majors.

Animal Learning and Biopsychology

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 Research 3 s.h.
31:136 Psychology of Pain and Athletes 3 s.h.

Child and Developmental Psychology
31:14 Introduction to Child Psychology 3 s.h.
*31:12 Development of Children's Social Behavior 3 s.h.
*31:10 Learning and Motivation in Children 3 s.h.
*31:14 Cognitive Development of Children 3 s.h.
*31:19 Developmental Psychopathology 3 s.h.

Clinical Psychology
31:13 Introduction to Clinical Psychology 2 s.h.
31:135 Personality 3 s.h.
31:109 Psychology of Aggression 3 s.h.
31:161 Schizophrenia 3 s.h.
31:162 Depression and Mania 3 s.h.
31:165 Forensic Psychology 3 s.h.
*31:19 Developmental Psychopathology 3 s.h.
31:170 Personality Modification 3 s.h.

Cognitive Psychology
31:16 Introduction to Mental Process 3 s.h.
*31:11 Learning and Motivation in Children 3 s.h.
31:115 Language Processing 3 s.h.
*31:14 Cognitive Development of Children 3 s.h.
31:119 Memory and Cognition 3 s.h.
31:120 Psychology of Thinking and Perception 3 s.h.
31:147 Introduction to Sensation and Measurement 3 s.h.
31:151 Human Factors Engineering 3 s.h.

Social Psychology
31:15 Introduction to Social Psychology 3 s.h.
*31:13 Development of Children’s Social Behavior 3 s.h.
31:194 Attitude Change 3 s.h.
31:107 Environmental Stress 3 s.h.
31:108 Small Group Processes 3 s.h.
31:131 Adult-Centered Cognition 3 s.h.
31:149 Psychology of Interpersonal Relationships 3 s.h.
*These courses may be counted or either—but not both—of the area indicated.

Honors
The department has an active honors program open to majors with at least a 3.20 grade-point average in psychology courses and at least a 3.50 overall. The program includes research assistantships and individual research collaboration with faculty members. Students usually are selected to participate in the department’s 31:195 Honors Seminar in Psychology during their junior year. Interested majors should contact the department honors advisor early in their junior year.

Graduate Program
The graduate program in psychology is designed primarily for students seeking the Ph.D. degree. Except in very special circumstances, applications are considered only for that degree. For students entering without previous graduate work, it is a four-year program; those entering with previous graduate training may enter in the third year. The department, depending on the nature of the earlier preparation.

The Ph.D. program has a strong emphasis on preparation for research, teaching, and scholarly endeavor, whether in academic settings or in industrial, governmental, or medical institutions. The intent is to produce graduates who are deeply committed to the study of psychology, familiar with fundamental knowledge about psychological processes, well trained in the methods and techniques for control investigation of basic and applied problems, and determined to make contributions to the discipline of psychology and to society.

Graduate training is organized in four broad training areas: clinical psychology, human experimental psychology, personality and behavior, and social psychology. Each entering student is responsible to identify one of these areas as his or her primary area and to follow a program that develops thorough understanding of the substantive material and methods of investigation central to that subspecialty. While pursuing specialty training, all students must meet course requirements in statistics, research methods, learning, and several content areas other than the specialization area.

The department has three areas of research emphasis that cut across the training areas and combine methodological expertise of faculty and students with special resources within and outside the department: cognitive psychology, developmental psychology, and health psychology. Students who have particular interests in the areas in any of these areas may apply to any one of the training areas and indicate a focus in a designated research area. However, students are not required to concentrate their research interests into one of these three areas. Many faculty members have interdisciplinary and collaborative research projects that contribute to one or more of the research areas. Consequently, students can easily complete the requirements of a training area while developing research knowledge and skills within the broader scope 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 departments. The department also is prepared to help students develop additional expertise in any of the following interest areas: human factors, aging, experimental and computer behavior, communications, and cognitive science. Preparation in one of these interest areas involves some special advanced training within the department, directed 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. degree requires satisfactory completion of 45 to 72 semester hours of graduate work in psychology, including at least 25 semester hours in the dissertation. All students must satisfactorily through one of several options, requirements, or seminars 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, students take one course in a core course in the primary training area, and at least one elective. Students also become familiar with the literature, research strategies, and methods in one or more research areas through engagement in individually supervised research projects. This research participation—which may be at one faculty member's laboratory, a seminar, or seminar—is designed to help students develop, by early in the second year, a reasonably detailed plan for the major research project.

By the end of the second year—usually by 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 m-oral record of performance on the M.A. project, in course work, and in locating, reading, researching, and service.

During the third year, students continue their selected course work in the training and interest areas, develop a prospectus for the dissertation, and prepare for the comprehensive examination. The comprehensive examination consists of the research of the student and in related areas and is ordinarily given at the beginning of the fourth year. The fourth year is devoted to completing advanced seminars and in 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. degree with thesis is a required step for students preparing for the Ph.D. This degree requires satisfactory completion of at least 30 semester hours of graduate coursework 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 should complete an acceptable scholarly thesis and conduct a successful oral defense of the thesis.

**Master of Arts without Thesis**

The M.A. degree without thesis is an option available to those few students who intend to work in the department after four semesters. This degree requires satisfactory completion of at least 36 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 new course outside the primary area. Students 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 psychology. It is designed for students who 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 practical experience with the curricular requirements. Students in this program may develop special competence in areas such as psychopathology, personality, assessment, affective disorders, behavioral and cognitive therapies, child psychology, and clinical health psychology. Faculty members collaborate closely with colleagues from departments such as oncology, psychiatry, pediatrics, rehabilitation, and surgery, and from other units, such as the Center for Health Services Research, the School of Social Work and its Gerontology Program, and nearby area education agencies. Particular emphasis is placed on each collaboration, behavioral medicine and aging are areas of interest in which a number of clinical faculty members are prepared to offer research supervision.

In addition, joint clinical 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 practical experience through placement in clinical facilities maintained by local, state, and University agencies. Students in the clinical program who wish to have the designation "clinical psychologist" 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 the internship.

**Human Experimental Psychology**

Students affiliated with the human experimental psychology 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, memory, and problem solving in children; language and cognition; mathematical psychology; psychophysics; neural encoding and signal detection theory; cognitive effects of drugs; human judgment and decision making; information processing; visual perception; and psychophysics. 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 neurology, industrial hygiene, sleep medicine, psychology, and psychiatry.

**Neuroscience and Behavior**

The focus of the program in neuroscience and behavior is on the analysis of learning and motivation, primarily in nonhuman subjects, through the application of behavioral and brain-behavioral principles. Special faculty strengths are in classical and operant conditioning, comparative psychology, motivation, neuropharmacology, neuroscience, and neuroanatomy. Students in this program have the opportunity to learn state-of-the-art techniques in computer-controlled experimental manipulation and electronic instrumentation, and modern analytic and inferential methods in neurosurgery, histology, and biochemical analysis.

Faculty members in the neuroscience and behavior area interact extensively with colleagues from a number of basic sciences in the College of Medicine. These collaborative activities provide excellent research and training opportunities for students interested in emerging interdisciplinary fields such as functional medicine and 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 attitudes, social cognition, attribution, social influences on behavior, close relationships, 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 prospective student may be recommended to advanced work only through the M.A. level by a medical or law school to admit to a joint graduate program involving psychology and another discipline or profession. A person interested in such a program should contact the department prior to filing an application.

The deadline for applications is February 1. For all applicants, 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 may be submitted at any time but are considered only once each year—between February 1 and March 15—for admission the following fall. Admissions are based on a composite consideration of prior academic performance, letters of recommendation, 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 statistics, knowledge of psychology, statistics, and additional coursework in the natural
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 assistantships, research assistantsships, teaching assistantships, and fellowships. No separate application for financial aid is required.

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 Shurtleff Hall include a variety of laboratories, many computerized, for human and animal studies. Facilities include three separate animal housing areas; a histology laboratory; information system with remote audiovisual control and recording equipment; soundproof chambers; closed-circuit TV systems; conventional and microelectrophysiological recording systems; conditioning laboratories; the C. E. Shurtleff Psychology Clinic; and well-equipped electronic, mechanical, and woodworking shops.

The University's Weeg Computing Center currently operates an IBM 4341, five PDP-9, and various support equipment. The staff is knowledgeable and helpful.

The individual student's training and research program will be determined by her/his interests and needs. It will be his responsibility to consult with at least two faculty members in selecting a program of study. As many of his courses will be designed to fit his program of study as is possible. This program of study is expected to be completed in at least two years but may be extended to three years. The completion of the program does not guarantee the availability of faculty members or the fulfillment of all course requirements.
Honors

The honors major is for students of superior ability who want to pursue individual research. To undertake the honors major in religion, the student must be admitted to the College of Liberal Arts Honors Program by the director of that program and by the director of the honors program in the School of Religion. Application should be made by the beginning of the junior year but may be made earlier.

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 300 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 30 semester hours in the School of Religion. Most of these hours will be earned in courses that fall into one of two areas: a concentration in the Hebrew Bible and its early interpretations; Judaism and Christianity in the Greco-Roman world; history of religion and religions thought in the West; history of the church, 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 15 semester hours required. Students in the nonthesis program take at least two seminars.

A minimum of 6 semester hours of graduate work in religion may be transferred to the program from another accredited graduate or professional school.

All students are required to take a written M.A. examination that tests competence in the areas 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 setting for research and training in this program. Students may choose a thesis or nonthesis program. In either, they are required to earn 26 semester hours. 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 1-semester unit of 22:44 Clinical Study of Religion or present equivalent experience. The program also includes required courses in religion and personality and at least four units (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 religions thought in the West; theology and ethics; and history of Asian religions.

The student's advisory committee may require languages or other research tools. All students take 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 maximum opportunity to develop teaching skills.

Candidates for the doctorate must complete a minimum of 72 semester hours of graduate coursework, of which 6 semester hours must be earned in courses in religion courses numbered 300 and above for the dissertation. 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 religions thought in the West; theology and ethics; and history of Asian religions.

No later than the middle of the student's fourth year, the student must decide whether to continue work toward the degree in the Ph.D. program. The student must (1) pass an oral examination in the concentration and, (2) pass a written examination in the areas of concentration.

Take the introductory colloquium designed to orient new graduate students to basic issues in the academic study of religion; show evidence of the ability to write scholarly papers; judgment in based on a series of papers, one for each concentration, and in the student's ability to express satisfactorily the concepts of the field of the student's concentration and to examine critically the methodology of the field of the student's concentration.
The Rhetoric Department offers courses that fulfill the General Education Requirement and provides individual instruction in lab settings. Rhetoric faculty members also advise graduate students and teach advanced courses that promote the rhetorical understanding and professional development of students from diverse disciplines.

Rhetoric courses help students to:
- 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 issues;
- take into account such fundamental rhetorical concepts as audience, purpose, and appropriateness in deriving effective communication. Some rhetoric classes are organized around a special topic, but the emphasis is always on rhetorical practice and analysis.

All undergraduate—including transfer students—must satisfy the rhetoric requirement in one of several ways:
- pass 10.1 and 10.2 (total of 8 a.s.h.);
- pass 10.3 (4 a.s.h.);
- score high on the speech examination test and pass 10.4 (5 a.s.h.);
- score high on both the speech examination test and pass 10.5 (6 a.s.h.).

Rhetoric may be repeated up to two times.

During their first semester at the University, students are advised to register for a course indicated on their graduation progress reports or degree audits in the Rhetoric Department, 711B, during registration.

Students registered in 10.1 can test into 10.3 by achieving a high score on a twopage essay examination. Students registered in 10.3, 10.4, or 10.5 can satisfy all or part of the 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 may 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 in prerequisite to the Introduction to Literature course 10.1.

Courses

101 Rhetoric

Introduction to practice in speaking, writing, and critical reading, with focus on composition and criticism; develop competence in analyzing, organizing, and synthesizing ideas and in adopting discourse to audiences and contexts.

104 Rhetoric

Continued instruction in practice in read and written communication with emphasis on critical listening and research; develop competence in research projects and the evaluation of literature and written projects in the form of research papers and essays that critically examine research.

103 Rhetoric

Accomplished-writer version of the 101-102 sequence.

104 Rhetoric

Accomplished-expert version in critical reading and writing.

106 Speech Communication

Introduction and practice in speaking and critical thinking.

107 Rhetoric

Introduction to reading and writing; students who need intensive work before enrolling in 10.1. Does not provide credit toward degree. Contact the register for two content hours in the General curriculum.

RUSSIAN

Chair: Ray K. Parrett, Jr.
Professor: Nunnerm-Lasheva, Ray K. Parrett, Jr.
Professor: D. Lehr. B. Walker
Professor: Sara Sciolini, Christopher S. Shott
Assistant professors: Maria G. Galina, Linda M. Walker
Assistant professors: Maria G. Galina, Linda M. Walker

Undergraduate degrees offered: B.A. in Russian

The Russian program trains students in both the written and spoken Russian language and in Russian literature. It also provides students with an understanding of Russian culture and society. A knowledge of Russian is a demand as well as a tool, and the department encourages all of its students to pursue a major and to develop their interests in related or complementary fields.
Traditionally at large, many students have combined their study of the Russian language with a double major in economics, liberal studies, history, journalism and mass communication, or political science. They have been better equipped to gain employment in the Soviet-Morlet area, and have enjoyed an enhanced knowledge and understanding of the culture, history, peoples, and politics of the Soviet Union.

Through the University's new Bachelor of Arts degree program in Soviet and Eastern European Studies, interested students can now focus their undergraduate studies more precisely on this region of the world. For more information on this complementary B.A. program, see "Soviet and East European Studies" in this section of the Catalog.

With the increasing importance of Russian as a language of science and commerce, many students find that training in the language is an important asset to go careers in the natural and physical sciences, engineering, medicine, and business.

Students of journalism, library science, and the social and military sciences also have strengthened their career preparation through the study of Russian. Some students major in Russian before going into law, international relations, or another profession; others study Russian as preparation for graduate work in Slavic languages and literatures, comparative literature, English, or other humanitarian fields.

Russian majors with the B.A. and the required education courses occasionally seek teaching careers in secondary schools (see the relevant teacher-preparation programs in the "College of Education" section of the Catalog). A number of governmental agencies annually hire Russian-speaking job candidates who have advanced training in Russian; these agencies give preference to applicants who couple strong language proficiency with professional background in area studies. Students who develop an excellent command of the Russian language may pursue careers in literary and technical translation and interpretation.

**Undergraduate Program**

Students working toward the Bachelor of Arts in Russian must complete the General College of Liberal Arts degree requirements (see the "College of Arts" section of the Catalog) and earn at least 28 semester hours of credit in advanced Russian courses. Required courses are:

- 4110 Introductory Conversation 3 s.h.
- 4110 Introductory Conversation 3 s.h.
- 4111-12 Third-Year Russian 1-2 8 s.h.
- 4113-14 Fourth-Year Russian 3-4 8 s.h.

Three of the following:

- 4115 Russian Literature in Translation 1800-1880 5 s.h.
- 4112 Russian Literature in Translation 1889-1917 5 s.h.
- 4113 Tolstoy and Dostoevsky 3 s.h.
- 4114 Soviet Literature since Stalin 3 s.h.
- 4115 Russian Culture 3 s.h.
- 4116 Soviet Union Today 3 s.h.
- 4117 Russian Civilization 3 s.h.

Students majoring in Russian are urged to choose elective courses in economics, geography, history, or political science. Nearly every area of professional training and employment available requires a solid background in Russian area studies. For example, a recent statement on the criteria for U.S. Government employment cites as require a "substantive knowledge of the area in history, economics, political science, sociological disciplines, scientific specialties, geography, military-related skills, and in some cases cultural and religious background. In-depth knowledge of literature or linguistics without other substantive background may be viewed as overspecialization in a field of limited practical use."

**Minor**

A minor in Russian requires 15 semester hours with a minimum grade-point average of 2.00. Of these 15 semester hours, 12 must be taken at The University of Iowa. The department recommends that students seeking a minor in Russian focus their preparation on advanced (100-level) courses, such as the followings:

- 4110 Introductory Conversation 3 s.h.
- 4111-12 Third-Year Russian 1-2 8 s.h.
- 4113-14 Fourth-Year Russian 3-4 8 s.h.

In English do not count toward the minor.

**Honors**

Russian majors of junior or senior standing with a grade-point average of at least 3.00 both in Russian and in the honors program in Russian are eligible for the Russian honors program. An exclusive reading program with circulations, regular reports, and a seminar paper constitute each honor's work unit of 3 semester hours. Students may take up to 9 semester hours of honors in Russian.

**Graduate Program**

Offered with or without thesis, the Master of Arts 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 sound a critical and informed voice in all genres.

Students who elect a language studies emphasis focus on the historical development of Russian and do advanced study of contemporary phonology, morphology, syntax, and stylistics.

Candidates for the master's degree must have completed the equivalent of the undergraduate major in Russian.

Electives in previous training may be made up by taking appropriate courses.

Candidates for the master's degree 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 4-6 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, except, with exceptions occasionally, up to grade on the base of advanced language skills. Applications are considered only from students who have been recommended by the Graduate Office. Inquiries should be addressed to the departmental office.

**Summer and Study Abroad Programs**

The department strongly encourages undergraduate students to participate in intensive programs of language study, both in the United States and in the Soviet Union. In recent years, more than 10 students have studied in summer, semester, and academic-year programs at Leningrad 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 Leningrad institutes that specialize in teaching Russian as a foreign language.

Other students have accelerated and refined their Russian language skills at 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**

The department offers a special, two-course sequence of courses (410-105-106) designed primarily for students who need to develop a reading proficiency in Russian for research purposes in the
natural, physical, social, and military sciences; the sequence is open to students in the humanities as well. The course 41:307 Readings in the Soviet Press is designed especially for students who wish to develop a reading proficiency geared to the daily and periodical press. A number of other classes are open to all University students and are offered in small sections. These include survey courses in Russian and Soviet art, culture, and civilization, and a monograph course on Tolstoy and Dostoevsky.

Special Activities
Russian Circle is a student organization open to both undergraduates and graduates; it meets regularly for informal and planned 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 Hilcrest Residence Hall is encouraged by the staff and serves as a focal point for many Russian Circle functions, including weekly meals with faculty and guest speakers. A number of outstanding events are inducted annually into Dobro Atrov, the "National Studio: Honor Society, and honored at a commemorative gathering.

The Iowa Critical Languages Program
The Iowa Critical Languages Program prepares students to teach Russian, Chinese, or Japanese in Iowa schools. Each year two students in each language are admitted to the program, which leads to a bachelor's degree with a major in the language and a comprehensive examination at the secondary level. Applicants must be U.S. citizens or permanent residents. They may already hold a baccalaureate degree and teaching certification.

Through a grant from the Ford Foundation, participating students receive scholarships for a year of study abroad and two summers of intensive language study in pre-approved programs for their enrollment in foreign language training. Participants in the program are obliged to teach in a comprehensive foreign language school district for at least three years after graduation. Additional information about the program is available from the Office of Academic Affairs, 111 Jesse Hall.

Language Media Center
The University's Language Media Center provides facilities for language learning, teaching, and research. Equipment in the lab includes standard and short-wave radios, tape and cassette recorders, record player, audiodisc recording rooms, mini rooms, and video facilities. An electronic classroom, a soundproof workroom, and a library of tape, disc, and cassette recordings also are available.

Courses
For Undergraduates and Graduates
41:06 Cooperative Education Internship 4-6 s.h.
41:10 First-Year Russian I 4 s.h.
41:12 Second-Year Russian II 4 s.h.
41:14 Russian Language 4 s.h.
Preparation: 41:10 or equivalent
41:18 First-Year Russian II 4 s.h.
41:20 Second-Year Russian I 4 s.h.
41:22 Third-Year Russian I 4 s.h.
41:24 Third-Year Russian II 4 s.h.
41:26 Foreign language: Preparation: 41:12 or equivalent
41:28 Introduction to Conversational Russian 6 s.h. for students of 41:10 or 41:18
41:30 Russian for Reading I 4 s.h.
Preparation: 41:10 or equivalent
41:32 Russian for Reading II 4 s.h.
Preparation: 41:30 or equivalent
41:37 Readings in the Soviet Press 4 s.h.
Preparation: 12.5 s.h. of language instruction as equivalent
41:38 Special Readings 12-16 s.h.
Preparation: 41:30 or equivalent
41:40 Introductory Conversation 4 s.h.
Preparation: 41:18 or equivalent
41:42 Introductory Conversation 4 s.h.
Preparation: 41:18 or equivalent
41:51 Third-Year Russian I 4 s.h.
Preparation: 41:20 or equivalent
41:53 Third-Year Russian II 4 s.h.
Preparation: 41:22 or equivalent
41:55 Fourth-Year Russian I 4 s.h.
Preparation: 41:31 or equivalent
41:57 Fourth-Year Russian II 4 s.h.
Preparation: 41:33 or equivalent
41:59 Advanced Conversation I 4 s.h.
Development of oral and written proficiency, analysis of cultural and political phenomena, and oral and written composition in Russian. Preparation: 41:30 or equivalent.
41:61 Advanced Conversation II 4 s.h.
Production of original Russian and oral comprehension, oral reports, social discussions, and cultural and political understandings and orientation in Russian. Preparation: 41:33 or equivalent.
41:63 Russian Composition 4 s.h.
Preparation: 41:31 or equivalent
41:65 Russian Composition II 4 s.h.
Preparation: 41:33 or equivalent
41:67 Russian Teaching Methods 3 s.h.
Overview of dynamics, methods, techniques, and strategies of Russian teaching in American secondary schools. Preparation: 41:33 or equivalent. Work in Russian language and culture and proficiency in foreign language skills.
41:69 Russian Literature in Translation 1869-1945 3 s.h.
Preparation: 41:18 or 41:22
41:71 Russian Literature in Translation 1945-1990 3 s.h.
41:75 Russian Civilization 3 s.h.
Preparation: 41:18 or 41:22
41:79 Tolstoy and Dostoevsky 3 s.h.
Preparation: 41:18 or 41:22
41:80 Soviet Literature since Stalin 3 s.h.
Conducted in English
41:81 Russian Culture 3 s.h.
Conducted in English; 15 s.h. foreign civilization and culture
41:82 Soviet Russia Today 3 s.h.
Conducted in English
41:83 Russian Civilization 3-5 s.h.
Conducted in English; 15 s.h. foreign civilization and culture.
41:99 Issues 3-5 s.h.
May be repeated up to 15 s.h. Consent of department required.

Primarily for Graduates
41:208 Advanced Russian Workshop 3 s.h.
Research seminar for high school teachers of Russian civilization, advanced grammar, root vowel influence, and oral proficiency.
41:209 Advanced Grammar 3 s.h.
41:210 Russian Morphology 3 s.h.
41:206 Russian in Russian Linguistics 3 s.h.
41:208 Russian Syntax 3 s.h.
41:212 Russian Stylistics 3 s.h.
41:213 Russian Semantics 3 s.h.
41:220 Modern Russian Literature: 1869-1917 3 s.h.
41:222 Russian Poetry 3 s.h.
41:236 Russian Folklore 3 s.h.
41:233 Soviet Literature 3 s.h.
41:244 Position in Romanu Literature: Criticism 3 s.h.
41:250 Princeton: Research Methods 3 s.h.
41:258 Princeton: Research Methods 3 s.h.
41:261 History of Russian Language 3 s.h.
41:275 Seminar: Russian Literature 3 s.h.
41:276 Seminar: Russian Linguistics 3 s.h.
41:279 Independent Research 3 s.h.
41:280 Hypertext 3 s.h.

SCIENCE EDUCATION

CANDLESTONE (JASON E. PEACOCK) Professor of Mathematics, John E. Peacock, Kaja Smirnow, Robert E. Vals.
Associate Professor George W. Creason, Daniel G. Phillips, Richard L. Prado, Janet B. Shenefelt, John T. Wilson
Undergraduate Program offering B.S. in Science Education Graduate degree offered M.A.T., M.S. in Science Education; B.S. in Science Education

Science education is concerned with the interaction between science and society. The academic programs in science education include preparation in more than one discipline of science; a consideration of science from a philosophical, historical, and sociological perspective; an introduction to applied science (technology); and an education sequence.

Because science education is transdisciplinary, program planning requires the cooperation and involvement of a variety of University departments and colleges. Most of the formal requirements
are drawn from courses offered in those various departments.

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 of six semester hours of sequential study.
- Preparation in a second area of science equivalent to two years or four semesters of sequential study.
- An introduction to two other fields of science.
- A specified proficiency in mathematics as a tool of science (more mathematics study is required for the physical science emphasis than for the biological areas);
- A view of science from a historical/philosophical/cultural perspective; and
- Experience with the application of scientific knowledge.

Admission to the Major

Candidates for a bachelor’s degree in science education must be admitted to the science education teacher education program (TEP). In order to be considered for admission to the TEP, students must have completed a minimum of 35 semester hours of course work with a minimum cumulative grade-point average of 2.50. A limited number of applicants are accepted into the science education 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 in the College of Education section of the Catalog under "Curriculum and Instruction."

Major Requirements

The major in science education requires a minimum of 36 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 areas of emphases within the science education major: biology, earth science, chemistry, physics, physical science, and general science.

The requirements for the major for the six emphasis areas are as follows.

**Biology Emphasis**

At least 25 semester hours must be earned in 100-level courses.

- 2-1 Introduction to Biology 4 s.h.
- 37-1 Principles of Animal Biology 5 s.h.
- Electives (in taxonomy, microbiology, or zoology, including work in genetics, ecology, and physiology) 14 s.h.
- 4-15-14 Principles of Chemistry I-III 15 s.h.
- 4-16 Principles of Chemistry Lab I 2 s.h.
- 4-13 Organic Chemistry I 3 s.h.
- Chemistry electives 5 s.h.
- 12-5 Introduction to Geology 4 s.h.
- Approved geology elective 4 s.h.
- 29-11 College Physics Mathematics course at the level of 22M-11 or 22S-8 or higher 3-4 s.h.

**Application of Science**

- 97-105 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.
- 97-105 Societal and Educational Applications of Physical Sciences 3 s.h.

Transfer courses from areas such as engineering, agriculture, and technical schools may be substituted for 97-102 or 97-105 with the advisor’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.

- 6-14-14 Principles of Chemistry I-III 15 s.h.
- 4-16 Principles of Chemistry Lab I 2 s.h.
- 4-13 Organic Chemistry I 3 s.h.
- 4-141 Organic Chemistry Laboratory 3 s.h.
- 29-11-12 College Physics and Physics electives 8 s.h.
- 29-27-19 Introductory Physics I-II 12 s.h.
- Mathematics courses at the level of 22M-11 or 22S-8 or higher 3-4 s.h.

Application of Science

- 97-105 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.
- 97-105 Societal and Educational Applications of Physical Sciences 3 s.h.

Transfer course from selected areas such as engineering, agriculture, and technical schools may be substituted for 97-102 or 97-105 with the advisor’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.

- 29-11-12 College Physics 8 s.h.
Application of Science

97 128 Meaning of Science
97 129 Science in Historical Perspective

2.9 s.h.

2.9 s.h.

Physical Science Emphases

Science
4 13 14 Principles of Chemistry I II
4 16 Principles of Chemistry Lab I
29 11 1 College Physics
12 5 Introduction to Geology
4 12 Organic Chemistry
4 12 Physical Chemistry I

6 s.h.
8 s.h.
8 s.h.
4 s.h.
3 s.h.
3 s.h.

Artificial physical science electives (geology, geography, chemistry, physics)

11 s.h.

Application of Science

97 102 Societal and Educational Applications of Physical Sciences
3 s.h.

97 102 Societal and Educational Applications of Physical Sciences

3 s.h.

Applications of Science

97 102 Societal and Educational Applications of Physical Sciences

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97 102 Societal and Educational Applications of Physical Sciences

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97 102 Societal and Educational Applications of Physical Sciences

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History/Philosophy/Sociology of Science

97 128 Meaning of Science
2.9 s.h.

97 130 Science in Historical Perspective
2.9 s.h.

Application of Science

97 102 Societal and Educational Applications of Physical Sciences

3 s.h.

97 102 Societal and Educational Applications of Physical Sciences

3 s.h.

History/Philosophy/Sociology of Science

97 128 Meaning of Science

2.9 s.h.

97 130 Science in Historical Perspective

2.9 s.h.

Students who want to pursue a science teaching career in Illinois must complete the University of Illinois recommendation for teaching certification and submit one transcript in science education. All science teaching minors must take:

75 151 Science Methods I

Practicum

75 152 Science Methods II

Resources, Research, Teaching Strategies, and Curriculum Development for K-12 Science

75 153 Science Methods III

Middle School High School (taken with 2 s.h. of 75 188)

10 s.h.

75 150 Issues in Education

75 186 Section 640 Elementary School Special Subject Area Student Teaching (taken with 75 186)

75 187 Seminar in General Education Seminar: Curriculum and Student Teaching

75 189 (Section 91) Observation and Laboratory Practice in the Elementary School

75 192 (Section 92) Observation and Laboratory Practice in the Secondary School

75 193 (Section 93) Observation and Laboratory Practice in the Secondary School

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Special Rules
Since the Science Education Program may involve many faculty advisors and several colleges and departments, some special rules and regulations apply to science education students. They include the following:

At least 10 semester hours of graded credit in science must be earned at The University of Iowa.

Transfer students must complete their last 30 semester hours in residence in the College of Liberal Arts at The University of Iowa in order to be eligible for the B.S. degree.

No science core courses numbered 11 or credit from the JESP Natural Science General Examination may be used toward the major in science education.

Science courses taken in other colleges of the University (e.g., college 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 Registrar's Office that such a course is equivalent to the one offered in that department.

Courses used for the major may not be taken pass/fail/numeric grades from all courses used for the science education major will be 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 most aspects of modern science, all science education students are urged to take a beginning mathematics course in both pure and applied mathematics (including statistics and computer science) so that they may be qualified to do graduate work in mathematics.

Honors
To graduate with honors, students must maintain a 3.20 grade-point average and complete 59.50 honors Research Project in addition to other science education requirements.

Iowa-StSSP and the Iowa Science and Humanities Symposium
The Iowa Secondary Student Training Program (Iowa-StSSP) is a special summer program that emphasizes research experience for talented secondary students. Participants register for credit as undergraduate students and are placed in research laboratories in a variety of science areas. Various programs, such as Young Scientists and National Science Talent Search, Programs, are facets of Iowa-StSSP when funding is obtained.

The statewide Iowa Science and Humanities Symposium is sponsored by the U.S. Army Research Office each February involves about 200 students in Iowa 4-H, teachers. The symposium emphasizes career opportunities in science and related fields by focusing on ongoing science research at The University of Iowa.

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.

Those programs are described in the "College of Education" section of the Catalog under "Secondary Education." The Master of Science with specialization in elementary school science education is described in "Early Childhood and Elementary Education."

Special Programs
The Iowa Chautauqua Program involves 250 participants in four or five workshops for teachers grades 4-9. The Chautauqua focuses on introductory science/technology/society materials and approaches. Another program is Project STUPS, which helps upper elementary and middle school teachers use and evaluate logical and higher order thinking skills. Project MOS is a recently funded NSF project that allows middle school teachers to conduct educational research. Other efforts focus on strategies for teachers who work with gifted and talented students and programs that facilitate middle school project exchanges. Many Science Education Center activities are funded by NFW, Title II, the Iowa lottery program, and industries such as the Iowa Utility Association. Many teachers involved with in-service programs are attracted to graduate degree programs.

Research
Each faculty member in science education is responsible for one or more areas of research. Major interests of faculty and graduate students include the following:

Studies of effective teaching and learning

Attitudinal and other affective outcomes of instruction

Philosophy and sociology of science

Individualized learning

Computer-assisted learning

Classroom interaction studies

Creativity

Student outcomes/perceptions of learning in science

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International Programs
The faculty in science education has collaborated on a number of international research and development projects in countries including Brazil, Italy, Spain, Portugal, India, Israel, Nigeria, Malaysia, Indonesia, Korea, Australia, Taiwan, South Africa, Mexico, and India. Several faculty exchanges have occurred and numerous cross-national studies have been undertaken.

International programs enrich the opportunities for graduate studies at the Science Education Center. Many have enrolled from Indonesia, Korea, Malaysia, Nigeria, Taiwan, and other nations around the world. Fulbrights are awarded and new collaborative efforts are underway each year.

Facilities
The facilities for science education programs at The University of Iowa are exemplary.

The Science Education Center is located in Van Huyten Hall near the center of the University campus.

Facilities include the two main offices, faculty, secretarial, and graduate assistant office space, a self-instructural computer laboratory and photolibrary, instructional laboratories, including space for elementary and secondary school science computer science courses, applications-oriented laboratories, a large computer used as an instructional center for the history and philosophy components of science education and secondary teacher education programs; a departmental conference room used for seminars, conferences, meetings, workshops, and in-service work with teachers, supervisors, and administrators; a common area for small-group discussions and individual work; and a lounge.

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 and special education majors.}

Primarily for Undergraduates

59.10 Cooperative Education Internship 0 sch.

59.70 Foundations of Science 4 sch.

Science topics and laboratory investigations cross-departmental focus on problem solving and process skills in science.

73.10 Investigation in Science 3 sch.

Special project in relation to high ability secondary school students may be required.

75.10 Science Research Project 3 sch.

Research experience required of undergraduates pursuing honors degree.
For Undergraduates and Graduates

Doctor of Philosophy

Some graduates of the social studies education doctoral program head 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 program in Social Studies Education are described in the "College of Education" sections of the catalog under "Curriculum and Instruction."

Facilities

Students in social studies education have access to the facilities and laboratories offered by the cooperating departments and the College of Education. Special agencies and services also are available, such as the University Hospital School, the Iowa Center for Education in Politics, the Bureau of Educational Research, the Institute of Public Affairs, the Iowa Educational Improvement Center, the Curricular Laboratory, the Statistical Consulting Center, the computer laboratory, and the Top Computing Center.

Faculty members serve as social studies education advisors and coordinators are experienced classroom teachers whose advanced degrees have given them insight into history, the social sciences, and education. They are active in professional organizations, consultative work, and in working with schools in curriculum revision.

Courses

18.211 Individual Instruction in Social Studies Education

1.5 s.h.

18.212 Advanced Field Studies, and Individualized Research Projects; or general purpose of educational research. May be repeated. Consent of instructor required.

18.221 Seminar: Social Studies Education

1 s.h.

Students gain the experience in teaching in history, social sciences, and social studies education. Substantial investigations permitted. Consent of instructor required. Same as 18.217.

SOCIAL STUDIES EDUCATION

Chapin Robert W. Fitch
Professor Robert W. Fitch

Undergraduate degree offered: B.A. in Social Studies. 

Graduate degrees offered: M.A. in Social Studies, Ph.D. (Ph.D.) in Education.

Undergraduate Program

Bachelor of Science degree offered: B.A. in Social Studies. 

Social Studies, Policy, and Education

Graduate Programs

Master of Arts

The department offers the Master of Arts with or without thesis.

Some graduates of this program are classroom teachers and chairs of social studies departments in junior and senior high schools. Some serve as curriculum coordinators 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 master's degree in social studies education has provided access to civil service positions at various levels of government.

Students choose from two programs in social studies education. Program A provides an opportunity for interdisciplinary work in history, social science, and 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 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."
Minor

A minor in social work requires a minimum of 25 semester hours of credit in social work courses 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 42:100 and above. 42:22, or its equivalent at another institution. It is a prerequisite to many upper-level social work courses.

Admission

A limited number of students are admitted to the major. Applications are processed each January. 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 same year).

A cumulative grade-point average of at least 2.50; and

Completion of the application process.

Exceptions may be made for prospective students who do not meet the grade-point requirement if they are proving candidates on the basis of other criteria.

More information is available from the coordinator of admissions at The University of Iowa Social Work.

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 train men and women 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 services to 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 degree includes 25 semester hours of foundation-level courses and 45 semester hours of advanced-level courses. Students who have a B.S.W. from a CSWE program require 15 semester hours of advanced standing and earn the degree with 45 semester hours. A limited number of students are admitted to a 36-credit, full-time program. All students must earn 36 hours after admission to the M.S.W. program.

Up to 14 semester hours of partial advanced standing are 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...
Cooperative Programs
In cooperation with the Counseling Education Program in the College of Education, a curriculum has been designed around the requirements of the American Association of Marriage and Family Therapy (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/Success Certificate Program through the College of Liberal Arts. Students can earn the certificate concurrently with the M.S.W. program, or they can complete it independently toward the certificate of the Aging Studies Program.

The School also participates with the College of Education to provide coursework for the School of Social Work certification in Iowa. Students can work toward certification both in the M.S.W. program and 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 administration programs.

The School also offers students the opportunity to participate in travel/study seminars. Urban, rural, national, and international seminars are available.

Graduate Admission
The criteria for admission for full-time and part-time students in the 40- 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;
- A 2.00 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);
- Three letters of recommendation, including one regarding academic abilities and another 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 desirable.
- Previous enrolling life experience (cross-cultural and international experience and background, and minority status) also are given consideration.
- Foreign applicants must score at least 600 on the Test of English as a Foreign Language (TOEFL).
- It is the school's policy to admit 25-30 percent of the M.S.W. class with grade-point averages below 3.00. Applicants who are especially strong candidates on the basis of other criteria may be admitted. 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 developmental 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 40-semester-hour program begin in August and are considered part of the senior class and must meet the same application deadlines as students in August. The 45-semester-hour program in August. The 45-semester-hour program should be completed by January 31. Additional criteria for admission for the fall-term, 36-semester-hour program include:

- A bachelor's degree from a CNW-accredited social work program; a 3.00 or higher grade-point average for the junior and senior years of undergraduate study;
- A minimum of two years of full-time 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 areas are not applied toward the M.S.W. degree).

A complete statement of graduate admission policies is available upon request.

Financial Aid
Financial aid for students is available from two sources:

- Student loans are available in various interest rates and amounts, at the discretion of the Social Services Loan Program. Loans are available in multiple programs: Federal Work-Study Program, Federal Direct Loan Program, Federal Perkins Loan Program, and private loans.

- The Iowa Student Aid Commission provides financial assistance to students who meet eligibility requirements.

- The Financial Aid Officer, School of Social Work, can provide information regarding available aid.

- The University of Iowa Office of Student Financial Aid should be contacted by all students regarding aid received through the University of Iowa Office of Student Financial Aid.

- The University of Iowa Office of Student Financial Aid does not precut students from consideration for aid through the School of Social Work.

- Various types of aid administered by the School of Social Work include research and teaching assistantships, work-study, and internships, and the Eleanor K. Taylor Loan Fund. Aid is available from other sources, such as the Graduate and Professional Opportunities Program (GTOP), national grants, international scholarship awards, the South African Scholarship Program, and a few agencies that provide stipends for graduate students in praxium.

Courses
Most courses are not available every semester.

- **Primary for Undergraduates**

  - 4120 Introduction to Social Work
  
    - 4 cr.
    - Course work in the formulation of techniques of social work; development of American social work field and relationship to society; methods of social work education; major theoretical perspectives.
    - Open only to sophomores or above; or to freshmen with consent of instructor.

  - 4122 Substance Use and Abuse
  
    - 2 cr.
    - Introduction to chemical dependency for helping professions, etiology, physiological, psychological, legal, and social aspects.
    - Open only to students who have either completed the required general education courses.

  - 4157 Work Processes
  
    - 3 cr.
    - Basic concepts and techniques for working with communities, groups, families, and individuals.
    - Open only to students who have completed the required general education courses.

  - 4159 Field Experience Seminar
  
    - 1 cr.
    - Experience for students on field placement.
    - Prerequisites: 4159 or consent of instructor.

  - 4166 Individual Study
  
    - arr.
    - Course approved in consultation with the director.
    - Open only to students enrolled in the program.

  - 4167 Internship Social Work
  
    - arr.
    - Supervised individual research. May be repeated. Open only to students enrolled in the program.

  - 4168 Field Experience
  
    - arr.
    - Supervised experiential or selected social work assignments, demonstrating and using knowledge and skills acquired in general practice, methodology of practice, and organizational, administrative, management, and leadership. Prerequisite: 4167.

- **Nondegree Program**

  - Nondegree students may enroll for selected courses and workshops through the Saturday and Evening Class Program in the School of Social Work and the School of Social Work centers in Des Moines and the Quad Cities. There are limits on the graduate courses that may be applied to the master's degree requirements for students who later enroll in the program.
For Undergraduates and Graduates

Courses with numbers preceded by asterisks meet requirements of the M.S.W. program.

4302 Cooperative Education Internship
A 6-8.5

4311 International Communications
See as 311.

4312 Field Work
1.5-2.0

4314 Interdisciplinary Programs for Internship
2 1-4

4314-00 Human Behavior in the Social Environment
1.5-2.0

4314-01 Fundamentals of Group Process
1.5-2.0

4314-02 Group Practice Principles
1.5-2.0

4314-03 Individual Practice Principles
1.5-2.0

4315 Group Process with Children
1.5-2.0

4315-01 Human Behavior in the Social Environment
1.5-2.0

4315-02 Fundamentals of Group Process
1.5-2.0

4315-03 Individual Practice Principles
1.5-2.0

4316 Field Work in Generalist Practice
2.0

4316-01 Generalist Practice Principles
1.5-2.0

4316-02 Individual Practice Principles
1.5-2.0

4317 Interdisciplinary Programs for Internship
2 1-4

4318 Social Work Practice with Children
2.0

4318-01 Individual Practice Principles
1.5-2.0

4318-02 Group Practice Principles
1.5-2.0

4319 Social Work Practice with Older People
2.0

4319-01 Individual Practice Principles
1.5-2.0

4319-02 Group Practice Principles
1.5-2.0

4320 Social Work Practice with Families
2.0

4320-01 Individual Practice Principles
1.5-2.0

4320-02 Group Practice Principles
1.5-2.0

4321 Social Work Practice with Adult Couples
1.5-2.0

4321-01 Individual Practice Principles
1.5-2.0

4322 Social Work Practice with Groups
1.5-2.0

4322-01 Individual Practice Principles
1.5-2.0

4323 Social Work Practice with Families
1.5-2.0

4323-01 Individual Practice Principles
1.5-2.0

4324 Social Work Practice with Older People
1.5-2.0

4324-01 Individual Practice Principles
1.5-2.0

4325 Social Work Practice with Families
1.5-2.0

4325-01 Individual Practice Principles
1.5-2.0
for a sociology major is available in the department.

Departmental requirements are the same for transfer students as for other students. While some courses at other colleges are applicable toward the major, the department requires that transfer students majoring in sociology take at least 12 semester hours in sociology at The University of Iowa.

Students who wish to obtain teacher certification in the social sciences in social studies should contact the Secondary Education Division in the College of Education.

Minor

In addition to the programs for majors, the department provides supportive coursework for several other courses of study. A minor in sociology with a major in another field, particularly another social science, business administration, elementary education, or nursing. The requirements for a sociology minor are:

- A minimum of 15 semester hours of credit in sociology courses with a minimum grade-point average of 2.0.
- At least 12 of the 15 semester hours must be taken at The University of Iowa in courses numbered 24100 and higher.
- No course accepted toward the minor may be passed with credit/no credit.

A brochure describing minors in sociology is available in the department office.

Honors

The College of Liberal Arts Honors Program provides a stimulating and intrinsically educational experience for undergraduate majors who perform at a high level. To be selected for the honors program in sociology, students must have a grade-point average of 3.20 or above in major and major courses. The honors curriculum consists of limited-enrollment classes in which students explore in-depth issues of mutual interest with faculty and other honors students. The required core requirements for a honors degree in sociology are completion of 34.100 Honors Seminar II in the junior year, one advanced undergraduate course or graduate course approved by the honors director, and an honors thesis. The honors thesis gives students an opportunity to do sociological research in conjunction with a faculty member of the student's choice. As an option, honors students may take the honors seminar in Sociology Principles, thereby fulfilling the course requirement for Sociology. Problems for a degree in sociology.

Graduate Programs

The graduate program in sociology is competitive for full-time graduate work, depending on which program the student chooses. The master's programs prepare the student for doctoral study or for professional positions applying sociology. The doctoral program has a research emphasis and primarily prepares students for positions in colleges and universities or research institutions, private, and government positions. Opportunities for internships using survey, experimental, and observational methods are readily available for the department.

Master of Arts

The M.A. degree in sociology requires 30 semester hours with thesis or 38 semester hours without thesis. The program without thesis is recommended for persons who desire a terminal degree and for whom a wider range of course content in sociology is appropriate. At least 12 credits of the M.A. degree must complete the following with grades of B or higher:

- 34.201 History of Sociological Theory
- 34.202 Sociological Theory
- 34.214 Elementary Statistics and Data Analysis
- 34.215 Sampling, Measurement, and Observation Techniques

M.A. in Criminal Justice and Corrections

This program is designed for individuals who wish to work as a criminal justice. Since a assumption that sociological orientation and background is extremely valuable for such work, the major emphasis of the program is sociology. It also is recognized that social knowledge is essential to performing special criminal justice roles. Therefore, students may select 15 semester hours of course work in areas such as legal process, administrative procedure, or direct interventions techniques in order to broaden their knowledge. The flexible curriculum allows students in consultation with their advisor, considerable choice in selecting courses that will best enable them to achieve their career goals. A limited number of students enter the program each year, so a low student-faculty ratio is maintained. Internships are available with local criminal-justice agencies. Successful completion of this program requires a maximum of 36 graduate credits, a 3.0 grade-point average on all work taken, and a master's paper (not a thesis).

Joint Programs 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. The College of Law permits students to apply for up to 12 semester hours of credit for graduate work that they take after entering the joint program toward the law degree.

Doctor of Philosophy

The Ph.D. degree in sociology requires a minimum of 72 semester hours of graduate-level course work, including the regular M.A. course 34.214 Intermediate Statistics and Data Analysis and at least 36 semester hours in dissertation research. Candidates must pass comprehensive examinations and write a dissertation. All doctoral candidates are examined in the major fields of sociology—methodology, history of sociology, and methodology—and in one major and one minor area chosen from the areas represented by the faculty, such as social psychology, deviance, criminology, family, social stratification, organizations, demography, theory, methods, and statistics. A majority of these fields in sociology are available upon request.

A detailed statement of regulations for graduate study also is available upon request. Potential doctoral candidates should consult the statement carefully.

Special Workshops

The department organizes a series of workshops each semester on new and interesting research methods and on current research methods. Each workshop informs students about the newest techniques and shows them how the methods are actually used in a research setting. Topics covered in recent years include LEASEL, meta-analysis, simulation techniques, and time-series analysis. A biweekly theory workshop on tools and methods used in theoretical analysis is offered by a faculty member and a graduate student. Workshop participants critique a paper which has been distributed a week before the session.

Admission

Admission to graduate study in sociology usually requires a minimum undergraduate grade-point average of 3.0 and a total score of 1100 from the quantitative and verbal sections of the Graduate Record Examination (GRE). General Test. Foreign students whose native language is not English should submit scores from the
Completion of the interdisciplinary course 410.100 Introduction to the Soviet Union (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 five additional courses (27 s.h.) from a core group including two courses in each of the following areas: regional studies, one area-related course in economics, one area-related course in either journalism and mass communication, Russian, or Soviet art;
and
415.190 Senior Seminar (3 s.h.)

The exiting core courses for Soviet and East European studies regularly offered undergraduate and graduate courses.

Sample Course of Study
Freshman Year
Fall Semester
415.100 Introduction to the Soviet Union 3 s.h.
41.1 First-Year Russian I 4 s.h.
4E.1 Principles of Microeconomics 3 s.h.
General education electives 4-6 s.h.
Spring Semester
4E.2 Principles of Macroeconomics 3-4 s.h.
16E.177 Imperial Russia: 1801-1917 5 s.h.
41.2 First-Year Russian II 4 s.h.
General education electives 4-6 s.h.
Sophomore Year
Fall Semester
16E.176 Imperial Russia (1918-1941) 3 s.h.
16E.176 Soviet Russia 1917-1993 3 s.h.
R-1 Revolution and the New Regime 3 s.h.
413 Second-Year Russian I 4 s.h.
General education electives 4-6 s.h.
Spring Semester
41.3 The Soviet Economy 3 s.h.
16E.179 Soviet Union 1953-Present 3 s.h.
41.4 Second-Year Russian II 4 s.h.
General education electives 4-6 s.h.
Junior Year
Fall Semester
16E.177 Imperial Russia (1918-1941) 3 s.h.
19.155 Mass Media and Society 3 s.h.
30-141 Intern to Soviet Government and Politics 3 s.h.
F.111 Third-Year Russian I 4 s.h.
General education electives 3-4 s.h.
Spring Semester
19-156 Comparative Communication Systems 3 s.h.
30-142 Government and Politics of the Soviet Union and Eastern Europe 3 s.h.
41.112 Third-Year Russian II 4 s.h.
General education electives 4-6 s.h.

Senior Year
Fall Semester
4E.105 International Economics 3 s.h.
16E.173 Macroeconomics 3 s.h.
1280-1598 3 s.h.
114 Strategy and Area Control 3 s.h.
41.156 Russian Culture 3 s.h.
General education electives 3-4 s.h.
Spring Semester
4E.166 The Political Economy of Socialism 3 s.h.
16E.108 Contemporary European News/Current Events 3 s.h.
30-168 Soviet Foreign Policy 3 s.h.
61.182 Soviet Literature and Stalin 3 s.h.
415.190 Senior Seminar (3 s.h.)

Honors
The program leading to a B.A. degree with Honors is open to students with a minimum cumulative grade-point average of 3.2. To graduate with honors, students must maintain at least a 3.50 grade-point average in the Senior and East European Studies program and a cumulative grade-point average of at least 3.20. Honors students take 15 semester hours of course work with a grade of B or higher in each course. Courses include honors seminars in economics, history, journalism and mass communication, political science, Russian, and social work, as appropriate. The last 3 semester hours may be earned by completing an honors research project directed by faculty members from at least two disciplines. Students interested in seeking a B.A. degree with honors should contact the College of Liberal Arts Honors Program and the SEES program honors advisor before they begin their junior year.

Joint Programs
Joint programs leading to a double major in Soviet and East European studies and another discipline can be designed without difficulty. Double majors are appropriate to all the program’s constituent disciplines, especially in the Russian language. Other combinations are possible as well. In most cases, some courses count toward requirements in both majors.

Supplementary Study Programs
The SEES program encourages all participants to exploit opportunities for internships with governmental departments and agencies, nonprofit organizations and institutions, and businesses. Internships not only enrich the student’s foreign language course work but may also 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 SEES faculty stand 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 Lausanne, Czechoslovakia, East Germany, Hungary, Poland, Romania, and Yugoslavia. The best study-abroad programs in the Soviet Union are described in the Department of Russian section of the Catalog. Students are increasingly able to apply directly for admission to almost all institutes of higher learning throughout Central and Eastern Europe as well as in the Soviet Union.

SEES Area Courses
Course descriptions are available in the appropriate departmental sections of the Catalog.

Economics
4E.001 Principles of Microeconomics 3-4 s.h.
4E.002 Principles of Macroeconomics 4 s.h.
4E.106 International Economics 3 s.h.
4E.166 The Soviet Economy 3 s.h.
4E.167 The Political Economy of Socialism 3 s.h.
4E.197 Honors’ Seminar (Gerard Norgard) arr.

*These courses are prerequisites to the economic curriculum in the area of concentration; they do not count toward 27 semester hours of course work required for the Bachelor of Arts. History
16E.121 Columbia for History and Culture 3 s.h.
4E.144 Modern European Social Thought: Adam Smith to Marx 3 s.h.
4E.160 Marx 3 s.h.
4E.171 Medieval Russia 3 s.h.
4E.172 Muscovite Russia 3 s.h.
4E.177 Imperial Russia (1858-1917) 3 s.h.
4E.178 Imperial Russia 1917-1993 3 s.h.
4E.180 Soviet Union 1953-Present 3 s.h.
4E.186 Contemporary European News/Current Events 3 s.h.

Journalism and Mass Communication
19.155 Mass Media and Society 3 s.h.
19.176 Comparative Communication Systems 7 s.h.
19.181 Readings in Communication and Mass Communication 3 s.h.
19.190 Honors Readings (3-5 s.h.)
Spanish Language, an honors essay in Spanish, and an oral examination conducted in Spanish.

Minor in Spanish
A minor in Spanish requires 35 semester hours of course work in Spanish with a minimum grade-point average of 2.0 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. The following courses may not be elected to fulfill minor requirements:
- 35:101 Advanced Spanish Language 4 s.h.
- 35:102 Advanced Spanish Language 4 s.h.
- 35:105 Teaching Practicum 3 s.h.
- 35:117 Topics in Foreign Language Instructional Technology 3 s.h.
No more than 3 semester hours may be applied toward the minor from departmental courses taught in English.

Transfer Credit:
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.

International Business Certificate
The College of Liberal Arts and Business Admin-istration offers a joint program leading to a Certificate in International Business. The program seeks study of international business and management, international relations and is an alternative for students who wish to pursue careers in international business, but have also for three reasons interested in gaining a better understanding of the global economy and a broader awareness of the political, economic, and social environment in which international business operates.

Honors in Spanish
Admission to the honors program in Spanish requires a minimum 3.25 total cumulative grade-point average and a minimum 3.3 grade in Spanish. Graduation with honors in Spanish requires, in addition to the semester hours for the various minor fields described above, 6 semester hours elective in 35:100 Honors Spanish Literature and 35:107 Honors Spanish Language and Society Program (Santo, Spain), the CIEE Business and Society Program (Seville, Spain), the CIEE Spanish Language and Civilization Program (Salamanca, Dominican Republic), and the University Studies in the European Country Consultation (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 at these or other study-abroad programs may be applied toward the requirements for the Spanish major or minor. The amount of credit that may be accepted varies according to the program. Interested students should contact the department's study-abroad advisor.

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. Course work is offered in reading and comprehending basic Brazilian Portuguese, they incorporate cultural materials in the form of film and music. The B.A. in Portuguese requires the following courses:
- 36:11 Portuguese I 4 s.h.
- 36:12 Portuguese II 4 s.h.
- 36:103 Annotated Portuguese 3 s.h.
- 36:11 Intermediate Portuguese 3 s.h.
- 36:12 Intermediate Portuguese 3 s.h.

The following courses are required:
- 36:105 Brazilian Literature I 3 s.h.
- 36:106 Brazilian Literature II 3 s.h.
- 36:107 Introduction to Portuguese Literature 3 s.h.
- 36:104 Culture and Civilization of the Portuguese Speaking World 3 s.h.

The Foreign Language Program offers advanced courses in Portuguese, Spanish, and French.

Foreign Study Programs
The department participates in study abroad programs. For summer programs, the Iowa Regents Study Programs (Barcelona, Spain) and the CIEE European Program in Madrid.

Included in 35:107 Honors Spanish Literature and 35:107 Honors Spanish Language and Society Program (Santo, Spain), the CIEE Business and Society Program (Seville, Spain), the CIEE Spanish Language and Civilization Program (Salamanca, Dominican Republic), and the University Studies in the European Country Consultation (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 at these or other study-abroad programs may be applied toward the requirements for the Spanish major or minor. The amount of credit that may be accepted varies according to the program. Interested students should contact the department's study-abroad advisor.

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. Course work is offered in reading and comprehending basic Brazilian Portuguese, they incorporate cultural materials in the form of film and music. The B.A. in Portuguese requires the following courses:
- 36:11 Portuguese I 4 s.h.
- 36:12 Portuguese II 4 s.h.
- 36:103 Annotated Portuguese 3 s.h.
- 36:11 Intermediate Portuguese 3 s.h.
- 36:12 Intermediate Portuguese 3 s.h.

The following courses are required:
- 36:105 Brazilian Literature I 3 s.h.
- 36:106 Brazilian Literature II 3 s.h.
- 36:107 Introduction to Portuguese Literature 3 s.h.
- 36:104 Culture and Civilization of the Portuguese Speaking World 3 s.h.

The Foreign Language Program offers advanced courses in Portuguese, Spanish, and French.

Foreign Study Programs
The department participates in study abroad programs. For summer programs, the Iowa Regents Study Programs (Barcelona, Spain) and the CIEE European Program in Madrid.
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 of which must be taken at The University of Iowa, or in the Language of Iowa foreign study program in courses numbered 100 and above.

Courses for Undergraduate Nonmajors
Undergraduate students in other disciplines may meet part of the College of Liberal Arts & Liberal Education Requirements in humanities and foreign civilization and culture with 30:20 Contemporary Latin American Narrative and 30:30 Contemporary Brazilian Narrative, in which the readings are in English. The department offers several other literature, film, and cultural survey courses and is taught in English and are of general interest.

Latin American Studies Certificate
The department plays an important and active role in the Latin American Studies Program, an interdisciplinary undergraduate program engaging in 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 reading in the language before enrolling in the program. For further information on the Latin American Studies Program, see "Latin American Studies Program" in this section of the Catalog.

Graduate Programs
Master of Arts in Spanish
Candidates for the M.A. degree must complete the equivalent of the undergraduate Spanish major with at least a 2.00 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 5 semester hours of which may be taken outside the department, are required minimum is 36 semester hours for the M.A. program.

Maximum Study Load
Maximum course registration is 15 graduate semester hours during fall or spring semesters and 6 graduate semester hours during summer sessions. One-quarter and one-third-time teaching assistants are permitted to register for the maximum study load. One-half-time teaching assistants may register for no more than 12 semester hours in fall or spring semesters and, for part-time students, no more than four semester hours during summer sessions. Antithetical 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 qualifications toward the 36-semester-hour requirement for the M.A. degree.

Teaching Certification
Exemption of the student-teaching requirement, graduate students may take the course necessary for necessary 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 the candidate's 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 American literature. At least one must be in Spanish-American literature. One film area may be substituted, either as 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 an equivalent of one year of college-level study of another approved foreign language. This language must be Latino for those who wish to work on 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 two years 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 II 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 5 s.h.
Two 300-level seminars 6 s.h.
35:200 Thesis 5 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 requisite semester 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:
180:110 Articulatory and Acoustic Phonetics 3 s.h.
180:111 Syntactic Analysis 3 s.h.
180:210 Phonological Theory and Analysis 3 s.h.
180:215 Syntactic Theory 3 s.h.

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.
Two additional courses in linguistics 6 s.h.

Two 300-level seminars in Spanish linguistics 6 s.h.
35:200 Thesis 2 s.h.
Total semester hours required 74 s.h.

Ph.D. Qualifying Examination
All doctoral students are admitted conditionally to the Ph.D. program and must take a qualifying examination during their second semester of Ph.D. study. Upon satisfactory completion of the Ph.D. qualifying examination, students are admitted to the Ph.D. program on a regular basis.

The purpose of the Ph.D. qualifying examination is to assess doctoral students' potential for scholarly research, abilities in analytical thinking and critical reasoning, and level of sophistication in literary or linguistic argumentation. The exam marks the formal occasion on which doctoral students begin to exhibit intellectual
Courses

Spanish—Primarily for Undergraduates

All students are strongly urged to take the Spanish Placement Test, which is administered at regular intervals on campus. In the absence of test results, undergraduates who have had less than two years of high school study in Spanish are placed in a first- or second-semester class. Students with two or more years of high school Spanish are placed in a third- or fourth-semester class. Prospective and entering students should consult with their academic advisor. Students who want more advanced placement must take the placement test. Transfer students who have taken college Spanish at other institutions will be placed according to previously completed courses.

Students may, except when the department chair’s approval is required, take an elementary course for credit after having completed a higher-level course for which the elementary course or its equivalent is a prerequisite.

Comprehensive Examination

The purpose of the Ph.D. comprehensive examination is to determine whether the candidate has gained sufficient breadth and depth in knowledge in Hispanic literature or in Spanish linguistics to enter the Ph.D. program 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 the three core areas, detailed below, and an examination in Spanish, usually lasting two hours. The examining committee is composed of five departmental faculty members.

The four examination areas for each track are as follows:

1. Literature Track
   A broad area in a Spanish literary history; a reading list is determined by the student and his or her advisory committee.

2. Spanish and Portuguese • Liberal Arts 241

3. 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-American, and/or Latin-American literary and cultural history, or might involve in-depth study of specific problems in Hispanic literary criticism or in literary history. Areas involving Latin American cinema or in the written and oral language of that literature may also be included. The candidate is given wide latitude in formulating the reading list for these areas according to his or her research and teaching interests.

3. Linguistics Track
   Contemporary Spanish syntactic analysis of a reading list is determined by the student and the advisory committee.

3. Spanish and Portuguese Phoneticianship: A reading list is determined by the student and the advisory committee.

1. Specialized area of the candidate's choosing. This area might involve exploration of a specialized topic in one of the three core areas listed above, or it might involve study of a particular topic in a comparative Romance (Latin American, Spanish, Portuguese) or a wider linguistic (e.g., sociolinguistic, language contact, sociolinguistics) context. The candidate is given wide latitude in formulating the reading list for this area according to his or her research and teaching interests.

Financial Aid

Teaching and research assistantships are available to qualified graduate students.

Generally, two years of support are available to the completion of a master's degree, and three years beyond the receipt of the M.A. for the Ph.D. As long as graduate students' studies and performances meet departmental standards, they 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 departmental office.

Facilities

The Language Media Center provides facilities for language learning, teaching, and research. These include standard and special software, video recorders, network player, sound recording equipment, two video recorders, and a wide range of equipment and software. The center’s software and equipment are available on site and on the Internet to the entire composition of the Center.

CODING:

CODING:

CODING:


SPEECH PATHOLOGY AND AUDIOLOGY

Chair: John W. Folkins
Professor: Paul A. Allen, John W. Folkins.
Assistant: Paul A. Allen, Robert W. Stelzer, Diane A. Furgle.
Associate professor: Charles W. Anderson.
Assistant: Robert W. Stelzer, Diane A. Furgle.

Undergraduate Programs

Since the master's degree or its equivalent is the minimum level of preparation for persons seeking professional careers in this field, the undergraduate curricula leading to B.S. or B.A. degrees in speech and hearing science do not qualify as individual to work professionally in this field, but primarily prepare students for graduate work instead. Hence, the undergraduate program emphasizes the normal processes of speech, hearing, and language. These undergraduate programs are recommended by the Educational Standards Board of the American Speech-Language-Hearing Association.
Requirements
The B.S. or B.A. degree in speech and hearing science requires a minimum of 36 semester hours. The required courses are as follows:

3:15 Introduction to Speech and Hearing Science 3 s.h.
3:17 Fundamentals of Speech Science 1 s.h.
3:15 Introduction to Hearing Science 1 s.h.
3:17 Psychological Language 1 s.h.
3:18 Language Development 3 s.h.
7:14:24:124 Introduction to Statistical Methods 3 s.h.
7:12:26:256:126 Introduction to Probability and Inference 3 s.h.
3:11 Elementary Psychology 3 s.h.
3:13 General Psychology 3 s.h.
10:121 Articulation and Acoustic Phonetics 3 s.h.

Group A
One of the following:
17:108 Basic Aspects of Aging 2 s.h.
3:13 Introduction to Clinical Psychology 7 s.h.
3:196 Personality 3 s.h.
3:110 Psychology of Sex Differences 3 s.h.
3:135 Abnormal Psychology 3 s.h.
3:40:170 Aging and Society 3 s.h.
4:14:220:124 Perspectives on Aging 3 s.h.
1:130:250 Aging: A Cross-Cultural Perspective 3 s.h.

Group B
One of the following:
Courses marked with an asterisk (*) are prerequisites:
*3:14 Introduction to Child Psychology 3 s.h.
3:10 Development of Children’s Social Behavior 3 s.h.
3:160 Learning and Motivation in Children 3 s.h.
*3:14 Cognitive Development of Children 3 s.h.
*1:10 Growth and Development of the Young Child 3 s.h.
*7:15 Child Development 3 s.h.
3:166 Developmental Disabilities 3 s.h.
3:170 Behavior Modification 3 s.h.

Students seeking a bachelor’s degree also must complete a minimum of 30 hours of supervised clinical observations, a prerequisite for clinical participation. This requirement is satisfied by completion of independent observations or required observations made for elective experimental courses.

Honors
The senior-year program leading to the B.A. or B.S. degree 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 the undergraduate program, students who have earned a minimum grade-point average of 3.00 and who did not enter the University as honors students may apply to the College of Liberal Arts Honors Program and the department’s honors program upon recommendation of the departmental honors advisor. For graduation with honors, the student must be designated as an honors student 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 degree program to prepare the student for immediate placement in clinical work, or it may be a general degree program in graduate study leading to additional study for the Ph.D. degree. The program of study for the M.A. with professional emphasis is designed to ensure that upon graduation the student will meet the requirements for immediate professional employment.

A M.A. candidate usually has a background of undergraduate courses in speech and hearing science, psychology, language, and human behavior essentially equivalent to the undergraduate major in this field at the University of Iowa. Before final registering in the program, entering M.A. degree candidates are interviewed by faculty members who teach basic course work in speech, hearing, and language. These interviews are used to determine student background in areas considered prerequisite for graduate study. They also provide students and faculty advisers with information on background course work to be incorporated into the plan of study.

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 practical requirements for clinical certification by the American Speech-Language-Hearing Association and for licensure by the state of Iowa.

The M.A. degree program requires a minimum of 36 semester hours of graduate credit. All M.A. students must complete at least 4 semester hours of research supervision. 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 registration 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 in the event of each semester’s enrollment. As an exception to this requirement, it may be made in the case of research hours leading to a thesis.

Candidates for a M.A. degree with professional emphasis are not required to complete a thesis, although all students demonstrating research ability and interest are encouraged to do so. All candidates preparing for the M.A. degree without thesis are required to take final comprehensive examinations.

A typical M.A. program with professional emphasis is two years in length but may be longer or shorter depending on the student’s background and personal interests.

M.A. with Research Emphasis [General Program]
The general M.A. program for the student intending to continue to the Ph.D. degree 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.

M.A. with Professional Emphasis
Core Requirements
All students seeking an M.A. with professional emphasis must take the following.

*3:110 Neural Processes of Speech and Language 3 s.h.
*3:130 Principles of Assessment 1 s.h.
*3:131 Principles of Intervention 2 s.h.
*3:140 Multimodal Communication I 1 s.h.
*3:145 Speech-Language Pathology I: Phonological Disorders, Developmental Language Disorders, and Broca’s 1 s.h.
*3:146 Speech-Language Pathology II: Neurological Disorders, Voice Disorders, Cleft Palate, and Auditory-Verbal Handicapped 1 s.h.
*3:148 Speech-Language Pathology III: Psychosocial and Organizational Procedures 1 s.h.
*3:185 Hearing Loss and Audiometry 1 s.h.
3:244 Investigative Audiology 4 s.h.
3:360 Professional Practice of Audiology and Speech-Language Pathology 2 s.h.

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*3:185 Hearing Loss and Audiometry 1 s.h.
3:244 Investigative Audiology 4 s.h.
3:360 Professional Practice of Audiology and Speech-Language Pathology 2 s.h.

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"3.100 Counseling Theories and Techniques in Practice 2 s.h.
or
"7.100 Counseling for Related Professions 3 s.h.

3.510 Seminar: Introduction to Research in Speech and Hearing 2 s.h.
Advanced seminars on research methods and evaluation of research related to speech and hearing disorders. 4 s.h.

3.122 Principles of Practice in Speech and Hearing 2 s.h.

3.500 Methods of Teaching Voice and Language 3 s.h.

3.306 Speech and Language Disorders of Young Children: Birth to Five Years 2 s.h.

3.507 Speech and Language Disorders of Older Children: Five to Eighteen Years 2 s.h.

2.098 Communication Problems of Developmental Disorders and Disabilities 2 s.h.

2.312 Voice Disorders 2 s.h.

2.313 Voice Training and Rehabilitation 2 s.h.

3.305 Developmental Aspects of Speech 2 s.h.

3.350 Instrumentation for Voice Analysis 2 s.h.

3.221 Communication Problems Associated with Head and Neck Cancer 1 s.h.

3.224 Neurogenic Disorders of Language 2 s.h.

2.324 Neurogenic Disorders of Speech 2 s.h.

3.237 Clf palate and Related Disorders 2 s.h.

3.300 Computer-Assisted Technology for Assistive Communication Systems 1-3 s.h.

3.350 Preceptorship in Augmentative Communication 1 s.h.

3.375 Issues and Methods of Clinical Research 3 s.h.

3.530 Seminar: Communication Disorders and Aging 2 s.h.

76.410 Intensive Methods in Speech and Hearing 2 s.h.

49.515 Voice for the Actor 3 s.h.

Students training to become speech-language pathologists may elect to follow one of three specialty tracks: schools, hospitals and health agencies, or vococology. Two of the tracks provide an especially strong preparation for students preparing to work in specific settings. The schools track offers preparation for speech-language pathologists in preschools, elementary schools, and secondary schools. The hospitals and health agencies track prepares students for work in speech-language pathologists in hospitals, small clinics, and other health-care settings. And the vococology track prepares specialists in disorders of the voice, with emphasis on disorders of professional voice users, such as singers, actors, and lecturers. The requirements and recommended electives for each track are listed below. In addition, practicum experiences are structured to fill the needs of students within each track.

School Track
Required
3.122 Phonological Development and Disorders 2 s.h.
3.183 Stuttering 2 s.h.
3.306 Speech and Language Disorders of Young Children: Birth to Five Years 2 s.h.
2.307 Speech and Language Disorders of Older Children: Five to Eighteen Years 2 s.h.
16.414 Remedial Methods in Speech and Hearing 2 s.h.

Total 10 s.h.

Recommended
3.308 Communication Problems of Developmental Disorders and Disabilities 2 s.h.
3.213 Developmental Apraxia of Speech 2 s.h.
3.309 Computer-Assisted Technology for Assistive Communication Systems 1-3 s.h.
3.350 Preceptorship in Augmentative Communication 1 s.h.

Hospital and Health Agencies Track
Required
3.312 Voice Problems 2 s.h.
3.213 Communication Problems Associated with Head and Neck Cancer 1 s.h.
3.224 Neurogenic Disorders of Language 2 s.h.
3.224 Neurogenic Disorders of Speech 2 s.h.
3.237 Clf palate and Related Disorders 2 s.h.

Total 9 s.h.

Recommended
3.122 Phonological Development and Disorders 2 s.h.
3.410 Phonetics 2 s.h.
3.500 Communication Problems of Developmental Disorders and Disabilities 2 s.h.
3.350 Developmental Apraxia of Speech 2 s.h.
3.308 Computer-Assisted Technology for Assistive Communication Systems 1-3 s.h.
3.350 Preceptorship in Augmentative Communication 1 s.h.

3.350 Preceptorship in Augmentative Communication 1 s.h.

Vocology Track
Required
3.308 Principles of Voice Production 3 s.h.
2.312 Voice Disorders 2 s.h.
3.301 Communication Problems Associated with Head and Neck Cancer 1 s.h.
3.224 Neurogenic Disorders of Speech 2 s.h.
3.237 Clf palate and Related Disorders 2 s.h.
49.515 Voice for the Actor 3 s.h.

Recommended
3.183 Stuttering 2 s.h.
3.302 Methods of Teaching Voice 3 s.h.
3.301 Communication Problems Associated with Head and Neck Cancer 1 s.h.
3.224 Neurogenic Disorders of Speech 2 s.h.
3.237 Clf palate and Related Disorders 2 s.h.
49.515 Voice for the Actor 3 s.h.

Audiology Requirements
All students preparing to become audiologists must take:
3.300 Fundamentals of Laboratory Instrumentation 3 s.h.
3.340 Manual Communication 3 s.h.
3.340 Clinical Audiology and Hearing Aids I 4 s.h.
3.340 Clinical Audiology and Hearing Aids II 3 s.h.
3.346 Pediatric Audiology 2 s.h.
Additional practicum, research, and elective courses

Students planning to work as audiologists in a clinical setting must take 76.410 Remedial Methods in Speech and Hearing along with appropriate practicum experiences.

Requirements for Employment
A number of states, including Idaho, require a state license in speech-language pathology or audiology for persons who work in settings other than public schools to meet the requirements listed above for the M.A. degree with professional emphasis also meet the academic requirements for the license in Iowa, as well as most other states.

Public School Certification
Students preparing for clinical practice in public schools must meet certification requirements of the states in which they plan to work. The following criteria meet the certification requirements for endorsement in speech-language pathology and audiology:

A master's degree with professional emphasis in speech-language pathology or audiology.

A pass of the requirements in speech-language pathology or audiology and the professional education sequence,
including TBI Remedial Methods in Speech and Hearing and student teaching/internship in a speech-language pathology or audiologic clinic. Courses in the following areas may be recognized for meeting 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, models and theories of child development, history and theories of early childhood education).

General education courses (e.g., introduction to psychology, sociology, biology, 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 handicapped and the gifted and talented (e.g., exceptional persons, education of the gifted).

Doctor of Philosophy

The Ph.D. program provides training, comprehensive training for the scholar-researchers interested in communication processes and their disorders. Students with diverse backgrounds in the natural and behavioral sciences are encouraged to apply and develop their skills in an atmosphere of interdisciplinary research.

The program teaches the broad interests and diverse backgrounds of the faculty. Students in speech, language, hearing, engineering, physics, psychology, linguistics, and bioengineering are encouraged to adopt an interdisciplinary approach to questions at every level of the speech and language processing system. The purpose of the doctoral program is to provide the interdisciplinary 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 background to develop individualized programs of study. There are no required courses for the Ph.D. degree. Rather, a program of study is developed by each student in consultation with an advisory committee. The course of study is developed from the courses offered in this department, those in other areas (e.g., physics, engineering, psychology, mathematics, statistics, physiology, neuroscience, anatomy, and other special reading and research experiences.

The courses offered by this department are recognized for the Ph.D. minor include the following (students interested in the specific areas of research and selected publications):

- 410: Fundamentals of Laboratory Instrumentation
- 411: Principles of Voice Production
- 412: Language Acquisition
- 413: Psycholinguistics
- 414: Advanced Laboratory Instrumentation
- 414: Speech and Signal Theory for Speech and Hearing Science
- 415: Speech Perception
- 416: Auditory and Otoacoustic Emissions of Speech
- 425: Physiology of Speech Production
- 425: Psychosocial Communication Skills
- 426: Psycholinguistic Laboratory
- 426: Physiology of Hearing
- 428: Digital Signal Processing
- 429: Issues and Methods of Clinical Research
- 430: Prossematics
- 431: Ear Development and Function
- 431: Sensitive Stuttering
- 432: Seminar: Voice and Voice Disorders
- 432: Seminar: Critical Listening
- 432: Seminar: Critical Listening
- 432: Seminar: Retrospective Audiology
- 432: Seminar: Neuropathology of Speech and Language
- 432: Seminar: Communication Disorders and Aging
- 433: Seminar: Speech Science
- 433: Seminar: Psycholinguistics
- 433: Seminar: Psychosocial Issues
- 433: Seminar: Experimental Audiology
- 433: Seminar: Clinical Audiology
- 433: Seminar: Auditory Physiology
- 433: Research

Students in the Ph.D. program usually are expected to prepare for research credits during each semester of residence and to register for and participate in 3-5 seminars.

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 the 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 departmental informational form, which can be obtained 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 the 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 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, applications who want to be considered for graduate assistantships must complete all application by the deadline for assistantships arranged before fall. Applicants usually are notified of 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 the fall semester. Students beginning study in the spring semester or summer session are considered for appointments for the following fall semester.

- Students on the Graduate Record Examination must complete 100% of the test. A student is not considered for financial assistance.

- Liberal Arts
Advising

Initial advising for theatre arts undergraduates is handled by a representative of the department. After a student has selected an area of interest, efforts are made to assign the student a faculty advisor in the chosen area. Students are not required to accept a particular advisor and may request a change at any time by consulting with the theatre arts administrative assistant. Faculty advisors also have the right of appointment and can be appointed by the department.

Present enrollment in many theatre arts courses requires a special permission signature, which should be obtained from the relevant faculty member, or from the theatre arts office, 117 Theatre Building.

Auditions

All theatre arts majors are required to audition in general auditions at the beginning of each fall semester. Students present a four-minute audition consisting of two contrasting pieces, one from material read in pro-'56. Any audition, call-back and/or the audition in the subscription series production for the first semester. Audition material is and information is available from the theatre arts office, 117 Theatre Building, in August. Notice of auditions for subsequent subscription series productions, ad hoc productions, and other acting opportunities are posted on the department's call board.

Degree Requirements

The following courses compose the basic experience for all undergraduate theatre arts majors. Students who demonstrate readiness/propriety for higher level work may be recommended for advanced standing by notifying their advisor. It is the responsibility of each faculty to assist students in selecting their own criteria for evaluation and for making plans for advanced standing. Students who want to be considered for special emphasis programs must seek the guidance of the head of the appropriate program(s).

Minimum Requirements

Completion of a minimum of 27 semester hours, including the following courses, and a 2.5 grade point average for all courses taken in the major are required:

* 410 Art of the Theatre 3 s.h.
* 412 Acting 3 s.h.
* 483 Elements of Design 3 s.h.
* 486 Play Script Analysis 3 s.h.
* 489 Production 1 (repeatable for a total of 3 s.h.) 3 s.h.
* 495 Theatre History I 3 s.h.
* 498 Theatre and Society 3 s.h.
* Two courses in dramatic literature 6 s.h.

Total 27 s.h.

*These courses are prerequisites for all advanced level courses. Theatre arts majors must complete 3 semester hours of 400-level courses by the end of their junior year.

STATISTICS AND ACTUARIAL SCIENCE

See "Division of Mathematical Sciences."

THEATRE ARTS

Chair: Craig A. Cappia

Professor Emeritus: A. Dall, D. Dwyer, W. Dwyer, C. Faculty Advisers: R. Evans, E. Fricke, S. Gaffney, J. Hume, S. Johnson, B. Kimble, J. Linn, S. Mouer, K. Nadeau, D. S. Undergraduate Program

Bachelor of Arts

The major in theatre arts provides a liberal arts education and preparation for professional or educational work in the theatre. The B.A. degree provides a strong background in theatre arts and dramatic literature with requirements and electives in the major interest areas of acting, design, directing, playwriting, and theatre history. The program provides unique opportunities for performance experience and work-opportunity

Students who demonstrate special aptitude may participate in special emphasis programs in acting, directing, or playwriting.
**Theatre Arts Laboratory**

All theatre arts students, faculty, and staff should insert each week for guest presentations, discussions, and theatre arts class presentations. Attendance by theatre majors is required.

**Special Emphasis Program Requirements**

Students who have a special aptitude and readiness may seek admission to a special emphasis program. Admission is based on consultation with the program head, who discusses the features of the emphasis and outlines its requirements. To remain in the emphasis, students must demonstrate their ability to progress satisfactorily through the requisite courses and maintain a 2.0 grade-point average in courses at the major. The emphasis culminates in a senior project presented to the faculty.

**Acting Emphasis**

**Head of acting: Eric Forsythe**

45-22 Acting II 3 s.h.
45-28 Basic Stage Combat 2 s.h.
45-125 Voice for the Actor 3 s.h.
45-136 Movement for the Actor 3 s.h.
45-121 Acting III 3 s.h.
45-122 Acting IV 3 s.h.
45-145 Stage Makeup 2 s.h.

**Directing Emphasis**

**Head of directing: Eric Forsythe**

45-118 Directing I 3 s.h.
45-119 Directing II 3 s.h.
45-22 Acting II 3 s.h.
45-114 Contemporary Theatre 3 s.h.
45-126 Movement for the Actor 3 s.h.
45-120 Voice for the Actor 3 s.h.
45-133 Stage Management 3 s.h.
45-28 Basic Stage Combat 2 s.h.

**Design Emphasis**

**Head of design: David Thayer**

45-63 Elements of Design 3 s.h.

Two of these (total 6 s.h.):

45-104 Scene Design I 3 s.h.
45-125 Costume Design I 3 s.h.
45-136 Lighting Design I 3 s.h.

One of these:

45-101 45-111 Costume History I or II 3 s.h.
45-140-141 Historic Styles I or II 3 s.h.

One of these:

45-151 Advanced Scene Design 3 s.h.
45-158 Mastered Costume Design 3 s.h.
45-159 Lighting Design II 3 s.h.

One of these:

45-142 Drawing for Theatrical Design 3 s.h.
45-143 Rendering 3 s.h.
45-144 Scene Painting 3 s.h.
45-145 Stage Makeup 1-2 s.h.
45-146 Drafting I 3 s.h.

Final project: an independent advanced design project in area of specialization.

**Playwriting Emphasis**

**Head of playwriting:**

45-16 Basic Playwriting 3 s.h.
45-167 Advanced Playwriting 3 s.h.
45-22 Acting II 3 s.h.
45-118 Directing I 3 s.h.

Three of these (total 9 s.h.):

45-114 Contemporary Theatre 3 s.h.
45-119 Directing II 3 s.h.
45-162 The Serial 4 s.h.
45-163 Adaptation 3 s.h.
45-164 Playwriting for Other Media 3 s.h.
45-166 Dramaturgy 3 s.h.
45-169 Playwriting: The Genres 3 s.h.

Final project: a full-length play or its equivalent in shorter works. One free-time scene must be staged for the faculty.

**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 to the University before they may undertake advanced-level electives or seek admission to a special emphasis program.

**Honors**

The Honors Program entails the completion of 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 qualify for the College of Liberal Arts Honors Program and have earned a 3.00 in the major arts, with the approval of the faculty, qualify as honorary members. Students wishing to complete an honors project must file with the departmental Honors advisor, a thesis in which they faithfully present ideas and supporting evidence of their thesis and of the outcome of the work. The Honors Program entails the completion of 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.

**Minor**

A minor in theatre arts requires 15 semester hours of course work in theatre arts with a minimum grade-point average of 2.00. Twelve of these semester hours must be taken in advanced coursework at The University of Iowa. Any course in the department—except 45-2 Theater and Society, 45-30 Basic Acting, and 45-91 Production—may be used as advanced coursework for the minor.

**Graduate Program Master of Fine Arts**

The M.F.A. programs are designed to provide to the creative development of theater majors. Graduate students have a solid background in major performance theories, dramatic literature, and production design, as well as in the craft of their chosen specialties. Particular attention is given to understanding the role and importance of live theater in society. Interactions among the various disciplines of the theater are explored and the collaborative nature of theater is emphasized both in classes and through the extensive production programs.

Students who demonstrate exceptional ability in acting, directing, playwriting, design, technical direction, or production 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 in addition to the requisite number of graduate credits in the general programs, a 3.00 grade-point average, and a record of substantial creative work of high quality. Students must make normal progress toward the 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 the record of substantial, creative work of high quality. Students who fail to make normal progress are placed on academic probation and given one semester to demonstrate their qualifications for earning the degree. Specific information on any of the M.F.A. programs can be obtained from the Department of Theatre Arts.

**Facilities**

The University of Iowa has one of the finest educational facilities in the country. The University Theatre Building includes three theaters and up-to-date facilities for classrooms, laboratory, shop, and performance work.
and computer information retrieval systems. The Arts-Gillette Design Studio, named for former professor of design and head of Iowa's theater program, serves as classrooms 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, maintenance, and storing scenery, costumes, and properties. Using these shops, students learn to work in metal, plastics, canvas, and wood.

**Courses**

**Primarily for Undergraduates**

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Semester(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6090 Cooperative Education Internship</td>
<td>Fall, Spring</td>
</tr>
<tr>
<td>601 Art of the Theater</td>
<td>Fall</td>
</tr>
<tr>
<td>602 Antiquities, traditions, and theories of performance. 622, a prerequisite</td>
<td>Spring</td>
</tr>
<tr>
<td>603 Theatre and Society</td>
<td>Fall</td>
</tr>
<tr>
<td>Historical investigations of relationships between theatre and society in Europe and America from earliest times to the present. 622, a prerequisite</td>
<td>Spring</td>
</tr>
<tr>
<td>605 Costume Design</td>
<td>Fall</td>
</tr>
<tr>
<td>The creative process in design for actors, directors, designers, and authors, and the relationship of design to the overall theatrical production process</td>
<td>Spring</td>
</tr>
<tr>
<td>650 Workshop in Theatre</td>
<td>Fall, Spring</td>
</tr>
<tr>
<td>A two-week workshop for high school students with special interest in theatre production to incorporate, actors, writers, directors, and designers</td>
<td></td>
</tr>
<tr>
<td>905 Shakespeare</td>
<td>Spring</td>
</tr>
<tr>
<td>The Bard of Avon</td>
<td></td>
</tr>
<tr>
<td>4020 Basic Acting</td>
<td>Fall, Spring</td>
</tr>
<tr>
<td>Beginning acting for the newcomer: exercises in motivation, imagination, observation, and execution of the actor's craft.</td>
<td></td>
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<tr>
<td>4021 Acting I</td>
<td>Fall</td>
</tr>
<tr>
<td>Beginning acting: creativity and imagination; exercises designed to engage the mind; body, and voice in theatrical situations involving the actor's potential.</td>
<td></td>
</tr>
<tr>
<td>4022 Acting II</td>
<td>Spring</td>
</tr>
<tr>
<td>Introduction to voice study, analysis, and application, primarily for beginning actors</td>
<td></td>
</tr>
<tr>
<td>4023 Basic Stage Combat</td>
<td>Fall</td>
</tr>
<tr>
<td>Voice, rhythm, coordination, and technique required for successful theatrical acting.</td>
<td></td>
</tr>
<tr>
<td>4024 Basic Stage Combat</td>
<td>Spring</td>
</tr>
<tr>
<td>Exploration of the actor's craft, and the voice in theatrical situations involving the actor's potential.</td>
<td></td>
</tr>
<tr>
<td>4030 Expressive Movement for the Performer</td>
<td>Fall, Spring</td>
</tr>
<tr>
<td>Relating movement, gesture, improvisation, and stylized dramatic situations in a variety of theatrical and/or non-theatrical settings.</td>
<td></td>
</tr>
</tbody>
</table>

**For Undergraduates and Graduates**

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Semester(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6011 Costume History</td>
<td>Fall, Spring</td>
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<tr>
<td>History of costume and fashion from the earliest times to the 20th century.</td>
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<tr>
<td>6012 Workshop in Theatrical Design</td>
<td>Fall, Spring</td>
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<tr>
<td>Exercises in practical, historical, and contemporary theatrical design.</td>
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<tr>
<td>6015 Workshop in Dramatic Literature and Play Analysis</td>
<td>Fall, Spring</td>
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<tr>
<td>Workshop in playwriting and analysis. Consideration of the script as a dramatic structure in the context of dramatic literature and performance.</td>
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<tr>
<td>6016 Workshop in Costume Design and Execution an Introduction</td>
<td>Fall, Spring</td>
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<tr>
<td>Exercises in the practical, historical, and contemporary theatrical design.</td>
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<tr>
<td>6017 Workshop in Scene Design and Execution an Introduction</td>
<td>Fall, Spring</td>
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<tr>
<td>Exercises in the practical, historical, and contemporary theatrical design.</td>
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<tr>
<td>6018 Workshop in Lighting Design and Execution an Introduction</td>
<td>Fall, Spring</td>
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<tr>
<td>Exercises in theatrical lighting design, and the practical, historical, and contemporary theatrical design.</td>
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<tr>
<td>6019 Workshop in Stage Blocking an Introduction</td>
<td>Fall, Spring</td>
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<tr>
<td>Exercises in theatrical lighting design, and the practical, historical, and contemporary theatrical design.</td>
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<tr>
<td>6020 Theatre History</td>
<td>Fall, Spring</td>
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<tr>
<td>Survey of theatre and drama in historical context. Considerations of the 20th century.</td>
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<td>6021 Theatre History</td>
<td>Fall, Spring</td>
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<tr>
<td>Survey of theatre and drama in historical context. Considerations of the 20th century.</td>
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<tr>
<td>6030 Costume History</td>
<td>Fall, Spring</td>
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<tr>
<td>History of costume and fashion from the earliest times to the 20th century.</td>
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<tr>
<td>6033 Contemporary Theatre</td>
<td>Fall, Spring</td>
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<tr>
<td>Introductions to modern theatre. Exploration of modern theatre.</td>
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<tr>
<td>6034 American Dreams Since 1945</td>
<td>Fall, Spring</td>
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<tr>
<td>Exploration of American theatre since 1945.</td>
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<tr>
<td>6035 Theatrical Design of scenery</td>
<td>Fall, Spring</td>
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<tr>
<td>Exercises in design of scenery.</td>
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<tr>
<td>6036 Set Design and middle scenes (stage design)</td>
<td>Fall, Spring</td>
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<tr>
<td>Exercises in design of scenery.</td>
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<tr>
<td>6037 Stage Management</td>
<td>Fall, Spring</td>
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<tr>
<td>Techniques and strategies of managing a production.</td>
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trend, operating deficits are growing, the quality of service is increasingly low, serious financing imbalances exist, and extensive changes are needed in traditional transportation institutions.

Transportation decision analyses must draw on a number of disparate 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 the most efficient means for providing needed transportation services; price these services properly; and evaluate the effects of changes in transportation services or policies on land use, environmental quality, the local or regional economy, and various subgroups within society.

Graduate Programs Certificate
No single discipline can supply all of the theories, principles, and techniques 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, which enables students in these academic units to obtain an additional degree within their graduate degrees.

The Transportation Certificate program is coordinated by the Center for Transportation Studies and operated in conjunction with the Midwest Transportation Center, a consortium of The University of Iowa and Iowa State University. 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.

Students who wish to enroll in a course of study leading to transcript certification may apply for admission as Midwest Transportation Center Graduate Students. They are required to complete an integrated system course offered jointly by the two consortium universities, and they must participate in a research seminar that requires commitment to a project involving a public agency or a private sector firm operating in the region.

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. degree 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. Nineteen 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 16 semester hours earned for dissertation research. A minimum of six years 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 prepare course in statistics, computer programing, simulation, mathematics, and operations research without being able to apply the course credit to semester hours needed for the degree programs.

A typical master’s level program includes the following courses:

First Semester
- 23.262 Urban Transportation Planning
- 23.260 Transportation Policy and Planning
- 23.269 Transportation Program Seminar
- 44.324 Methods of Transportation Analysis

Technical elective

Second Semester
- 23.150 Transportation Systems Analysis
- 23.117 Problems in Transportation and Land Use
- 23.116 Transit Transportation Program Seminar
- 44.226 Travel Demand Modeling

One of the following courses:
- 53.199 Research: Civil and Environmental Engineering M.S. Thesis
- Statistics
- Planning elective
- Integrated transportation course

Third Semester
- 53.198 Individual Investigations: Civil and Environmental Engineering
- 53.199 Research: Civil and Environmental Engineering M.S. Thesis
- Technical elective
- 103.105 Project Presentation Seminar

Technical electives are advanced courses in engineering operations research, computer-aided design, or economics. Specific course requirements are sufficiently flexible to conform to a student’s graduate schedule and desired area of specialization. Applicants 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 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 the emergence 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 or who have research or teaching assistantships may repeat an additional course or two seminars to complete the program.

A typical master’s level program includes the following courses:

First Semester
- 23.260 Transportation Policy and Planning
- 23.269 Transportation Program Seminar
- 44.226 Transportation Program Seminar
- 44.324 Methods of Transportation Analysis

Second Semester
- 23.150 Transportation Systems Analysis
- 23.117 Problems in Transportation and Land Use
- 23.116 Transit Transportation Program Seminar
- 44.226 Travel Demand Modeling

One of the following courses:
- 53.199 Research: Civil and Environmental Engineering M.S. Thesis
- Statistics
- Planning elective
- Integrated transportation course

Third Semester
- 53.198 Individual Investigations: Civil and Environmental Engineering
- 53.199 Research: Civil and Environmental Engineering M.S. Thesis
- Technical elective
- 103.105 Project Presentation Seminar

Technical electives are advanced courses in engineering operations research, computer-aided design, or economics. Specific course requirements are sufficiently flexible to conform to a student’s graduate schedule and desired area of specialization. Applicants should be made through the Graduate College and the Department of Civil and Environmental Engineering.
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, wherein 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 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 8 internship credit hours are 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 16 3-hour seminar hours of core work in lieu of an internship, bringing the total to 54 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

Planning Elective

102.290 Transportation Policy and Planning

102.209 Transportation Program Seminar

Two of the following courses:

44.134 Methods of Transportation Analysis

102.121 Urban Transportation Planning

Planning elective

Fourth Semester

102.261 Problems in Transportation and Land Use

Three of the following courses:

102.250 Transportation Systems Analysis

102.245 Transportation Regulation and Finance

44.220 Travel Demand Modeling

102.290 Integrated transportation course

Students select the optional transportation course according to individual interest.

Elective courses typically include:

102.234 Project Impact Analysis

102.290 Capital Facilities Planning and Finance

102.245 Environmental and Public Utility Policy and Planning

102.240 Economic Development Policy

102.250 Development Finance

Application should be made through the Graduate College and the Graduate Program in Urban and Regional Planning.

**UNIFIED PROGRAM**

Coordinated: Philip C. Kates

Faculty: Steven Delegge (English), Minnie Gilbert (English), Max Hendrix (American History and World Studies), Sydney V. Jones (History), Philip C. Kates (Mathematics), Eugene W. Madison (Mathematics), Doug Meden (Political Science), Gerald E. Marshall (English), D. R. McClure (History), Dennis M. Moore (Economics), Donald Pfeiffer (Chemistry), William Reagen (Political Science), Morton Roberts (Meteorology), Herbert Wider (Physics)

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 in versions A or B must be eligible for 103.30 (Students in versions A or B must be eligible for 103.30). Students in version C must be eligible for 103.30.

Students may enter the program at any time and satisfy the General Education Requirements in other ways, but only first-semester freshmen may enter UP.

**Version A**

Freshman Year

Fall semester:

104.019 Humanities I

104.021 Public I

104.025 Rhetoric

Spring semester:

104.019 Humanities II

104.021 Public II

104.025 Basic Mathematics

Sophomore Year

Fall semester:

104.019 Humanities III

104.021 History I

104.025 General Chemistry I

Spring semester:

104.019 Human Biology

104.050 History II

**Version B**

Freshman Year

Fall semester:

104.019 UP Science Seminar

104.015 Calculus

104.025 General Physics

Spring semester:

104.019 UP Science Seminar

104.073 Interpretation of Literature

104.083 Intro to Afro-American Culture

**Sophomore Year**

Fall semester:

104.019 UP Science Seminar

104.073 Historical Perspectives I

104.083 Intro to Afro-American Culture

Spring semester:

104.019 Asian Humanities

104.015 UP Science Seminar

104.073 Historical Perspectives II

**Courses**

Course Title: Humanities B satisfies RC 1.

The Interpretation of Literature, which is required for the General Education Requirement in the humanities.

**Summer Semester**

104.041 Humanities I

Development of major ideas about the human being and the world in Western Europe and America.

104.042 Humanities II

Major intellectual and Renaissance writers, including Dante, Chaucer, Boccaccio, Machiavelli.

104.043 Humanities III

The development of modernism, as seen through art, architecture, music, philosophy, and literature.

104.045 Humanities IV

104.047 Politics

104.048 Politics

American and public in comparing political systems from traditional and complex societies, national, regional, and international settings.

104.049 Politics

104.050 Politics

American and public in comparing political systems from traditional and complex societies, national, regional, and international settings.

104.051 Politics

Comparative study of political systems from traditional and complex societies, national, regional, and international settings.
planners find themselves in demand for such diverse jobs as community energy management specialist, regional transit planner, environmental analyst with a state pollution control agency, public facilities planner with an engineering firm, economic development planner for rural communities, state public health planner, planner with a nonprofit neighborhood housing organization, state legislative analyst, and urban services professional.

The University of Iowa planning program is a two-year master's program fully accredited by the Planning Accreditation Board. The program is built on the premise that planners must be educated in methods of policy analysis and that there is a complementary body of knowledge to be mastered 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 for student 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 prior education. Academic backgrounds of the faculty include planning, public policy, economics, operations research, geography, engineering, political science, and law. The program's students have diverse undergraduate majors, including economics, political science, geography, architecture and landscape architecture, environmental sciences, engineering, geography, sociology, urban studies and planning, English, history, classics, and philosophy. Usually, around one-third of the program's 40 to 50 graduate students are women. A major theme 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 assumed positions with city, metropolitan, and regional planning agencies, in state and federal government, and in the private sector. The past several years' graduates took positions in all geographic regions of the United States and in several foreign countries.

**Graduate Programs**

The planning curriculum is a 48-semester-hour (plus internship) program encompassing two academic years. It includes 27 semester hours of core courses, 9 semester hours of sector major courses, and 12 semester hours of free electives. The curriculum is based on the philosophy that planners must develop the theoretical and analytical skills that permit them to analyze social problems and evaluate public policies, as well as the professional skills (e.g., report writing, presentations, team management) that 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 and integrated core curriculum, which occupies the first academic year. The function of the core is to develop an understanding of the institutions—the social, economic, political, administrative, and legal systems—that provide the content for policy analysis and constrain public choice, a capability for identifying social goals and normative criteria for evaluating public policies; and analytic skills—both quantitative (e.g., statistics, forecasting, surveys, regional analysis) and nonquantitative. In total, the core accounts for 27 semester hours.

Courses in the first semester are derived primarily from traditional discipline—particularly economics and statistics, together with an introduction to the theories and practices of planning. As students proceed through the core, increasing reliance 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 a core course based on the previous course work.

Courses in the core curriculum are as follows:

**First Semester**

II 201 History and Theories of Planning 3 s.h.
II 210 Economics for Policy Analysis 3 s.h.
II 214 Introduction to Analytic Methods 3 s.h.
II 212 Information Presentation 3 s.h.

**Second Semester**

II 224 Collective Decision-Making 3 s.h.
II 220 Economics for Policy Analysis 3 s.h.
II 211 Intermediate Analytic Methods 3 s.h.

**Third Semester**

II 208 Planning Law and Legislation 3 s.h.

**Fourth Semester**

II 215 Field Problems in Planning 3 s.h.

**The Sectoral Major**

The second year of the program is directed toward development as an area of concentration, termed a sectoral major, by building on the concepts and skills developed in the core by applying them 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 course offerings and faculty.

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**Urban and Regional Planning**

Chad P. Fishel
Professor
Department of Urban Planning

**Program Description**

The program offers a four-year undergraduate degree leading to the Bachelor of Science in Urban and Regional Planning. The program is designed to prepare students for careers in the fields of urban and regional planning, environmental planning, and community development. Graduates of the program are prepared for careers in government agencies, private consulting firms, non-profit organizations, and international agencies. The program emphasizes the integration of theoretical knowledge and practical skills, with a strong emphasis on community engagement and problem-solving.

The curriculum is structured to provide students with a solid foundation in the principles and practices of urban and regional planning. Students will develop skills in data analysis, policy development, and project management. The program includes coursework in areas such as land use planning, transportation planning, community development, and environmental sustainability.

In addition to coursework, students will have opportunities to gain practical experience through internships and co-op programs. The program also encourages participation in extracurricular activities, such as student organizations and professional associations.

**Graduation Requirements**

To graduate from the Bachelor of Science in Urban and Regional Planning, students must complete a minimum of 120 semester hours of credit, including coursework in the core curriculum, sector major, and general education requirements.

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**Graduate Planning**

The graduate program in planning offers a range of concentrations, including urban and regional planning, environmental planning, and community development. The program is designed to prepare students for careers in government agencies, private consulting firms, non-profit organizations, and international agencies. The program emphasizes the integration of theoretical knowledge and practical skills, with a strong emphasis on community engagement and problem-solving.

The curriculum is structured to provide students with a solid foundation in the principles and practices of urban and regional planning. Students will develop skills in data analysis, policy development, and project management. The program includes coursework in areas such as land use planning, transportation planning, community development, and environmental sustainability.

In addition to coursework, students will have opportunities to gain practical experience through internships and co-op programs. The program also encourages participation in extracurricular activities, such as student organizations and professional associations.

**Graduation Requirements**

To graduate from the Master of Science in Planning, students must complete a minimum of 30 semester hours of credit, including coursework in the core curriculum, sector major, and general education requirements.
within the planning program—transportation, housing and community development, environmental planning, infrastructure planning, and economic development. 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 Departments of Hospital and Health Administration or Preventive Medicine and Environmental Health, or in human services planning with courses in the School of Social Work. Other sectoral majors that students have developed include land use, public utility energy planning, and urban management.

Other Requirements
The master's final examination requirement is satisfied through submission and approval of a portfolio. The portfolio consists of a set of papers and project reports that demonstrates an understanding of fundamental concepts presented in the core; the application of core concepts to the student's sectoral major; and substantive knowledge of issues, institutions, and policies in the sectoral area. The portfolio generally is made up of published revisions of research papers and project reports for courses. The portfolio must be approved by a fixed exam committee consisting of three faculty members.

Thesis
A thesis is not required, although students may petition to write one. Students may register for up to 8 semester hours of thesis credit. In addition, they may take up to 8 semester hours of seminars to develop a thesis topic and prepare a literature review. Students can register for 1 hour of readings to the sectoral major requirement and require admission to the portfolio.

Internship Practicum
Students are encouraged to complete an internship in a private, public, or not-for-profit agency or organization, and to submit a brief paper summarizing and evaluating the experience. Internships usually are completed during the summer. Alternatively, students may elect to complete an additional 2 semester hours of credit, bringing the total required to 30 semester hours. An extended internship, consisting of at least five months of full-time employment in a planning agency or organization is treated as a practicum. A practicum generally takes place during the summer, or in the fall semester of the second year. The practicum carries 3 semester hours of course credit and substitutes for the required field practicum course, 102:215, as well as permitting the 2-semester-hour reduction in degree requirements for the internship.

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 a 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 in law firms—especially those that specialize in land use or environmental law, as city managers, as city attorneys, or as city planners or planning administrators.

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 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 financing, community revitalization, social services, and economic development.

Students in the planning 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 engineering college or before they complete their sophomore year following matriculation. A letter requesting admissions to this program should be submitted by the student to the College of Engineering, The University of Iowa.

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 before the time 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 to employ appropriate planning techniques. In addition, planners must develop the professional skills (e.g., report writing, presentations and briefings, computer literacy, teamwork, and 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, and approaches to citizen involvement.

At the heart of the University of Iowa's planning program is an integrated core curriculum. Its purpose is to provide a rigorous foundation for the analysis of public and private 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 problems. 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 course work offered by various departments and schools of the University, including the graduate planning program and the engineering college. 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 work with their graduate planning adviser.

Preventive Medicine and Environmental Health
A joint master's degree option exists with urban and regional planning and the Department of Preventive Medicine and Environmental Health to further the College's mission. This option results in an M.A. in planning and an M.S. in preventive medicine and environmental health.

Graduates of the program find employment in the public health field, with private contractors or in related services, or as health or environmental planners.

A total of 60 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 leads to an M.A. in planning and an M.S. 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.
Financial Aid

Students in the Urban and Regional Planning Program receive several kinds of financial support: fellowship scholarships, program, teaching or research assistantships, contract or grant-funded research assistantships, and internships in local agencies. All but fellowship scholarships typically require ten hours of work per week under the direction of a faculty member or professional planning staff. Students initiate applications for financial support, and awards are made on the basis of need, experience, and interest. The planning program has been successful in providing support in a majority of its students.

Admission

Admissions 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, and students' previous academic record.

Applicants should submit the application form, GRE General Test scores, letters, and transcripts early in the spring for admission (although applications are still accepted until July 15), or by December 15 for spring admission. Fall admission is preferred.

Courses

100 Courses

101 Introduction to Transportation

Course descriptions and topics vary. Credit may not be given for both 101 and 201. Students must have completed the prerequisite courses.

102 Urban Transportation

Public policy, institution, planning, management, administration, planning, taxation, mixed-use development, public transportation, social welfare, employment, traffic, zoning, city planning, public administration, land use, development, transportation, public policy, taxation, and economic development. Students must have completed the prerequisite courses.

104 Urban Planning

Public policy, institution, planning, management, administration, planning, taxation, mixed-use development, public transportation, social welfare, employment, traffic, zoning, city planning, public administration, land use, development, transportation, public policy, taxation, and economic development. Students must have completed the prerequisite courses.

105 Planning and Geography

Students must have completed the prerequisite courses.

106 Planning

Students must have completed the prerequisite courses.

107 Planning and Geography

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151-156 Theories and Models in Literature by

157-158 Ecofeminist and Political Development of

159-160 Women's Rights and Gender in Europe

161-162 Society and Gender in Europe

163-164 Power and the Woman of the House

165-166 Feminist Perspectives on Biology

167-168 Women's and the Law

169-170 Gender and Gender in Europe

171-172 Women in American History

173-174 Readings in American Women's History

175-176 History of Women in Sports

Research at Iowa Lakeside Laboratory
The College of Business Administration is made up of six academic departments: accounting, economics, finance, management and organization, marketing, and management sciences. 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 internal stimulus of the college’s Executive Development Center, Financial Markets Institute, Industrial Relations Institute, Institute for Economic Research, Management Center, Manufacturing Productivity Center, Institute for Entrepreneurial Management, St. B. McGuirey 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.) degree in all six departments and in business administration. B.B.A. students complete background 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 college’s B.B.A. curriculum requires 120 semester hours of credit, with at least 48 semester hours at business courses and at least 60 in nontypes classes. Limited specialization is effected through the student’s designated major.

The last 30 (or at least 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 to the College of Business Administration and at least three-fourths of the semester hours at credit in the student major must be earned at The University of Iowa. Nonresident students include courses work at colleges and universities other than The University of Iowa and all work by correspondence, including University of Iowa Graduate Correspondence Study courses.

To graduate, B.B.A. candidates must have at least a 2.00 grade-point average at all college course work, in all course work attempted at The University of Iowa, in all business course work attempted, in all business course work attempted at The University of Iowa, in all business course work attempted at The University of Iowa in the major.

Common Requirements

B.B.A. candidates must satisfy these minimum course requirement equivalents:

- Rhetoric 101 and 102, or 103
- 22M 17 and 225-8 Quantitative Methods I and II
- 22M 25, 22M 26, and 225 120
- E 1 Principles of Microeconomics
- E 1 Principles of Macroeconomics
- E 1 Introduction to Financial Accounting
- 3 s.h.
- 3 s.h.
- 3 s.h.
- 3 s.h.
- 3 s.h.
- 3 s.h.
- 3 s.h.
- 3 s.h.

Foreign civilization and culture (53 s.h.)

Humanities (including 40 1 Introduction to Literature)

Social sciences (excluding E E 1 and EE 3)

Computer analysis (62 70, 72 77, 75 9, or 75 170)

E 3 Categorical Analysis

E 3 47 Introduction to Law

5 100 Administrative Management

5 100 Introductory Financial Management

5 100 100 Introduction to Marketing

5 100 Business Policy

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.

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 (15 s.h.) numbered above 100, including at least four of these:

- 101 Taxes and Business Decisions
- 102 Microeconomics
- 103 Intermediate Financial Management
- 104 Personnel Management
- 105 Individual Behavior in Organizations
- 106 Management Information Systems
- 107 Marketing Research

In addition to the required grade-point averages listed above, students in this major must have a grade-point average of at least 2.00 on all courses taken from the 100 series and on all business courses numbered above 100. Students in this major may not take business courses numbered above 101 pass/fail.

Minors

Nonbusiness Minors

Undergraduate students at 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. In the minor requirements, students should consult with an adviser in the relevant department. To have the minor recorded on their transcript, students must complete the “minor” section on the B.B.A. degree application form before submitting it to the registrar early in the final semester.

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 should be business for the minor to be completed.

5 100 Business Calculus

5 100 Business Calculus

5 100 Statistical Analysis

5 47 Introduction to Law

5 100 Administrative Management

5 100 Introductory Financial Management

5 100 Introduction to Marketing

5 100 Business Policy

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.

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 (15 s.h.) numbered above 100, including at least four of these:

- 101 Taxes and Business Decisions
- 102 Microeconomics
- 103 Intermediate Financial Management
- 104 Personnel Management
- 105 Individual Behavior in Organizations
- 106 Management Information Systems
- 107 Marketing Research

In addition to the required grade-point averages listed above, students in this major must have a grade-point average of at least 2.00 on all courses taken from the 100 series and on all business courses numbered above 100. Students in this major may not take business courses numbered above 101 pass/fail.

Minors

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 should be business for the minor to be completed.

5 100 Business Calculus

5 100 Business Calculus

5 100 Statistical Analysis

5 47 Introduction to Law

5 100 Administrative Management

5 100 Introductory Financial Management

5 100 Introduction to Marketing

5 100 Business Policy
Recognition for Academic Achievement

Dean's List

Students who achieve grade-point averages of 3.00 or higher in the semester hours of graded work during a given semester and who have no hours of I or F 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 each of the two semesters, and who have no hours of I or F during these 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 a collegewide honors seminar. Successful completion of departmental and college requirements leads to a Bachelor of Business Administration degree with honors (see "Graduation Honors," below).

President's students interested in the honors program are encouraged to participate in the College of Business Administration Honors Program until they are admitted to the College of Business Administration. This permits them to take advantage of the services offered by the Salish Kootenai 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 at least one semester prior to the beginning of the junior year. For more information, students should contact the Academic Programs Office, 121 Phillips Hall.

Graduation Honors

High scholastic achievement is recognized in two ways upon graduation: graduation with distinction based on grade point average on grades only, and outstanding achievement 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 of credit and be a registered student in business administration at the University of Iowa. Each student must be registered in the semester in which the requirement 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

The college 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 course requirements in quantitative methods, accounting, and economics with a grade-point average of at least 2.55 on the courses used to satisfy these requirements; on all college-level courses taken; and on all courses undertaken at The University of Iowa; and have submitted an application by the deadline (May 1 for summer or fall admission, December 1 for spring admission).

The College of Business Administration considers the following factors in a comparative evaluation of applicants for admission:

Grade-point average on all college work (completed, including transfer, with at least a C average), on all work completed at The University of Iowa; and the prerequisite courses in quantitative methods, economics, and accounting; the pattern of grades over time; and other factors relevant to predicting success in the college.

The exact standards (e.g., grade-point average) each semester vary with the number of applicants, their relative qualifications, and College of Business Administration enrollment limits. Since these standards change from time to time, the college provides information about the characteristics of the students admitted. This permits those interested in the program to judge how they are progressing toward admission.

No more than 60 semester hours, or equivalent, of transfer credit is accepted for students transferring from a two-year institution. Transfer credits for business courses taken during the freshman and sophomore years are counted toward the B.B.A. degree only if such courses are usually offered at lower-division courses at The University of Iowa.

Credit and Grading

Students may earn up to 22 semester hours of credit by examination. Selected tests from the College-Level Examination Program (CLEP) 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 examinations is available from the Liberal Arts Office of Academic Programs.

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 dean.

Adding and Dropping Course

Courses may be added during the first five weeks of the semester; first one and one-half weeks of the summer session with approval of the advisor and instructor. Courses may be dropped during the first five weeks of the semester or first five weeks of the summer session with approval of the advisor and instructor. Students must have the approval of the dean in order to add or drop a course after these deadlines. Approval for add or drops after these deadlines is granted only in 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. degree, up to 16 may be taken on a pass/nonpass basis with the consent of the advisor; 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, core, or major business requirements. 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. For courses taken on a pass/nonpass basis, an earned grade of A, or above, as recorded as a P; an earned grade of D of 3.0 or below is recorded as a N.

Second-Grade-Only Option

This option is not available to students admitted to the college for spring 1990 or thereafter.

Students admitted to the college prior to spring 1990 may elect to repeat a course with only the second grade being computed in the grade-point average, except in cases of repetition. Repetition occurs when a student takes a lower level course after having completed a more advanced course for which the lower level course was a
prequisites Regression voids the possibility of the second-grade-only option. For students admitted to the University prior to summer session 1987 and to the college during spring semester 1990, this option may be applied to a maximum of 26 semester hours of core work.

For students admitted to the University for summer session 1987 and to the college before spring semester 1990, this option is limited to a maximum of three courses.

The second-grade-only option is applicable only to courses taken both terms in the University of Iowa for a standard letter grade, may be used only once per course.

Students who want to use the second-grade-only option must follow the normal procedure for the course; they may not repeat or add to the regular period for adding courses (the first three weeks of the semester). They must declare their intent to use the option by registering in the Academic Programs Office, College of Business Administration, 121 Phillips Hall. This may be done by the end of the third week of the semester (or one and one-half weeks of the summer session). Liberal arts pre liberal arts majors must adhere to the second-grade-only option procedures and deadlines set by the Liberal Arts Office of Academic Programs, 165 Schaeffer Hall.

Under the provisos of this option, the registrar marks the permanent record to show that the course was repeated. Both grades remain on the permanent record. However, the second-grade-only option is used in calculating the grade-point average and hours earned. The standard procedure of counting both grades in instances where students repeat a course is followed by liberal arts students following the above procedure.

Correspondence Course Work

B.R.A. candidates may not satisfy any requirement, general education, minimum, or major, through correspondence courses.

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 at the University of Iowa, 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 in the College of Business at the University of Iowa. 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 probation 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 be permitted to register, but usually only upon the expiration of one calendar year following the end of the term for which 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 enables study of international business and economics, international business law, and international business, 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 to their individual interests and to complement majors in both liberal arts and business administration. Completion of requirements results in the issuance of "Certificate in International Business" on the degree certificate. Questions about the course should be directed to the Office of Academic Programs, College of Business Administration, 121 Phillips Hall.

Application Information

Interested students must declare their intention to pursue the certificate and file a plan of study at the Academic Programs Office, 121 Phillips Hall. In order to receive the International Business Certificate, students must receive an undergraduate degree from the University of Iowa and maintain a minimum 2.00 grade-point average on all course work taken for the certificate, and at least 30 semester hours of course work other than language work in the certificate at the University of Iowa or an approved study-abroad program. A course may not be used to satisfy more than one certificate requirement.

Requirements

International Business

IE 1 Principles of Microeconomics IE 2 Principles of Macroeconomics

These courses in international business international Relations and Institutions

Two courses are international relations and institutions.

Foreign Language and Related Area Studies

Two to three years of college-level work (or equivalent) in one of the following languages: French, German, Italian, Latin, Russian, Spanish.

Two courses that persons to countries or areas in which the chosen language is spoken.

A complete listing of courses satisfying the above requirements is available from the Academic Programs Office, 121 Phillips Hall.

Interdepartmental Graduate Programs

The following interdepartmental graduate programs are offered in the College of Business Administration: Master of Arts (M.A.) in business administration; Master of Business Administration (M.B.A.), and Doctor of Philosophy (Ph.D.) in business administration. Joint degree options allow M.A. in business administration or M.B.A. candidates to pursue a second graduate degree in another college. For information on the Master of Arts (M.A.) in accounting, see "Accounting" in this section of the Catalog. For information on graduate programs in economics, see "Economics" in the section of the Catalog.

Master of Business Administration

The Master of Business Administration (M.B.A.) program is designed to prepare students for professional administrative careers in both the business and public sectors. The program enhances students' career opportunities and provides the commercial and general concepts with the professional personal in a complex, modern economy.

The program offers a college of graduate students in any field. A minimum of 30 semester hours in business is required for admission. Depending on the student's undergraduate academic background, 50 to 60 semester hours are required. Some of the ten foundation courses must be waived on the basis of prior work. The student is expected to complete equivalent course work of high quality taken as part of an undergraduate degree program. A minimum of 28 semester hours of graduate-level courses must be completed in residence at The University of Iowa after admission to the M.B.A. 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 (A.P.T.) program toward the M.B.A. degree.
Off-Campus M.B.A.

Courses are offered during evening hours in Oberlin Rhipps and the Quarter Cities. This program is sponsored jointly by the College of Business Administration and the Division of Continuing Education. In Oberlin Rhipps, these courses are offered in consultation with the Costing Education Association, and in the Quad Cities with the Quad Cities Graduate Study Center in Rock Island, Illinois.

Students pursuing the degree in the evening usually take two courses each semester and are able to complete the program in four years.

A limited number of M.B.A. courses are offered in Iowa City during the evening. All students admitted to the M.B.A. program may take classes on a part-time basis during the day.

Special M.B.A. Programs

A Special 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 in the fall in Iowa City followed by classes one day a week in alternate Friday and Saturday. Participants progress through the program together as a single group. Enrolment is limited to 30 students per year.

A program for students in business administration and management is available. The program requirements, which vary somewhat from those of the M.A., without thesis in other departments, are as follows:

Major area (15 hours)

- Finance 3 hours
- Economics 3 hours
- Accounting 3 hours
- Management 3 hours
- Statistics 3 hours

Electives

- 3 hours

Total: 21 hours

Requirements for the M.A. degree do not exceed the following:

Major area 9 hours
Minor area 6 hours
Economic theory and organizational behavior 6 hours
Thesis 3 hours

Total: 30 hours

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 in academic institutions. The program is flexible, permitting students to specialize in a particular area of specialization regardless of their interests. Sufficient course work and related experience are provided so that students achieve competence in economic theory, statistical methods, teaching, and research, as well as to prepare for a major and minor area of study.
Course work in the Ph.D. program consists of prerequisites (if necessary), the Ph.D. core courses, and dissertation requirements. Most students (including all with master's degrees from AACSB-accredited programs) take 40 semester hours of course work. Additional course requirements may be imposed to guarantee satisfactory performance in 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).

Prerequisite Courses
The common body of knowledge requirements of the AACSB must be satisfied by undergraduate and graduate courses. These include courses in accounting, finance, management, marketing, organizational behavior, quantitative methods, and the economic and legal environment pertaining to profit and non-profit organizations.

Core Courses
Core courses are designed to develop competence in research and provide necessary background for study in more specialized courses. Graduate courses are required as follows: two core courses (3 core courses), economics (6 semester hours), in social inquiry (3 semester hours), and research methods/statistics/quantitative analysis (12 semester hours). To reflect the background and interests of individual students, doctoral candidates complete courses to establish satisfaction of core requirements.

Major Area of Study
A minimum of 12 semester hours of approved coursework is required to complete a Ph.D. core curriculum. A student must complete 12 semester hours of courses in the major area of study, including all courses on the major area of study list and at least one course 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 consists of a written examination in a minimum of three faculty members. Upon satisfactory completion of the written examination, the student must pass an oral comprehensive examination encompassing subject matter in the major, minor, and related areas. The examination committee is comprised of at least five faculty members.

Dissertation
A dissertation proposal must be presented before a faculty committee by the dissertation committee members and open to interested faculty and graduate students as established by departmental procedures. Students are required to complete 12 semester hours of dissertation research. The completion of research and the dissertation process requires five years 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 seeking admission to graduate study in business must submit the Graduate College application form and fee, official transcripts of all graduate and undergraduate course work, and official Graduate Management Admission Test (GMAT) scores to the Office of Admissions in the College of Business. Three letters of recommendation from former instructors or employers should be submitted to the Academic Programs Office, College of Business Administration.

Application Information
A graduate application packet may be obtained from the Office of Admissions, Columbia Hall, The University of Iowa, Iowa City, Iowa, 52242. A complete application requires the following:
- An official application form and the required fees
- Official transcripts of all undergraduate and graduate work submitted to the Office of Admissions
- Official Graduate Management Admission Test (GMAT) scores submitted to the Office of Admissions
- At least three references from former instructors or employers submitted to the Academic Programs Office, College of Business Administration, The University of Iowa, Iowa City, Iowa, 52242

Joint Programs
Joint programs allow students to pursue concurrently a M.B.A., M.B.A. or Ph.D., in the College of Business Administration and another degree from The University of Iowa.

Application Deadlines
The deadline for 2010/2011 applications for M.B.A., M.B.A. or Ph.D. in business administration is March 1.

M.B.A. Program (Fall and Spring Entrance Only)

March 1—Foreign applicants for fall (August) or spring (January) are due by 3/1.

January 1—U.S. citizens and permanent residents applying for fall (August) are due by 3/1.

June 1—The latest GMAT test date is May 31.

November 15—U.S. citizens and permanent residents applying for spring (January) are due by 11/15.

M.A. in Accounting or Business Administration (Summer, Fall, and Spring Entrance)

February 1—Foreign applicants for summer (May) or fall who are applying for financial assistance from The University of Iowa are due by 1/1.

March 1—Foreign applicants for fall or summer who are not seeking financial assistance from The University of Iowa are due by 3/1.

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 applying 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 (May) or fall who are applying for financial assistance from The University of Iowa are due by 1/1.

March 1—Foreign applicants for fall or summer who are not seeking financial assistance from The University of Iowa are due by 3/1.

June 1—The latest GMAT test date is May 31.

November 15—U.S. citizens and permanent residents applying for spring (January) are due by 11/15.

October 1—Foreign applicants for spring.

October 1—U.S. citizens and permanent residents applying for spring enrollment.

Joint Programs
Joint programs allow students to pursue concurrently a M.B.A., M.B.A. or Ph.D., in the College of Business Administration and another degree from The University of Iowa.

Application Information
A graduate application packet may be obtained from the Office of Admissions, Columbia Hall, The University of Iowa, Iowa City, Iowa, 52242. A complete application requires the following:

- An official application form and the required fees
- Official transcripts of all undergraduate and graduate work submitted to the Office of Admissions
- Official Graduate Management Admission Test (GMAT) scores submitted to the Office of Admissions
- At least three references from former instructors or employers submitted to the Academic Programs Office, College of Business Administration, The University of Iowa, Iowa City, Iowa, 52242

Foreign language (where English is not the primary language) must submit an official score of 600 or more on the Test of English as a Foreign Language (TOEFL).

Application Deadlines
The deadline for 2010/2011 applications for M.B.A., M.B.A. or Ph.D. in business administration is March 1.
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.

Facilities
The College of Business Administration is located in Phillips Hall. The building contains several conference rooms, a computer laboratory, an auditorium, the Business Library, and a wide range of classroom facilities.

Industrial Relations Institute
The Industrial Relations Institute is designed to bring faculty and students together with people in industrial positions to explore curriculum matters and do research. It also conducts continuing education seminars and workshops for practitioners in the field of industrial relations.

Institute for Economic Research
The Institute for Economic Research is developing economic models and simulating their impact on industry. The institute's main objectives are to provide economic information, services, and advice to a continuing basis to business and public agencies, to provide a source of expertise for potential employers, and to promote and enhance academic research and teaching in economics.

Institute for Entrepreneurial Management
The Institute for Entrepreneurial Management helps and guides potential and present entrepreneurs in planning, evaluating, and starting new business ventures. It offers individual counseling and the participation of graduate students guided by faculty members in projects such as assessing the feasibility and viability of a market, producing a business plan, and making financial statements and writing the business plan. The institute offers a series of courses in how to manage the entrepreneurial process.

Management Center
The Management Center is a service center for educational programs of the college that provides information and management services. It disseminates current administrative, behavioral science, and management knowledge related to the working life of people in organizations through on- and off-campus contexts.

Manufacturing Productivity Center
The Manufacturing Productivity Center now has a national presence with manufacturing plants. The agreements enable faculty and graduate students, working with plant officials and engineers, to jointly address ways to improve manufacturing productivity.

B. McGladrey Institute for Accounting Research
The 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 1987 to provide business 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 Industry Placement, located in Phillips Hall. A placement media library, evidence center, planning advising, and interview facilities provide students and recruiting organizations with a full range of placement services.

Alumni Relations
The college maintains an Office of Alumna Relations to act as host during visits from alumni, friends, recruiters, and others interested in the college.

Intermediate Courses

For Undergraduates

6300 Cooperative Education Internship 0.5 h.
7300 Cooperative Education Internship 0.5 h.
7310 Cooperative Education Internship 0.5 h.
8100 Practicum Project 0.5 h.
8200 Seminar in Business Administration 1.5 h.
8200 Seminar in Business Administration 1.5 h.
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The professional program in accounting at the University of Iowa is a three-year, three-division graduate program that leads to a Master of Accountancy (M.Acc.) degree. The M.Acc. degree has a strong emphasis on professional practice and provides students with the knowledge and skills necessary to succeed in the accounting profession.

Program Overview

The program is designed for students who have completed an undergraduate degree in accounting or a related field and are seeking advanced education in the field of accounting. The program emphasizes the development of analytical and problem-solving skills, as well as the ability to apply accounting principles to real-world situations.

Admission Requirements

To be admitted to the program, applicants must have completed a bachelor's degree in accounting or a related field and have a minimum GPA of 3.0 on a 4.0 scale. Applicants must also submit letters of recommendation, a statement of purpose, and evidence of professional experience in the field of accounting.

Curriculum

The curriculum is structured to provide a comprehensive understanding of accounting principles and practices. Students are required to complete a core set of courses, followed by an electives component, which allows them to specialize in a particular area of interest.

Career Opportunities

Graduates of the program are well-prepared for careers in public accounting, management accounting, government, and non-profit organizations. Many graduates also choose to pursue further education in law or business school.

Financial Aid

The University of Iowa offers a variety of financial aid options to help students finance their education. These options include scholarships, grants, and loans.

Application Process

Applications for the professional program in accounting at the University of Iowa are accepted on a rolling basis. Applications must be submitted online through the university's website.

For more information, please visit the University of Iowa's website or contact the Graduate Admissions Office directly.
Doctor of Philosophy

See also Interdepartmental Graduate Intagiun in the College of Business Administration

Programs

Primary for Undergraduates

Undergraduate Accounting

Special Topics in Accounting

Advanced Topics in Accounting (270) 3 s.h.

Advanced Accounting (470) 3 s.h.

Advanced Taxation (480) 3 s.h.

Advances in Financial Analysis (390) 3 s.h.

Advanced Financial Reporting (490) 3 s.h.

Advanced Corporate Finance (380) 3 s.h.

Advanced Bankruptcy (380) 3 s.h.

Advanced Accounting (480) 3 s.h.

Advanced Auditing (470) 3 s.h.

Advanced Tax Reporting (480) 3 s.h.

Advanced Tax Law (480) 3 s.h.

Advanced Tax Planning (480) 3 s.h.

Advanced Tax Research (480) 3 s.h.

Advanced Financial Analysis (490) 3 s.h.

Advanced Financial Reporting (490) 3 s.h.

Advanced Corporate Finance (480) 3 s.h.

Advanced Bankruptcy (480) 3 s.h.

Advanced Accounting (470) 3 s.h.

Advanced Auditing (470) 3 s.h.

Advanced Tax Reporting (470) 3 s.h.

Advanced Tax Law (470) 3 s.h.

Advanced Tax Planning (470) 3 s.h.

Advanced Tax Research (470) 3 s.h.

Advanced Financial Analysis (490) 3 s.h.

Advanced Financial Reporting (490) 3 s.h.

Advanced Corporate Finance (480) 3 s.h.

Advanced Bankruptcy (480) 3 s.h.

Advanced Accounting (470) 3 s.h.

Advanced Auditing (470) 3 s.h.

Advanced Tax Reporting (470) 3 s.h.

Advanced Tax Law (470) 3 s.h.

Advanced Tax Planning (470) 3 s.h.

Advanced Tax Research (470) 3 s.h.

Advanced Financial Analysis (490) 3 s.h.

Advanced Financial Reporting (490) 3 s.h.

Advanced Corporate Finance (480) 3 s.h.

Advanced Bankruptcy (480) 3 s.h.

Advanced Accounting (470) 3 s.h.

Advanced Auditing (470) 3 s.h.

Advanced Tax Reporting (470) 3 s.h.

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Advanced Tax Planning (470) 3 s.h.

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Advanced Financial Analysis (490) 3 s.h.

Advanced Financial Reporting (490) 3 s.h.

Advanced Corporate Finance (480) 3 s.h.

Advanced Bankruptcy (480) 3 s.h.

Advanced Accounting (470) 3 s.h.

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Advanced Tax Research (470) 3 s.h.

Advanced Financial Analysis (490) 3 s.h.

Advanced Financial Reporting (490) 3 s.h.

Advanced Corporate Finance (480) 3 s.h.

Advanced Bankruptcy (480) 3 s.h.

Advanced Accounting (470) 3 s.h.

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Advanced Tax Research (470) 3 s.h.

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Advanced Tax Planning (470) 3 s.h.

Advanced Tax Research (470) 3 s.h.

Advanced Financial Analysis (490) 3 s.h.

Advanced Financial Reporting (490) 3 s.h.

Advanced Corporate Finance (480) 3 s.h.
Graduate Programs

Master of Arts

The Master of Arts is offered to full-time students working toward a Ph.D. degree or to those who enroll in a joint M.A. with law.

Joint M.A.-M.D.

The department collaborates with the Department of Geophysics in a joint M.A. degree and with the College of Law in a joint M.A.-J.D. degree. In these programs the economics department accepts up to 3 semester hours of course work from the other departments as credits toward the M.A. degree in economics, and the other departments accept graduate courses in economics toward their degree requirements.

Doctor of Philosophy

The Ph.D. program is designed to provide rigorous training in microeconomics, macroeconomics, institutional economics, and econometrics. In addition, students achieve a major area for intensive study and specialization. The program has three components: a coordinated sequence of core courses and a set of major area courses, and a dissertation.

Core Sequence

First Semester
- ECON 420 Mathematics for Economists I
- ECON 433 Microeconomics I
- ECON 454 Macroeconomics I
- PHIL 400 Introduction to Philosophy
- PHIL 401 Ethics I

Second Semester
- ECON 481 Mathematics for Economists II
- ECON 482 Microeconomics II
- ECON 483 Macroeconomics II
- PHIL 402 Ethics II

Third Semester
- ECON 411 Mathematical Economics I
- ECON 412 Economic Theory

Fourth Semester
- ECON 422 Applied Econometrics

An additional 3 semester hours in economic history, economic thought, or economic methodology are required.

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 in courses that enable students to understand the relationship between their specialty and related fields. Students must achieve a 3.20 grade-point average in the major area courses.
 MANAGEMENT AND ORGANIZATIONS

Chief: Edward J. Condon
Professor: Lawrence D. Cotlar, John Kremers, Charles R. Nason, Jada L. Lopez (Permanent Professor), Glenn Barnes, Carol M. Rinow, Sara L. Ryan, Frank P. Walsh (Steering Professor), Peter Schmitt, Anthony V. Scavone (Murray Professor), Diane E. Thompson
Associate professors: Joyce Osmerski, John T. Champion, Jack T. Porrino, Thomas F. O'Shea, Nancy R. Herron, Michael N. Mount, John J. Yocca
Assistant professor: Nicholas J. Murphy, Paul Burton, Susan Schoenfeld
Graduate degree offered: M.A., M.A., Ph.D. in Business Administration

Students majoring in industrial relations and human resources take courses of study that deal with administrative processes, labor relations, human resource management, organizational design, and strategic management. The program is designed to give students a thorough background in these areas, as well as an understanding of their applications to real-life situations. Specific courses, research projects, and other experiences, such as simulations, are intended to include both theoretical and practical aspects of the field.

The Management and Organizations Department offers two tracks of study. The administrative studies track provides students with training in individual and group behavior, organizational design, and organizational strategy. It prepares students for administrative and controlling positions in both public and private sector organizations. Graduates are prepared for positions in general management and organizations consulting.

The industrial relations and human resources track prepares students for a variety of line, staff, and professional positions in business, government, nonprofit institutions, and education. Work experience in these positions may include personnel management, wage and salary administration, benefit selection and administration, performance appraisal, industrial training, manpower issues, collective bargaining, contract administration, grievance handling, dispute resolution, and labor relations issues, and labor relations law.

Undergraduate Program

Requirements for the Bachelor of Business Administration degree have a major in industrial relations and human resources are as follows:

Industrial Relations and Human Resources Track

61:500 Probationary Labor Legislation 3 s.h.
61:533 Collective Bargaining 3 s.h.
61:538 Personnel Management 3 s.h.

"Specialized area (industrial relations and/or human resources management)" 6 s.h.

Total 15 s.h.

Students select courses in the specialized area based on their individual interests, with the advice and consent of their advisors.

Administrative Studies Track

61:163 Individual Behavior in Organizations 3 s.h.
61:145 Group Behavior in Organizations 3 s.h.
61:163 Organizational Design and Operation 3 s.h.
61:275 Managerial Decision Models 3 s.h.
61:180 Management Information Systems 3 s.h.
61:180 Managerial Information Processing and Decision Behavior 3 s.h.

One of these:
61:103 Microeconomics 3 s.h.
61:106 Advanced Problem Solving in Administrative Sciences 3 s.h.
61:184 Productive Planning and Control 3 s.h.

Total 21 s.h.

Graduate Programs

Master of Arts

A Master of Arts degree with a major in industrial relations and human resources is available as a special masters program for students who have a professional degree in the field. The degree provides concentrated graduate study in labor relations and personnel management. Students complete 35-41 semester hours of course work selected with consent of an adviser. The 35-41 semester hour includes the common body of human knowledge requirements mandated by the American Assembly of Collegiate Schools of Business, as general requirements and "Interdisciplinary Graduate Programs" in the College of Business Administration introductory section of the Catalog.

Doctor of Philosophy

Students seeking a Ph.D. in industrial relations and human resources will find degree requirements specified under "Interdisciplinary Graduate Programs" in the College of Business Administration introductory section of the Catalog.

Courses

Primarily for Upper-Division Undergraduates

61:699 Internality in Management and Organizations 3 s.h.
61:701 Introduction to Law 3 s.h.
61:703 General theory and structure of law, legal systems, skills in reading, writing, and oral presentation.
61:705 Introduction to Psychology and Administration 3 s.h.
61:726 Management Development 3 s.h.

Basic course in the principles of management, organizational structure, decision making, leadership, group, and interpersonal relations.
61:731 Advanced Reading in Industrial Relations 3 s.h.
61:732 Personnel Management 3 s.h.
61:736 Advanced Employment Practices 3 s.h.
61:741 Labor Relations Law 3 s.h.
61:742 Labor Relations Law 3 s.h.
61:746 Labor Relations Law 3 s.h.

61:749 Industrial Environment and Organizational Behavior 3 s.h.
61:750 Introduction to Industrial Relations 3 s.h.
61:751 Organizational Behavior and Human Resource Management 3 s.h.

Prerequisites: 61:701, 61:703, and 61:726.
61:761 Special Problems in Industrial Relations 3 s.h.
61:765 Topics in Industrial Relations 3 s.h.
61:770 International Industrial Relations 3 s.h.

61:775 Management Development and Training 3 s.h.
61:782 Advanced Employment Practices 3 s.h.
61:785 Labor and Employment Law 3 s.h.
61:787 Management Development and Training 3 s.h.
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61:930 Management Development and Training 3 s.h.
Management Sciences

Chair: Coile E. Bell
Professors: Coile E. Bell, Andrew F. Faeth, William R. Bell, Paul S. Flowerdew, John J. Sansone, Steven M. Sutton
Instructors: Darrell A. McManus, J. D., Dennis A. Miller, J. D.

1. Undergraduate Program

Management sciences majors participate in a variety of professional experiences that develop their knowledge of management decision-making systems. Skills to apply this knowledge are acquired by developing quantitative models, utilizing computer technology, and testing database systems. The core curriculum is designed to be flexible to accommodate several career options, open to department-major.

1.10 Personnel Selection

1.20 Individual Behavior in Organizations

1.30 Group Behavior in Organizations

1.40 Organizational Design and Operations

1.50 Strategic Planning Systems

1.60 Managerial Information Processing and Decision Making

1.70 Industrial Relations

1.80 Contemporary Topics in Management and Organizational Behavior

1.90 Integrative Business Law

1.100 Behavioral Science Problems in Organizations

1.110 Business Ethics and Social Responsibility

1.120 Compensation Management

1.130 Economics of Industrial Relations

1.140 Public Sector Labor Relations

1.150 Future Resource Management

1.160 Personnel Selection

1.170 Strategic Behavior and Performance

1.180 Organizational Behavior

1.190 Organizational Behavior

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2. Undergraduate Majors

2.100 Business Administration

2.200 Management

2.300 Marketing

2.400 Finance

2.500 Accounting

2.600 Economics

2.700 Quantitative Analysis

2.800 Information Systems

2.900 Human Resources

3. Undergraduate Minor

3.100 Management Sciences

3.200 Business Administration

3.300 Marketing

3.400 Finance

3.500 Accounting

3.600 Economics

3.700 Quantitative Analysis

3.800 Information Systems

3.900 Human Resources
Students prepare for a variety of career opportunities in both manufacturing and service organizations. Typical starting positions include computer programmers, system analysts, sales representatives with computer companies, and management trainees. Entry-level positions in operations management include materials management, line supervision, purchasing, and manufacturing systems.

Two tracks of study are available in the management sciences major: management information systems and operations management. Course requirements for each track are as follows.

**Management Information Systems Track**

- 6316 Individual Behavior in Organizations
- 6316 Organizational Design and Operations
- 6316 Managerial Decision Models
- 6316 Management Information Systems
- 6316 Systems Analysis and Design
- 6316 Computer Science Programming Course (22616-17 recommended)
- 6316 Introduction to Management Information Processing and Decision Behavior
- 6316 Applications of Database Management Systems
- 6316 Production Planning and Control

**Operations Management Track**

- 6316 Individual Behavior in Organizations
- 6316 Organizational Design and Operations
- 6316 Production Management (may be taken in place of 6316)
- 6316 Managerial Decision Models
- 6316 Management Information Systems
- 6316 Production Planning and Control

One of the following:
- 6316 Collective Bargaining
- 6316 Personnel Management
- 6316 System Analysis and Design
- 6316 Applications of Database Management Systems

**Graduate Programs**

**Master of Arts**

The Master of Arts program in management sciences is designed for students who seek either an opportunity for specialization or a more rigorous experience. The general requirements are specified in the Bulletin of the Master of Arts in Business Administration. See "Interdepartmental Graduate Programs" in the College of Business Administration introductory section of this Catalog.

Students must consult with a faculty advisor to prepare a plan of study for the master's degree.

**Doctor of Philosophy**

Candidates who want to earn a Ph.D. degree in management sciences should refer to the description of the Doctor of Philosophy program in "Interdepartmental Graduate Programs" in the College of Business Administration introductory section of this Catalog.

**Courses**

**Primarily for Undergraduates**

63400 Cooperative Education Internship 1-2 s.h.

63700 Computer Analysis 3 s.h.

- Introduction to the computer and its use in operation and management of organizations; topics include: computer hardware terminology, introduction to programming, management information systems, and use of applications software. Prerequisites: 22617 and 12616.

63710 Statistical Analysis 3 s.h.

- The use of statistical tools for solving management problems. Topics include regression, ANOVA, time series theory, and forecasting. Prerequisites: 22617 and 22616.

63840 Production Management 3 s.h.

- Organization and management of manufacturing enterprises; production design and process planning; job design and materials handling; work simplification and measurement; production systems; inventory control. Prerequisites: 63850 and 63851.

**For Undergraduates and Graduates**

63850 Directed Readings 1-2 s.h.

- Individual guided reading in selected topics in management science. Consent of instructor required.

63850 Managerial Economics 3 s.h.

- Economic analysis applied to basic problems encountered in a marketing, finance, and investment, with emphasis on principles used in management with particular emphasis on financial aspects. Prerequisites: 65, 62, and 627.

63850 Managerial Decision Models 3 s.h.

- Management, quantitative, linear, and dynamic programming, with applications in economics and management. Classical optimization techniques, linear programming, and network flow problems. Prerequisites: 6316 and 6316.

63850 Management Information Systems 3 s.h.

- Nature of systems, description and use of management information systems, survey of a look used in systems, and the design of management information systems. Prerequisites: 6316 and 6316.

63850 Systems Analysis and Design 3 s.h.

- Design and implementation of an information system. Familiarity with data processing and data representation, introduction to management information systems, data design, and management information flows, followed by implementation of prototype information systems. Prerequisites: 6316 and 6316.

63850 Application of Database Management Systems 3 s.h.

- Design and high-level language of database using a microcomputer. Emphasis in areas of logical and physical design. Database administration, concurrency control, and database security. Prerequisites: 6316.

63850 Production Planning and Control 3 s.h.

- Concepts and techniques for production planning, scheduling, and inventory control in operations management. Emphasis on workload patterns of industry, classification of work patterns, and Just-In-Time (JIT) systems. Prerequisites: 6316, 6317, and 6324.

**Primarily for Graduates**

63850 Directed Readings 1-2 s.h.

- Individual guided reading in selected topics in management science. Consent of instructor required.

63850 Analytical Models in Management 3 s.h.

- Operations research study through student team project; major emphasis including operations research, simulation, and decision analysis.

63857 Management Science Topics 3 s.h.

- Development and application of alternative solution models, linear, nonlinear, quadratic, and dynamic programming, network planning, and game theory. Systems course of instructor required.

63857 Forecasting 3 s.h.

- Forecasting used in business; how models such as moving averages and exponential smoothing models such as seasonal index and trend projection; short-term sales forecasting, inventory levels, and linear programming. Prerequisites: 63857 and 6324.

63857 Management Information Systems 3 s.h.

- Software, systems, and institutional frameworks of management, information, technology, and commerce; operating systems, computer software, and applications software. Prerequisites: 6324 and 6324.

63857 Production Management 3 s.h.

- Production systems, and micro and microcomputer data bases; applications of linear and physical database design. Prerequisites: 6316 and 6316.

63857 Research in Management Information Systems 3 s.h.

- In-depth study of one or more topics such as: structured programming, database design, system design, and computer modeling. Prerequisites: 6316 and 6316.

63857 Research in Management Information Systems 3 s.h.

- In-depth study of one or more topics such as: structured programming, database design, system design, and computer modeling. Prerequisites: 6316 and 6316.

63857 System Design 3 s.h.

- Structured design and design of management information systems, environment analysis, systems design, and decision support system design. Prerequisites: 6316 and 6316.

63857 Systems Development 3 s.h.

- Systems design and development, including formulation of manufacturing strategy for a business management of manufacturing systems, and capacity management. Prerequisites: 6316 and 6316.

63857 Systems Development 3 s.h.

- In-depth study of one or more topics such as: structured programming, database design, system design, and computer modeling. Prerequisites: 6316 and 6316.

63857 Systems Development 3 s.h.

- In-depth study of one or more topics such as: structured programming, database design, system design, and computer modeling. Prerequisites: 6316 and 6316.
Undergraduate Program
The Department of Marketing offers courses that help undergraduate students understand the social and economic roles of marketing and prepare them for marketing careers.
Several decades ago, the study of marketing dealt almost exclusively with business activities involved in the flow of goods from producers to consumers. Today the study of marketing includes principles that are more widely applicable; they are as relevant in the marketing of the arts, sports, and social causes as they are in the marketing of goods and services. A major in marketing includes study in the behavioral sciences, communications, statistical analysis, and computer methods as well as marketing's functional areas.
Students studying majors in marketing may find opportunities for employment as market analysts, purchasing managers, community action agents, purchasing agents, advertising interns, brand marketing trainees, or sales representatives, in a variety of profit and nonprofit organizations.

Graduate Programs
See "Interdisciplinary Graduate Programs" in the College of Business Administration introduction section of the Catalog.

Courses
Primarily for Upper-Division Undergraduates
8400s Consumer Education 3 hrs.
8410 Introduction to Marketing 3 hrs.
8411 Marketing Management 3 hrs.
8412 Marketing Research 3 hrs.
8413 Consumer Behavior 3 hrs.
8414 Advertising Theory 3 hrs.
8415 Sales Management 3 hrs.
8416 Marketing Management 3 hrs.
8417 Consumer Marketing 3 hrs.
8418 Consumer Behavior 3 hrs.
8419 Advertising and Sales Management 3 hrs.
8420 Management Information Systems 3 hrs.
8421 Marketing Management 3 hrs.
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96241 Management Models—Ph.D.
3 a.h.
Extension of models that support marketing decision making, emphasis on structure and usage of models for specific decision situations; case studies. Consent of instructor required.

96242 Marketing Models—Ph.D.
3 a.h.
Examination of theoretical and operational models in marketing, with emphasis on seminal theoretical and empirical critiques of models, participation in related development projects. Consent of instructor required.

96243 Research in Consumer Behavior—Ph.D.
3 a.h.
Critical examination of recent research, in-depth study of research methods. Consent of instructor required.

96244 Multivariate Applications—Ph.D.
3 a.h.
Survey of some topics in multivariate analysis: principal components, factor analysis, canonical correlations, discriminant analysis, linear structural relations, emphasis on the structural representation across variables, implication of procedures for marketing research. Consent of instructor required.

96245 Research Workshop—Ph.D.
arr.
Individually guided projects on appropriate topics in marketing. Consent of instructor required.

96246 Seminar in Marketing—Ph.D.
arr.
Examination of current marketing literature and current marketing practice. Literature and Almquist. Consent of instructor required.

96249 Thesis in Marketing
arr.
Consent of instructor required.
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-Care System. Close teaching, research, and service activities have earned national recognition.

The basic educational program leading to the Doctor of Dental Surgery (D.D.S.) degree comprises 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
- General anatomy, biochemistry, histology, physiology, general pathology, oral pathology, pharmacology, microbiology

Restorative Dental Sciences
- Gross, microscopical, and radiographic dental anatomy; dental materials; endodontics; operative dentistry; fixed partial prosthodontics; removable prosthodontics

Oral Medicine
- Preventive dentistry; oral diagnosis; dental radiology; orthodontics; oral surgery; periodontology

Community Dentistry
- Topics in pediatric, geriatric, and preventive dentistry; community health; principles of human behavior; dental economics; dental jurisprudence; geniastics

Pediatric Dentistry
- Facial growth and development; pediatric dentistry and orthodontics

To achieve a clear 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, which expose them to each of 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 enrolled in 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 gives exposure to facets of dentistry usually not observable in the academic setting.

Promotions and Graduation

Student promotions and graduation are determined by the college academic and professional judgment committees, which are 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 committees 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 be excused from specific 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. This 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 college 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, 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 office.

For a five-year period, members states accept successful completion of Central Regional Dental Testing Service requirements in lieu of other individual state's clinical licensing requirements. The license application is then filed with the individual state's board of dentistry. Most states also require the National Board, conducted by the American Dental Association, as issue of individual states written examinations. A jurisprudence examination also is required in many states, including Iowa.

Facilities

The Dental Science Building, a major unit of the Iowa Health-Care System, 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 Nordin Library for the Health Sciences. The building houses all of the University's special health science buildings, totaling a 158,700-square-foot complex including more than 18,000 volumes on dentistry and allied scientific subjects, and the more than 260 dental journals the college currently receives. The library receives a subscription to 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 departments' clinics, offices, and laboratories. The north wing houses teaching laboratories, research laboratories, administrative area, educational media center, and programs in community dentistry.

Student Organizations

All dental students are eligible for membership in the American Student Dental Association through local chapters. There are also local chapters of the American Association of Dental Schools, the American Association of Women Dentists, the American Society of Dentistry for the Handicapped, and the Student National Dental Association. Students who are members of these organizations or who hold elective positions in their student organization are eligible for election to Omicron Kappa Upsilon, an honorary dental fraternity. Two national dental professional fraternities, Delta Sigma Delta and Phi Omega Alpha, have chapters located at Iowa. Both fraternities have housing facilities exclusively for 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-Inventory Management System (SIMS) which provides central control of supply and instruments and supplies necessary throughout its clinical training. The SIMS usage fee for the D.D.S. degree is payable in installments over the first three years of the program.
Financial Aid

Financial assistance for dental students is based on need. Students applying for Health Professions Loans must submit the College Scholarship Service Financial Aid Form (FAS), which includes an evaluation of parents' income and assets. Needily dental students are eligible for Health Professions Loans, Perkins Loans, state grants, and Stafford Loans. Interest on these loans is deductible while the student is in school, and the loans are repayable over an extended period of time. After the course of study is completed.

Golden State 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 regarding financial assistance available to dental students.

Dentistry Research Assistants (DRA)

Dental research assistants are awarded each year. The DRA provides financial support of $2,000 per year for as many as four years, if the students maintain an appropriate level of performance. Noneesidents receive the same stipend and fees at resident rates. Awards are engaged as assistants in research working on faculty research.

Other Assistantships

The college offers assistantships that provide stipends that may be as high as $24,000 and generous tuition remission. These assistantships are available to the University of Iowa of the 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 by AADSAS by September 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 apply 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. To take advantage of this plan, students must fulfill all specific requirements for the bachelor's degree, including the General Education Requirements. Students must complete the requirements for a major major and other must satisfy the College of Liberal Arts and Sciences 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.

Preclinical Studies

The basic academic requirement for admission to the College of Dentistry is the completion of no less than 96 semester hours of academic study at an accredited college. In exceptional circumstances, candidates with fewer than 96 semester hours of college work are considered for admission if their performance and potential for their academic achievement are considered outstanding. The preclinical program of study should include:

- English satisfactory accomplishment in English composition, rhetoric, and speech commensurate with academic requirements for a bachelor's degree at the institution attended.
- Physics: one course (equivalent to 8 semester hours), of which one-half must be laboratory work.
- Chemistry: two courses (equivalent to 16 semester hours), of which one course (equivalent to 8 semester hours) must be in organic chemistry, and of which one-half must be laboratory work.
- Biology: one course (equivalent to 8 semester hours), which must include appropriate laboratory work. Requirement may be satisfied by a one-year course in general microbiology. Courses in histology and cell physiology are also recommended.
- Elective sufficient course work in the social sciences, philosophy, psychology, history, foreign languages, and mathematics to provide a well-rounded educational background.

Combined Liberal Arts-Dentistry Program

Students who are enrolled in a bachelor's 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 39 semester hours of elective credit earned in any other college or the University will allow 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 must also satisfy the College of Liberal Arts and Sciences 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.

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' coursework in the preclinical sciences in addition to the cumulative grade-point average.

Interviews

Personal interviews are recommended 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. Test scores are given in spring and fall. The University of Iowa is a testing center. Applicants must take the test at least once before fall in order to be admitted for the following year. Test application forms are available from the University Office of Admissions or 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

Applications accepted before February 15 are required to submit a $75 deposit within 30 days after notification of admission.

282 Dentistry
This experience not only advances dental hygiene clinical skills, but provides both the hygiene and graduate dental students with a learning experience emphasizing the team approach.

Seniors receive additional clinical experience in 88-107 Practicum: Community Dental Hygiene; 98-108 Seminar: Community Dental Health; 75-4611 Introductions: Instructional Materials; 75-4612 Introduction to General Dentistry.

Course work is taught as isolated subject-oriented units, such as dental hygiene education, public health, and epidemiology, are intergraded into an integrated core. Learning emphasis is on the relationship between the underlying theory and practical application of community dental health. Students discuss health community health issues related to the provision for general health care. Field experiences enable them to apply knowledge of human behavior, basic principles of communication and marketing, and educational and research techniques to the design, implementation, and evaluation of health care and educational programs.

Aging Studies Program
As part of their dental hygiene studies, students may participate in a multidisciplinary program in aging studies. The program provides support for independent work for students who want to develop specialization in gerontology. For further information, see "Aging Studies Program" in the College of Liberal Arts section of the Catalog.

Minors and Double Majors
Dental hygiene students have the opportunity to develop a minor in another field of study. To pursue a minor, dental hygiene students who select this option should plan their course of study with their dental hygiene adviser is close cooperation with faculty from the minor or other major department.

Admission
High School Preparation
Specific high school courses required are four years of English, four years of one foreign language (previously Spanish), at least three years of mathematics, including two years of high school algebra and one year of high school geometry and one year each of Biology and Chemistry.

College Preparation
Eligibility for admission to the professional programs in dental hygiene requires fulfillment of the General Education Requirements of the College of Liberal Arts and completion of the following dental hygiene prerequisites:
Four semester hours of inorganic chemistry—4.5 General Chemistry I
Four semester hours of microbiology—4.5 Microbiology
Three semester hours of nutrition—1.41 Introduction to Nutrition
Three semester hours of psychology—3.1 Elementary Psychology
Three semester hours of sociology—3.4 Introduction to Sociology Principles
Four semester hours of anatomy—4.01 Principles of Human Anatomy
Four semester hours of physiology—7.126 Human Physiology.

Dental hygiene students who complete the educational basis for the dental hygiene course of study in addition, students admitted to the professional program of study must complete certification in radiological interpretation (CPR) at the basic life support for health care providers level before they enter the program.

Completion of a bachelor's degree or an associate of arts degree from an Iowa State Community College fulfills the General Education Requirements with the exception of the foreign language requirement. Students holding a professional degree in dental hygiene do not provide an appropriate background for transfer into the baccalaureate program at Iowa State.

Students holding the professional program in dental hygiene only in the fall. Those enrolled in The University of Iowa College of Dental Arts need satisfy only the dental hygiene application. Transfer students must submit an application to the College of Liberal Arts and dental hygiene applications.

Although applications are accepted and processed throughout the academic year, it is recommended that students apply for dental hygiene admissions by November 1 preceding the fall semester in which they wish to enter the program.

Graduate Program
The graduate program fulfills the need to prepare hygienists who contribute to the advancement of new knowledge in dental hygiene and who provide leadership in the profession. The graduate program also fulfills the need to prepare scholars in dental hygiene education. Therefore, graduate program goals emphasize the acquisition of advanced scientific knowledge in dental hygiene the biological, social, and physical sciences and basic knowledge of and experience in conducting research.
The curriculum design provides students with major concentration in advanced dental hygiene theory. In the social science area, students consider the implications of applied sociological, psychological, economic, cognitive, and environmental concepts related to oral health. Selected readings examine societal values, structural elements of dental care delivery systems in relation to individual, family, and community oral health outcomes.

Study in the educational field includes dental hygiene trends, with emphasis on dental hygiene education; elements of curricular design; and the theory and application of didactic, clinical, and practical teaching in dental hygiene. Approximately 14 semester hours are taken in assigned courses to acquire advanced knowledge in dental hygiene and if are taken in recent methodology and thesis preparation and defense. The remaining 19 semester hours include electives in the biomedical and social sciences.

Elective course work related to the biomedical sciences may include microbiology, histology, biochemistry, oral pathology, periodontology, and anesthetics.

Electives emphasizing the social, economic, and political aspects of health include epidemiology, medical sociology, health care organization and administration, and health economics.

Students are also encouraged to consider taking elective classes in higher education, such as educational measurement, theories of learning.

It is recommended that dental hygiene graduate students take the following courses:

88:201 Seminar: Dental Hygiene Literature Review 3 s.h.
88:203 Research: Dental Hygiene 3 s.h.
88:205 Social Factors and Oral Health 3 s.h.
88:206 Clinical Dental Hygiene Education 2 s.h.
88:207 Selected Topics in Dental Hygiene Education 2 s.h.
111:212 Statistical Methods for Dental Research 3 s.h.
175:141 Introduction to Statistical Methods 3 s.h.
175:224 Research Design in Dentistry 2 s.h.

Although students may begin the 34-semester hour program during the summer term or fall semester enrollment of the beginning of the fall semester is preferred. Most students should expect to take this program in two years to complete degree requirements.

Admission

Applicants for admission are subject to the general rules of the Graduate College. Departmental requirements include an acceptable score on the Graduate Record Examination (GRE) General Test and a 2.80 minimum undergraduate cumulative grade-point average. The undergraduate education or the applicant shall include courses equivalent to those in the graduate associate degree program at The University of Iowa.

Candidates for admission must submit official transcripts of all undergraduate academic records, an application for admission, and Graduate Record Examination scores to the Office of Graduate Admissions, Carter Hall. Since these materials must be received before the candidate is interviewed, candidates are encouraged to submit their application as early as possible prior to the semester for which admission is desired. Application for admission and information on the Graduate Record Examination can be obtained from the Office of Graduate Admissions.

Facilities

University of Iowa dental hygiene majors receive their professional preparation at the University of Iowa's Modern Dental Science Building. This building is part of the University of Iowa Health Center complex, one of the nation's outstanding health science teaching, research, and patient care facilities.

Financial Aid

In addition to financial assistance available to University of Iowa students, there are a variety of opportunities to include number of scholarship awards and loans for undergraduate dental hygiene students. These awards are based on assessment of need, student academic record, and financial need.

Financial aid for graduate students is available through teaching assistantships, student assistantships, and patient care services. Awards, are based on students' academic record and potential contribution to the teaching and patient care goals of the university. Research assistantships are only available to students who are currently enrolled. In addition, limited interest loans are also available through the department.

Excellent undergraduate and graduate scholarships are available for minority students who are majoring in dental hygiene. For further information, see "Financial Aid" in the "College of Dentistry" section of the Catalog.

Courses

For Undergraduates

88:111 Dental Anatomy 2 s.h.
88:112 Dental Materials 2 s.h.
111:150 Dental Hygiene 2 s.h.
111:160 Head and Neck Anatomy 1 s.h.

For Graduates

88:101 Dental Hygiene I 2 s.h.
88:102 Dental Hygiene II 2 s.h.
88:200 Dental Hygiene III 3 s.h.
88:201 Dental Hygiene IV 3 s.h.
88:202 Dental Hygiene V 3 s.h.
88:203 Dental Hygiene VI 3 s.h.
88:204 Dental Hygiene VII 3 s.h.
88:205 Dental Hygiene VIII 3 s.h.
88:206 Dental Hygiene IX 3 s.h.
88:207 Dental Hygiene X 3 s.h.
88:208 Dental Hygiene XI 3 s.h.
88:209 Dental Hygiene XII 3 s.h.
88:210 Dental Hygiene XIII 3 s.h.
88:211 Dental Hygiene XIV 3 s.h.
88:212 Dental Hygiene XV 3 s.h.
88:213 Dental Hygiene XVI 3 s.h.
88:214 Dental Hygiene XVII 3 s.h.
88:215 Dental Hygiene XVIII 3 s.h.
88:216 Dental Hygiene XIX 2 s.h.

Endodontics  Dentistry  285
Predoctoral Program
Course work and clinical experiences in endodontics are of utmost importance in the overall education of a dental student.
Preclinical endodontics, taught during the sophomore year, includes both didactic and laboratory courses. In clinical endodontics, students study both manual and mechanical instrumentation, and pathologic conditions of the dental pulp and periapices, emphasizing the areas of prevention and diagnosis of pulpal and periapical disease. Students treat endodontic patients under direct supervision of faculty and staff.

Graduate Program
The graduate program offered by the Department of Endodontics is designed to prepare qualified dentists for the practice of endodontics and/or a career in dental education and research.
The department offers two types of graduate (post-D.D.S.) programs:
The Master of Science degree program requires a minimum of 60 semester hours of graduate work, including an original research project and thesis. Students follow a plan of study that equals a total of 60 semester hours.
The certificate program requires no formal thesis. Candidates are expected to write a scientific report of publishable quality, based on original research.
The certificate program requires course study for up to 40 semester hours of credit. An individual plan of study is prepared for each student.
Both programs are for a minimum of two calendar years, and a total of 40 semester hours are admitted. Completion of the program requires satisfactory performance in a comprehensive written and/or oral examination.
These programs satisfy the training requirements of the American Board of Endodontics.
The specific goals of these programs are to allow dentists to develop their skills and acquire a broad knowledge of the specialty of endodontics for teaching and practice purposes; to gain sufficient knowledge and experience in the educational process so that they may function confidently as dental educators; to recognize the value of the pursuit of academic research; and to develop the ability to plan, conduct, and report the results of research investigations.
Applicants for the graduate programs in endodontics must be graduates of an accredited college of dentistry and must comply with the requirements for admission to the Graduate College of The University of Iowa.
The graduate program in endodontics begins July 1. Applications should be made no later than October 15 of the year prior to the anticipated starting date. Students who have met the requirements for admission to the Graduate College then may be accepted into the program by the faculty of the Department of Endodontics. A personal interview with the applicant may be requested.
Students in the program must maintain a grade-point average of 3.00 to receive a certificate or degree. Students who fail below this level are not allowed to continue in the program. The circumstances creating the deficiency must receive careful consideration.
Students enrolled in the graduate program in endodontic may not involve themselves in private practice enterprises outside the college. A student who does not see his program or his program for another may be unconditionally and without exclusive to the program or the practice.
Persons applying to this graduate program in endodontics must be able to support themselves financially for the time required to complete the program.

Courses
Predoctoral

83110 Endodontics
Basic principles, concepts, and technical procedures necessary for successful pulp and periodontal treatment of patients with endodontic disease. (3.00)

83120 Clinical Endodontic Practice
Clinical experience in the diagnosis and treatment of pulpitis and periodontitis, emergency endodontic procedures, and endodontic surgery. Includes endodontic evaluation and treatment of patients with endodontic disease. (3.00)

83160 Clinical Endodontic Seminar
Teaches basic endodontics, surgical and percutaneous mechanics, endodontic and endodontic surgery, and endodontic and restorative procedures for the treatment of endodontic disease. (3.00)

Graduate

83200 Update in Endodontics
Review advances in endodontic diagnostic, treatment, and clinical techniques, for endodontics. (3.00)

83225 Endodontic Literature Review I
Review of recent technical literature on endodontic treatment and its application to clinical practice in the graduate student. Weekly seminar attended for two years by each graduate student. (3.00)

83226 Endodontic Literature Review II
Continuation of 83225. (3.00)

83227 Endodontic Literature Review III
Continuation of 83226. (3.00)

83240 Endodontic Literature Review IV
Continuation of 83227. (3.00)

83250 Research in Endodontics
Teach research protocol preparation and statistical analysis of data, and interpretation and presentation of results. (3.00)

261008 Endodontia Support Conference
Evaluation of endodontic cases that require surgical treatment. Discussion of current endodontic therapies, endodontic patient care, and current endodontic research. (2.00)

261012 Advanced Endodontic Research
Clinical treatment of patients, progressing from simple to complex. Weekly seminars, research projects, manuscript preparation, and presentation of research results. (2.00)

261020 Endodontia Seminar II
Advanced clinical techniques, treatment of complex cases, and advanced endodontic research. (2.00)

261030 Review of oral histology, basic science of teeth and hard structures, anatomy and physiology of supporting structures, basic philosophy and principles of endodontics, and general theories of endodontics. (2.00)

261042 Seminar in Endodontia II
A seminar in advanced clinical endodontic procedures with emphasis on endodontic and periapical management, restorative procedures, and endodontic therapy of endodon tic cases. (2.00)

261052 Seminar in Endodontia III
Clinical endodontic procedures and cases. Review of endodontic and periapical management, restorative procedures, and endodontic therapy of endodontic cases. (2.00)

261062 Seminar in Endodontia IV
All aspects of endodontic treatment related to endodontic and periapical conditions and cases in patients requiring immediate and long-term treatment and continuing care. (2.00)

261072 Practice Teaching in Endodontia
Technology and current developments in endodontic and periapical treatment. Practice teaching in endodontic and periapical treatment of patients. (2.00)

261082 Practice Teaching in Endodontia II
Teaching current developments in endodontic and periapical treatment. Practice teaching in endodontic and periapical treatment of patients. (2.00)

261092 Practice Teaching in Endodontia III
Teaching current developments in endodontic and periapical treatment. Practice teaching in endodontic and periapical treatment of patients. (2.00)

261102 Practice Teaching in Endodontia IV
Teaching current developments in endodontic and periapical treatment. Practice teaching in endodontic and periapical treatment of patients. (2.00)

261112 Practice Teaching in Endodontia V
Teaching current developments in endodontic and periapical treatment. Practice teaching in endodontic and periapical treatment of patients. (2.00)

FAMILY DENTISTRY

Hand, Daniel L. Hall, Professor
Jove, V. Dorning, Daniel L. Hal, Claude C. Sabato, Jr., Georgia A. Zlakett
Associate professor: Larry J. Crotts, James W. Lawer, Vincent D. Williams
Assistant professor: Akin Akin-Archer

Predoctoral Program
The Department of Family Dentistry is responsible for senior dental students' final clinical experiences and endodontic experiences. The major goal is the integrated of previously learned clinical skills into a well-organized and systematic approach to the comprehensive treatment of patients. The experience encompasses approximately three-fourths of the senior year.
Students spend five days a week in a clinical setting, where they gain experience in total patient management and care. Their didactic course work builds on their clinical education. All areas of clinical and didactic education are emphasized, and emphasis is on their own patients or patients seen by other faculty members. The students participate in the planning of patients. The students are exposed to a broad range of clinical experiences while delivering

Advanced Education in General Dentistry
The Department of Family Dentistry sponsors advanced education in General Dentistry Program (AEGD) to improve and refine residents' skills and knowledge in the practice of general dentistry and to develop general practitioners who can plan and deliver high-quality dental services. AEGD practitioners are better able to plan and coordinate comprehensive 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, administration, accounting, and appointment planning, thus adding to their practice management skills.

Approximately 85 percent of the program consists of general dental practice. Each resident has responsibility for a group of patients. Patient assignments are made to assure balanced management in type and complexity of treatment needs. The didactic portion constitutes approximately 15 percent of the total experience and consists of courses by didactic-trained faculty in all specialty areas. Dental emergency responsibilities are included in the program, as are pre-treatment, treatment, and post-treatment case presentations. Program goals help the resident become familiar with the current literature and research.

The AEGD program lists one year and carries a stipend. 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 of each year.

Courses

Predoctoral

116108 Advanced RAI 1 cr.
Designed to present to the entire concept of dietary comprehensive dental treatment, utilizing a skills-driven, small group seminars. An overview of dental and medical physiology, pharmacology, and nutrition is presented. The emphasis is on the importance of dietary counseling and guidance in the prevention of oral and systemic disease. The major areas covered are caries prevention, dietary counseling, smoking, and smokeless tobacco use, safety, nutrition for oral health, and the prevention of oral disease.

116118 Clinical Practice Management 2 cr.
An introduction to the concepts and importance of clinical practice management as a tool for the practice owner or manager. The course focuses on the practical aspect of achieving quality care within a practice in an efficient manner.

116121 Family Dentistry, I 3 cr.
An introduction to the family dentistry concept and its applications in a small group format. The emphasis is on the importance of diet in the prevention of oral and systemic disease. The major areas covered are dietary counseling, smoking, and smokeless tobacco use, safety, nutrition for oral health, and the prevention of oral disease.

116188 Family Dentistry, II
A continuation of Family Dentistry I, emphasizing the role of the dental hygienist in the treatment planning and management of patients with special needs.

116192 Family Dentistry Lectures
A series of lectures dedicated to the treatment of patients with special needs.

116209 Group Practice Seminar
A one-credit course in group practice methods, aimed at exploring and developing in the residents the effectiveness and efficiency of treatment for a group of patients. The course involves case presentation, discussion, and debriefing, as well as an evaluation of the ability of the residents to handle the dynamics of the group practice setting.

116394 Specialization in Practice 1 cr.
A one-credit course in the specialization of dental care, focusing on current techniques and trends in such areas, and applications for the general practitioner, and interest in the impact of the specialty programs.

116593 Diagnosis and Treatment Planning 1 cr.
A one-credit course in the diagnosis and treatment planning for dental patients. The course involves the development of a treatment plan and its implementation for selected clinical cases. The course also includes the development of skills in critical thinking and reasoning.

HOSPITAL FAMILY DENTISTRY

Head: Robert A. Glenn
Division Director: Arthur Novick (Pediatric Dentistry); Robert A. Glenn (Oral and Maxillofacial Surgery); David D. Miller (Family Dentistry)

Director of General Dentistry Residency: David O. Johnson

In addition to the courses listed above, the residents are required to complete an internship in a hospital setting in order to gain experience in treating patients in a hospital environment. This experience is designed to prepare the residents for the challenges they will face in their future careers as general dentists.

The organizational structure of The University of Iowa Hospitals and Clinics includes a hospital residency dental service with divisions of oral and maxillofacial surgery, family dentistry, and pediatric dentistry. There is a strong emphasis on the importance of diet in the prevention of oral and systemic disease. The major areas covered are dietary counseling, smoking, and smokeless tobacco use, safety, nutrition for oral health, and the prevention of oral disease.

Residency Program

The aim of the residency program is to prepare residents for a broader scope of practice outside the area of general dentistry. The program is designed to combine clinical and didactic training in an individualized format and to meet the requirements of the Commission on Dental Accreditation of the American Dental Association. The residency program covers one year of hospital-based training designed to provide clinical, didactic, and hospital experiences at the postdoctoral level. Instruction and experience provided in the hospital program prepare residents to meet the oral health needs of a wide range of employed and nonemployed patients.

Residency training includes use of hospital resources, management of ambulatory patients, inpatients, same-day surgery patients, and emergency medical and dental patients. Residents participate in consultations with other hospital services and are assigned to appropriate hospital services to fulfill the requirements of the training program. They are expected to be on the house staff of the hospital and have the same privileges and responsibilities as residents in other professional education programs.

Applicants must be graduates of an accredited college of dentistry and must be licensed to practice dentistry in the United States. Applicants are selected via a matching program sponsored by the American Association of Oral and Maxillofacial Surgeons. Application deadline is September 1 for admission on July 1 of the next year. Applicants are notified after the results of the match have been received and the staff takes official action.

Predoctoral Program

Course work and clinical experiences in operative dentistry are fundamental to the overall education of a dental student. The 'operative dentistry curriculum is designed to be an integral part of the student's education and provide the knowledge and experience needed to perform independently in operative dentistry during the fourth year of dental training.
The thesis and examination of the candidate by an examining committee.

Students should plan to furnish their own financial support for the research and clinical work.

Applicants for the program must be graduates of recognized schools of dentistry and must comply with the admission requirements of the Graduate College. An interview with the applicant may be requested.

Courses

Dental Hygiene

82230 Operative Dentistry Laboratory I

82231 Operative Dentistry Laboratory II

82232 Operative Dentistry Laboratory III

82233 Operative Dentistry Laboratory IV

Preclinical courses in dental morphology, composition, properties, instrumentation, and some basic operative techniques. Materials of operative dentistry,照相 and laboratory workshops.

Predoctoral

82238 Operative Dentistry I

82239 Operative Dentistry II

82240 Operative Dentistry III

82241 Operative Dentistry IV

Predoctoral courses in dental morphology, composition, properties, instrumentation, and some basic operative techniques. Materials of operative dentistry,照相 and laboratory workshops.

Graduate

Discipline Studies

82240 Graduate Research Seminar I

82241 Graduate Research Seminar II

82242 Graduate Research Seminar III

82243 Graduate Research Seminar IV

Discipline studies in operative dentistry and their relationship to the operative workshop.

Predoctoral Program

The department teaches dental and other health care students about diseases that manifest in and about the oral cavity. Students learn about the clinical, radiographic, laboratory histopathologic, and therapeutic features of these diseases as well as their etiology and natural history.

They also study identification of systemic diseases through clinical evaluation of patients; the influence of systemic disease on dental therapy; and the influence of dental therapy on systemic diseases and abnormalities.

Graduate Programs

Master of Science

The department's faculty is responsible for predoctoral and postdoctoral education programs. The postdoctoral programs are diverse and flexible, emphasizing oral pathology or oral and maxillofacial radiology. Two educational tracks, each emphasizing oral pathology or oral and maxillofacial radiology, allow postdoctoral students to obtain advanced clinical, didactic, and research-related education while pursuing a Master of Science degree.

Master of Science in Stomatology with Oral Pathology

This program for dental school graduates involves comprehensive study of basic biologic and health sciences in preparation for teaching and research. A minimum of 37 semester hours of satisfactory graduate credit is required. Candidates for the M.S. degree prepare and submit a thesis based on the results of research conducted during their course of study.

Certificate in Oral Pathology and Paracrinology in Stomatology with Oral Pathology

The minimum requirements of the certificate and master's degree programs are combined. Completion time is usually 36 to 48 months. The educational requirements for the certificate program in oral pathology meet the requirements for the preparation of dental specialists as set forth by the Council on Dental Specialties of the American Dental Association and the American Board of Oral Pathology.

Master of Science in Stomatology with Oral and Maxillofacial Radiology

This program for dental school graduates involves comprehensive study of basic and health sciences in preparation for teaching and research. A minimum of 46 semester hours of satisfactory graduate credit is required. Candidates for the M.S. degree...
Courses

Dental Hygiene
40204 Introduction to Dental Hygiene 1.0 h.
Emphasis on basic principles of disease and debridement of plaque as a prevention of clinical disease.
40205 Oral Pathology for Dental Hygienists 3.0 h.
Basic oral disease bases. Interactions required for administration of normal oral health outcomes, general understanding of pathogenic processes.
40304 Dental Radiology for Dental Hygienists 1.0 h.
Radiographic techniques, radiation safety, processing and interpretation, equipment, and film storage.
40405 Clinical Dental Radiology for Dental Hygienists 2.0 h.
Supplemental clinical experience in taking dental x-rays, processing and interpreting film; second level credit.

Predoctoral
40510 Introduction to Diagnostic and Oral Radiology 1.0 h.
Materials and clinical and radiographic interpretation and recording, care of bone, and special appliances.
40515 Oral Pathology 1.0 h.
Diseases involving oral and maxillofacial region, second level credit.
40520 Preclinical Diagnosis and Oral Radiology 1.0 h.
Fundamental principles and techniques in diagnostic radiology, and clinical pathology required for clinical presentation, second level course.
40530 Systemic Disease Manifestations 1.0 h.
Clinical medicine for dental students based on information required for evaluation of patients.
40535 Clinical Oral Pathology and Diagnosis 3.0 h.
Diagnosis of dental diseases by clinical, laboratory, and radiographic methods. Clinical case evaluation, third level credit.
40540 Clinical Oral Radiology 3.0 h.
Advanced experience in imaging and interpretation, and oral and maxillofacial radiographic procedures, third level course.

Graduate
40600 Oral Pathology and Literature Review 1.5 h.
New diseases from a survey of health care journals.
40605 Maxillofacial Pathology and Oral Pathology 3.0 h.
Clinical medicine in diagnosis and managing patients with diseases.
40610 Physical, Laboratory, and Histopathological Features of Disease 3.0 h.
Dental and oral diseases and abnormalities, clinical pathology, reference.
40620 Surgical Oral Pathology 1.5 h.
Practical experience in ex-situ and in-situ, and student's oral and maxillofacial diseases. May be repeated. Consent of instructor required.
40625 Introduction to Surgical Oral Pathology 2.0 h.
Exposure to in-situ and in-situ, and student's oral and maxillofacial diseases. May be repeated. Consent of instructor required.
40626 Research in Oral Pathology and Diagnosis 2.0 h.
Interdisciplinary research in clinical medicine and basic sciences for diagnostic and therapeutic purposes.
40630 Introduction to Hematopathology 1.5 h.
Clinical diagnosis of hemopathological processes and oral and maxillofacial diseases that affect oral and maxillofacial regions. May be repeated. Consent of instructor required.

ORAL AND MAXILLOFACIAL SURGERY

Head: Robert A. Olson
Director of graduate education: Deborah L. Satterfield
Director of predoctoral education: Gerold F. Krueger

Clinical Directors: Leslie N. Hyla, James A. McLean, John C. Mondsberg
Adjunct Clinical Directors: C. E. Gehrke, Robert A. Olson, Dendrwh Wokks, Deborah L. Satterfield, Michael J. Butler, Kirk L. Fritsch, Gerold F. Krueger
Graduate degree offered: M.S. in Oral and Maxillofacial Surgery

The Department of Oral and Maxillofacial Surgery combines clinical and didactic training on an individual basis to fit the interests, abilities, and development of students. Its predoctoral program is based in the College of Dentistry, with some clinical assignments in the divisions of oral and maxillofacial surgery at The University of Iowa Hospitals and Clinics. Graduate degree based primarily in the residency training program at The University of Iowa Hospitals and Clinics.

Predoctoral Program

The predoctoral curriculum is designed to develop a foundation of preclinical knowledge, coupled with known surgical skills, to enable students to diagnose and manage surgical problems related to the practice of general dentistry. Emphasis is placed on the development of high ethical standards and developing good surgical concepts. Clearly defined and moral responsibility assumed for the surgical problems undertaken.
The clinical portion of the curriculum is designed to develop surgical skills and apply the theoretical knowledge acquired in the didactic courses. The theory and application of anesthesia, intravenous sedation, and nitrous oxide sedation techniques are presented through didactic and clinical experiences.

Graduate Programs

Residency Program

The residency program in oral and maxillofacial surgery provides preparation for specialty practice. It is designed to combine clinical and didactic training on an individual basis. Every effort is made to adapt the program to the interests, abilities, and development of individual students; however, it is essential that 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 carefully considered in planning the structure and scope of training.

The residency program covers four years of hospital training, providing an orientation to hospital procedures, instruction in basic and clinical skills, supervision and application of the principles of surgery, and familiarization with the various support services. Competence in clinical oral and maxillofacial surgery requires knowledge of the basic sciences and adequate clinical experience and 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 radiography, anesthesiology, physical diagnosis, and laboratory procedures.

The assumption of increased responsibility and the opportunity for clinical and operating room experience are important supports of residency training.

Residents pass clinical training in anesthesia through an assigned rotation in the Department of Anesthesiology. Previous advanced training in physical chemistry, physiology, pharmacology, and pathology assures 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 third-year resident is assigned on a rotation basis 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 Master of Science degree may be completed during residency. The M.S. program is designed to allow the resident to extend his knowledge of oral and maxillofacial surgery to a higher level of specialization.

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 and be licensed to practice dentistry in the United States, and should be in the upper two-thirds of their graduating class.

Documents required include application for graduate oral and maxillofacial surgery; an applicant appraisal form from the applicant's references; transcripts; and letters of recommendation from the dean of the dental college from which the applicant graduated and from two professional references.

Interviews are not required but are strongly recommended.

Applicants are selected via matching program sponsored by the American Association of Oral and Maxillofacial Surgeons. Appointments are made after the match results are revealed and the staff elects to take official action. All appointments should be tendered on or before February 1 prior to their July 1 effective date.

The Office of Graduate Admissions sends admission forms to applicants. The forms must be completed for the Graduate College approximately by March 1.

Facilities

The University of Iowa Health Care 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.
Special facilities for research in biomechanics and craniofacial growth are available. 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.S.S. degree or its equivalent, and satisfaction of Graduation College requirements.

The 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

Predoctoral

Orthodontics

Predoctoral Program

The purpose of the predoctoral program is to provide the general practitioner of dentistry to recognize, diagnose, and treat with competence simple 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 sponsors 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.

Satisfactory completion of a 25-month period of intensive study, including lecture courses, seminars, clinical practices, and a research paper, qualifies students for the Certificate of Orthodontics. If students selectively 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 is the department.
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 Education 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, 30 percent to didactic courses and practice teaching, and 20 percent to original research.

The program includes a core of didactic, clinical, and research-oriented courses supplemented by elective selections determined by student interests. Development of a minor subject area is recommended.

Close association with the Department of Pediatrics in the College of Medicine and with the University Hospital School and the University of Iowa Hospitals and Clinics permits emphasis on oral rehabilitation under general anesthesia, instruction in physical diagnosis, and management of developmentally disabled children.

Research Opportunities

Research carried out by faculty and graduate students in pediatric dentistry has been supported regularly for national awards and journal publications. Clinical and laboratory research projects contribute to progress, with financial support from federal agencies and other sources. Significant contributions have been made in the areas of cariology, dentistry for handicapped persons, fluoride therapy, and child behavior management.

Faculty

Faculty members hold numerous national and state offices, committee memberships, consultative, and honor 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. Five of the faculty are diplomates of the American Board of Pediatric Dentistry.

Financial Aid

Stipend support is available to qualified students through a grant from the Office for Governmental Affairs, Bureau of Community Health Services, Department of Health and Human Services.

Admission

Prospective students visit apply for admission either to the Graduate College or Program.

Courses

Predoctoral

99-110 Pediatric Dentistry Diagnosis and Treatment

Concepts of growth and development, behavior management, and prevention emphasizes for pediatric patients.

99-110 Clinical Pediatric Dentistry

Comprehensive clinical management of pediatric patients.

99-110 Clinical Seminar in Pediatric Dentistry

The course of patient management, case histories, treatment philosophies, and other topics in contemporary dentistry for children.

Graduate

99-210 Advanced Intraoral Pediatric Dentistry

Theories and diagnosis in pediatric dentistry, including growth and development, behavior management, prevention, principles of training, and specific patient care in practice.

99-220 Research in Pediatric Dentistry

Research design and comparison of original research projects, with results presented in publishable form.

99-231 Theriogenology

Preparation of original research projects and completion of written work.

99-240 Advanced Clinical Pediatric Dentistry

Comprehensive clinical management of pediatric patients in areas of prevention, orthodontics, operative therapy, endodontics, and caries control.

99-250 Physical Diagnosis for Pediatric Dentistry

Preparation of a comprehensive evaluation of the child.

99-260 Pediatric Dentistry for Dental Hygienists

Principles of therapy in various disease conditions.

99-270 General Anesthesia Rotation

One-week rotation through the anesthesia service at the University of Iowa Hospitals and Clinics, emphasis on pediatric cases.

99-280 Preventive Teaching in Pediatric Dentistry

Observation and practice in current teaching techniques.

99-290 Pediatric Dentistry Case Review

Diagnosis and treatment planning for oral health care, particularly those with growth and development problems.

Periodontics

Head: Philip A. Lothian

Associate professors: Paul J. Collins, William R. Higby, Barry F. Vaslow

Assistant professors: James B. Cauley, Allen J. Spier

Adjunct clinical assistant professors: Steven H. Cooper, Alan P. Popper

Assistant in instruction: Nancy A. Bach

Graduate degree offered: M.S. in Periodontics

Predoctoral Program

The department of Periodontics is concerned with the diagnosis, treatment, and prevention of periodontal diseases. The predoctoral program combines didactic, laboratory, and clinical experience, with emphasis on applying the biological concepts of periodontology to the comprehensive clinical management of patients who have periodontal diseases.

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 includes writing and oral examination in cumulative comprehensive written and oral examinations.

Completion of the program requires a minimum of 24 calendar months of full-time study.

Ad Hoc Interdisciplinary Ph.D. Program

Under Graduate College regulations, proposals for interdisciplinary doctoral programs of study may be developed. The Graduate College grants final approval of such individual programs. The Department of Periodontics assists in developing individual doctoral programs designed to train dentists for careers in teaching and research in periodontal diseases. The programs that include the Institutional Dental Scientific Program are interdisciplinary with the basic sciences.

Certification

The certification program provides a sound foundation for the clinical practice of periodontics and may be combined with the 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...
Courses

Predoctoral

84232 Principles of Dentistry 3 s.h.
Introduction to the scientific principles which underlie the practice of dentistry.

84240 Resinbonded Prosthodontic Technique Seminar 2 s.h.
Techniques for the construction of complete and removable partial dentures.

84241 Resinbonded Prosthodontic Technique Laboratory 2 s.h.
Laboratory instruction in construction of complete and removable partial dentures.

84242 Fixed Prosthodontic Technique Seminar 2 s.h.
Teaching of fixed prosthodontics, including laboratory techniques and biological considerations.

84243 Fixed Prosthodontic Technique Laboratory 2 s.h.
Teaching of laboratory techniques for construction of fixed prosthodontics.

84244 Removable Prosthodontic Clate 2 s.h.
Teaching of clinical and laboratory techniques for the construction of removable partial prosthodontics.

84245 Removable Prosthodontic Seminar 1 s.h.
Teaching of clinical and laboratory techniques for the construction of removable partial prosthodontics.

84250 Fixed Prosthodontic Clinical Practice Seminar 1 s.h.
Teaching of clinical and laboratory techniques for the construction of fixed prosthodontics.

Graduate

84255 Fixed Prosthodontic Seminar I 1 s.h.
Applications of fixed prosthetic procedures, research literature.

84256 Fixed Prosthodontic Seminar II 1 s.h.
Applications of fixed prosthetic procedures, research literature.

84257 Fixed Prosthodontic Seminar III 1 s.h.
Applications of fixed prosthetic procedures, research literature.

84258 Fixed Prosthodontic Seminar IV 1 s.h.
Applications of fixed prosthetic procedures, research literature.

84259 Advanced Topics in Prosthodontics 2 s.h.
Advanced topics in prosthodontics.

84261 Practice Teaching Prosthodontics 3 s.h.
Clinical supervision for residents.

84262 Advanced Clinical Fixed Prosthodontics 3 s.h.
Teaching of clinical and laboratory techniques for the construction of fixed prosthodontics.

84263 Advanced Clinical Partial Prosthodontics 3 s.h.
Teaching of clinical and laboratory techniques for the construction of removable partial prosthodontics.

84264 Advanced Clinical Partial Prosthodontics 3 s.h.
Teaching of clinical and laboratory techniques for the construction of removable partial prosthodontics.

84265 Advanced Clinical Partial Prosthodontics 3 s.h.
Teaching of clinical and laboratory techniques for the construction of removable partial prosthodontics.

84266 Advanced Clinical Partial Prosthodontics 3 s.h.
Teaching of clinical and laboratory techniques for the construction of removable partial prosthodontics.

84270 Research in Prosthodontics 1 s.h.
Applications of research in prosthodontics.

84271 Thesis Preparation in Prosthodontics 2 s.h.
Preparation and defense of thesis.

84272 Research in Prosthodontics 2 s.h.
Applications of research in prosthodontics.

84273 Research in Prosthodontics 2 s.h.
Applications of research in prosthodontics.

84274 Research in Prosthodontics 2 s.h.
Applications of research in prosthodontics.

84275 Research in Prosthodontics 2 s.h.
Applications of research in prosthodontics.

84276 Research in Prosthodontics 2 s.h.
Applications of research in prosthodontics.

84277 Research in Prosthodontics 2 s.h.
Applications of research in prosthodontics.

84278 Research in Prosthodontics 2 s.h.
Applications of research in prosthodontics.

84279 Research in Prosthodontics 2 s.h.
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84286 Research in Prosthodontics 2 s.h.
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84287 Research in Prosthodontics 2 s.h.
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84292 Research in Prosthodontics 2 s.h.
Applications of research in prosthodontics.

84293 Research in Prosthodontics 2 s.h.
Applications of research in prosthodontics.

84294 Research in Prosthodontics 2 s.h.
Applications of research in prosthodontics.
College of Education

Counselor Education 301
Curriculum and Instruction 304
Planning, Policy, and Leadership Studies 324
Psychological and Quantitative Foundations 201

Interim dean: Lowell A. Schoen
Associate dean emeritus: Lauren A. Van Dyke
Associate dean: Gary P. Hansen
Department, Center: Belknap National Center for Gifted Education: Nicholas C. Colangelo
Director, educational placement: Judith O. Headland
Director, Iowa Testing Program: Leonard S. Paetzel
Degrees offered: B.A., B.S., M.A.T., M.A., M.S., Ed.S., Ph.D.
The nation's first university-level professional chair in education was established at The University of Iowa in 1872. The department became the School of Education in 1897, and the College of Education, structures in the basic pattern that governs it today, was founded in 1913. The growth of the college has contributed 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 contributions in the fields of educational testing and measurement. They 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 distinct computer education programs: instruction, planning, policy, and leadership studies, and psychological and quantitative foundations.

It is accredited by the National Council for Accreditation of Teacher Education (NCATE) through the doctoral degree for the preparation of elementary and secondary teachers and other professional school personnel. Teacher preparation programs are reviewed and approved by the OWR Department of Education.

Teacher Education Programs

The College of Education at The University of Iowa offers a graduate-level teacher preparation program. The graduate-level teacher preparation is called the Master of Education (M.Ed.), which is designed for students who hold a bachelor's degree and are interested in teaching at the secondary or post-secondary level.

The program is designed for students who wish to pursue a career in education, either as a classroom teacher or as a school administrator. The program provides a comprehensive understanding of educational theory, research, and practice, while preparing students for successful teaching careers.

Undergraduate Admission to Teacher Education Programs

Undergraduate applicants to The University of Iowa who are interested in becoming teachers should indicate their interest in the College of Education major or their interest in a secondary-level teaching endorsement program on the application for admission. Students already enrolled at the University who wish to enter a teacher education program and who meet eligibility requirements should submit an application to the College of Education, Office of Student Services, EN10 Lindquist Center.

Application Deadlines

The deadline for application to the teacher education program is July 1. Applicants who do not meet the deadline may submit applications by either November 1 or April 1 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:

Be admitted to The University of Iowa as a degree candidate.

Completed the American College Test (ACT) or the Scholastic Aptitude Test (SAT).

Attained a minimum composite (combined 3600 score) prior to the semester during which enrollment is made in the foundations of education sequence of courses.

Achieved a 2.5 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.

Honor in Education Honors Opportunities Program

The College of Education Honors Opportunities Program is open to seniors and juniors 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: 75-hour Honors Seminar in Education; research mentorship with optional credit; and a student teaching program including classroom observation and social activities.

The Honors Opportunities Program is housed in the Grinnell National Center for Gifted Education.

Graduate Admission to Teacher Education Programs

Graduate students who have completed a bachelor’s degree may be admitted to a teacher preparation program in one of two ways:

1. 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 (MAT) 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 2.70 on undergraduate work and a cumulative grade-point average of not less than 3.50 on graduate work in the Teacher Education Program.

2. They may apply to the College of Liberal Arts as postbaccalaureate students with minor 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 procedures and must meet the general requirements stated in the undergraduate admission section. Application deadlines are the same as those for undergraduates.

Student Teaching

The final phase of the teacher education program is the professional semester, designed to supervised student teaching and directed observation in a variety of situations. Periodic conferences provide for discussion and evaluation of student teachers' experiences. The student teaching requirement may not be met by transfer credit unless unusual circumstances permit.

Admission to the senior year student teaching semester requires separate application. Applications must be submitted by March 15 of the academic year prior to the semester during which the student teaching is to be completed to the Office of Student Affairs, EN10 Lindquist Center. Opportunities for overseas and urban student teaching experiences are available. Applications to student teaching programs are evaluated.

Admission to student teaching requires 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 may be modified by the college and program area.
teaching in an urban setting may apply through completion of practicums or field experiences. Popular options for urban student teaching include the CTTE Program (Cooperating Teacher Experience). This option is used by 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–Stevens Point in England, Scotland, Wales, and Australia. In most locations, students are housed and paid by the on-site coordinator. Interested students must meet the regular requirements for student teaching and must have the approval of their advisor and the appropriate division chair. Overseas assignments are for eight weeks. Secondary education students are required to complete a full semester in a U.S. assignment before student teaching overseas during a second semester.

Elementary education students compete eight weeks in a U.S. assignment and eight weeks overseas during one semester.

**State Requirements**

All students seeking an Iowa teaching certificate must complete a course in human relations. This requirement can be met by successful completion of HED 201: Human Relations for the Classroom Teacher.

**Teacher Education Minor**

Applications to a teacher education program in preregistration to graduation for most College of Education undergraduate courses. However, the College of Education does outline minor students interested in being better informed about education. This must be submitted by a minor to the appropriate personnel at the local level of education. Students who are not sure about a minor who would need to request future career objectives. Minors are general education, science education, human relations, and educational psychology. Descriptions of these minors are available in the Office of Student Services.

**Teaching Certification Services**

The Iowa Board of Educational Examiners issues teacher, support service, and administration certificates on the recommendation of Iowa colleges and universities where programs have been approved by the Iowa Department of Education. All University of Iowa programs have been approved by the Iowa Department of Education.

Other states have different certification requirements that are some of the most competency testing. Many states require provisional certificates to graduate of

Higher Education—MA., Ed.D., Ph.D.; Social Foundations of Education—MA., Ph.D.


**Master of Arts in Teaching**

The M.A.T. program is a 30-semester-hour (minimum) non-thesis program designed for academically superior liberal arts graduates who completed few or no professional education courses in their undergraduate program. Requirements are listed in the Curriculum and Instruction section of the Catalog.

The program is to a master's degree and certification as a secondary teacher in the field of English, foreign languages, home economics, education, or science education. A grade-point average of at least 3.0 on undergraduate course work is required for admission. At least 18 semester hours of graduate course work is the student's teaching field must be completed. A minimum of 24 semester hours of graduate work in education must be taken to satisfy certification requirements.

**Master of Arts**

The College of Education offers a Master of Arts degree in two without thesis. The requirements for the Master's program provide more advanced coursework work or does the master's program. The master's program is a 30-semester-hour terminal, masters or graduate work is admitted to a Ph.D. program must be accepted to serve because of the emphasis on written and research skills to their ability and interest in 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 33 semester hours required for the degree, at least 24 must be carried 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 non-thesis programs are available for students in science education. The non-thesis requirements are similar to those for the Master of Arts degree, post-baccalaureate program designed for
An executive planning board of practicing school psychologists is directed and guided by programming activities. Management and planning are coordinated by faculty members of the Division of Planning, Policy, and Leadership Studies. Graduate activities provide an excellent opportunity for school administrators and College of Education faculty and students to interact and exchange ideas, experiences, and research information on a variety of topics.

Research Support
The Cooperating Schools Program has been a service of the College of Education since 1972. The program acts as a clearinghouse for University faculty and students, providing research, coordination and class projects with school districts willing to participate in the program. Applicability of research from University faculty or students to contact projects using students and staff from schools in Iowa and Illinois are processed each year. The dean's office supports services for faculty research, development, and acquisition of grants and coordinates such efforts with the University's Division of Sponsored Programs.

Special Resources
The School Program for Emotionally Disturbed Children's program in the field of special education is in psychiatric hospital. Outliers attending this school will be closely monitored by the school. The program is supported by the Psychiatric Hospital. Opportunities are available at the Department of psychology and practice experience in school psychology.

The University Counseling Service provides services to students in counseling psychology. University Hospital School is a University-affiliated faculty and students, it strives to provide a viable balance of direct services to developmentally disabled professionals, interdisciplinary training activities for graduate and research, and programs in program development and effectiveness.

Financial Aid
Students interested in employment opportunities should contact the director of the College of Education. Special resources listed above should contact the department of each faculty and indicate their interest, 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 the fellowship and related employment opportunities. Inquiries should be addressed to the chair of the division or to

the director of the special program in which the student is interested. In our case, we provide service or achieve academic achievement phase of the doctoral program.

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. Students admitted to or pursuing any of the advanced degree programs offered by the College of Education are eligible to apply for enrollment. The assistantships are available for the academic year only and are renewable for a limited number of years. Holders are assigned to work while the direction of a faculty member in a research capacity and must be enrolled for at least two years or more than 12 semester hours per semester. All applicants must submit transcripts of all college work completed (undergraduate as well as graduate), letters of recommendation, and score on the Graduate Record Examination (GRE) General Test. The application must be filed on a special form from the office of the director of the Iowa Testing Programs, 314 Lindquist Center, The University of Iowa. The application deadline is March 1.

College of Education Student Loan Fund
The college's student loan fund was established to assist College of Education students who are faced with unexpected or unforeseen expenses while pursuing degree or certification programs. The borrower must be a senior or post-baccalaureate degree candidate seeking teacher certification, or a graduate student seeking an advanced degree or certification in the College of Education. He or she must have completed at least one semester 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.

Information and application forms are available from the director of college advancement, Educational Planning Office, NR2 Lindquist Center.

College of Education Awards
Awards are presented to outstanding graduate students in the College of Education in the spring semester meeting of the College faculty. The awards include:

• 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 Bonner-Hennessys Fellowship, awarded annually to a doctoral student in the field of educational measurement and statistics. Nominations have been solicited for at least one to two years in the graduate program at the University of Iowa. The award is based on academic performance and potential for the highest level of professional promise in the field of measurement and statistics. The additional stipend supplements the recipient's teaching or research assistance each year until graduation, in a minimum of three years.
• The John Lemmel Dennis Memorial 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 recognized professional journal or other substantial printed work.
• The Eugene McCreight Award, presented to the outstanding candidate for an advanced degree in educational administration.
• The Robert A. Miller Memorial Award, presented to an outstanding first-year M.A. graduate student in rehabilitation counseling.
• The Melvin N. Nichol Award, presented annually to a student completing the doctoral program in educational measurement and statistics. It goes to a third- or fourth-year student with at least a year of study remaining who has shown the most outstanding academic performance and potential for the highest level of achievement in research in this field.
• The award honors Professor Melvin N. Nichol (1932-1968) for his significant contributions to the field of educational measurement and statistics and for his devoted service to the arts and educational programs at The University of Iowa. The fund is established from income realized from sale of computer programs (CUM) developed by Professor Novak.
• The Paul C. Tucker Award, presented to the outstanding candidate for the Master's Degree in Education.
• The Philip J. Lynch Thesis Award—Senior, M.A., and Ph.D. level, 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 Percy Scholarship Award, presented to an outstanding student in writing who is expected to benefit the field in some direct way.
• The Franklin Stone International Student Award, presented to an outstanding international student pursuing a Ph.D.
COUNSELOR EDUCATION

Chair: Alvin H. Young

Professors: Patricia Caplinger, Richard Delten, Howard Flander, Jack Holley, Joanne K. Hoffmann, Susan Lipson, John H. Ohlman, J. Wayne Proctor, Carlene Smith, Charles Strong, and James S. Wurster

Associate professors: Carol D. Ash, Barbara Alabaster, and Cora Dunn

Assistant professors: Mary Beresford, Carol Cheshire, and William Brown

Instructor: Albert Schflauter, Edith Bowles, and Jerrold Brown

The Department of Counselor Education is primarily involved in the preparation of practitioners and scholars at the graduate level, through degree programs in counselor education, rehabilitation counseling, and human development. Substance abuse counseling, and family and marital therapy. The division also offers basic courses in interviewing and interpersonal skills for students in other professional and graduate programs, as well as for undergraduates.

Admission

Detailed information on admissions and program requirements is published in the "Programs for Advanced Degrees," available from the Division of Counselor Education.

All applicants to the Master of Arts, Education Specialist, and Doctor of Philosophy degrees 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.

There are no set committees to review admissions, and the applicant's qualifications will be evaluated on a case-by-case basis.

Conditional Admissions

Applicants who do not meet the minimum requirements for regular admission consideration may be admitted on a conditional basis, if the faculty determines that there are strengths and promises warranting conditional status. The following are considered conditions:

M.A. Level—students must complete 12 semester hours of core courses (approved by an advisor) over two consecutive semesters, with a minimum cumulative grade-point average of 3.0.

Ph.D. Level—students must complete 12 semester hours of core courses (approved by an advisor) over two consecutive semesters and earn a cumulative grade-point average of 3.2.

Maintaining Candidacy

All graduate students must meet the knowledge standards to maintain their candidacy at each degree.

Maintain a necessary grade-point average level in a systematic manner: M.A.—3.00, M.Ed. and Ph.D.—3.25, Ph.D.—3.50.

Successfully complete practicum, internships, or equivalent professional experience.

Maintain professional behavior consistent with the American Association for Counseling and Development's code of ethics, and any additional code of professional ethics adhered to by the agency to which he or she is assigned.

Demonstrate progress toward the degree through successful completion of hours specified in the curriculum plan; progress toward the degree requires active registration in each semester; exceptions may be approved by the advisor.

The academic and professional progress of decision students is reviewed annually.

Foreign Students

Foreign students also must provide a Test of English as a Foreign Language (TOEFL) score with their application. Typically a score of 50 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

If a student is found to have met the minimum requirements for admission, final decisions are made by faculty committees. Additionally, some programs may have specific admission requirements due to certification standards. For example, a teaching certificate is required for students pursing certification in school counseling. Any special admission requirements are listed with individual programs.
Probational Status
M.A. students who earn an overall grade-point average lower than 3.09 and Ph.D. students who earn a grade-point average lower than 3.30 are not on probational status. Students on probational status have two consecutive semesters to raise their grade-point average. If that requirement is not met, the student may be removed from the program. Each student is allowed one probationary status during his or her program of study.

Application Deadlines
Deadline for the M.A. and Ed.S. programs are June 1 for fall semester; November 1 for spring semester; and March 1 for fall semester. The Ph.D. program deadline is March 1 for fall semester.

Applications must be complete before they will be reviewed. Applicants are responsible for providing a complete application dossier. Application forms are available from the Division of Counseling Education, NSHE Administration, 2001 North Dakota State University, Box 90136, Fargo, ND 58108-90136. Application fee is $45. No application will be considered if the application fee is not paid. Applicants are notified in writing immediately after admission applications have been reviewed. Applicants who are accepted must reply in writing in order to maintain their admission status.

Graduate Programs
Student Development in Postsecondary Education

Master of Arts
The M.A. program provides preparation for college positions in admissions, student activities, financial aid, student unions, career planning and placement, residence halls, foreign student services, community college counseling, adult and continuing education, and external degree programs. With experience, it is a foundation for positions as student deans and college deans.

No specific program of undergraduate study or work experience is required for admission to the M.A. program. A personal interview is desirable, but not required.

Specialist in Education
The Ed.S. program provides special education preparation in college student development beyond the master's level for persons planning to enter doctoral study. It helps prepare candidates for positions such as associate dean or dean of students in a small college, or as a director of admissions, student activities, financial aid, a student union, career planning and placement, residence halls, foreign student services, community college counseling, adult continuing education, or external degree programs.

Doctor of Philosophy
The Ph.D. program provides preparation for positions such as counselor education, research, and as a director of admissions, student activities, financial aid, a student union, career planning and placement, residence halls, foreign student services, community college counseling, adult continuing education, or external degree programs.

The M.A. thesis or its equivalent is not required 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 represent evidence of ability to do research.

Rehabilitation Counseling

Master of Arts
The M.A. program (accredited by the Council on Rehabilitation Education) provides preparation for work in state rehabilitation agencies, rehabilitation facilities, rehabilitation centers, private rehabilitation agencies, mental hospitals, prisons, and in other public and private agencies concerned with the rehabilitation of adults.

Doctor of Philosophy
The Ph.D. program provides preparation for leadership in rehabilitation counselor education, research, and service programs in universities, agencies, and programs in public institutions and the private sector.

Applicants who have recently graduated from an M.A. program in rehabilitation counseling and who have had at least one year of full-time work experience in rehabilitation counseling are not considered. Successful work experience is highly desirable and enhances the application.

Ph.D. in Rehabilitation Psychology—M.A.

The Ph.D. program is intended to meet the needs of students who are primarily interested in working as professionals in institutional and clinical settings and who may be interested in becoming licensed psychologists. It also prepares students for teaching, research, and service in academic, industrial, and other institutional settings, both public and private. This 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 will not be considered unless they have at least one year of full-time, paid work experience in the field of rehabilitation counseling or the completion of their M.A. program.

Counseling and Human Development

Certification
Applicants with a master's degree in counseling or a related field, elementary or secondary school teaching certification, and at least one year of successful teaching experience may apply for certification only in school counseling. Counseling and guidance directors in local school districts in the state of North Dakota, as well as the state Department of Education, have authority over the certification process. Certification procedures are in place for certifying elementary school counselors (K-8) and secondary school counselors (7-12). Postsecondary counselor certification only is available for applicants with master's degrees and postsecondary teaching certificates.

Master of Arts
The M.A. program, accredited by the Council of Accreditation of Counseling and Related Educational Programs (CACREP), provides preparation in counseling in a variety of school settings.

Specialist in Education
The purpose of the Ed.S. program is to enable school counselors and counselor educators to enhance their competence beyond the master's level.

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—M.A.

The purpose of the M.A. program in substance abuse counseling is to prepare individuals to function in a wide variety of community counseling settings. The emphasis is on individual, group, and family counseling.

Marital and Family Therapy—Ph.D.

This doctoral program is designed to prepare students with knowledge and advanced counseling skills in the areas of marital and family therapy. Graduates are prepared to provide leadership in this field as researchers, teachers, supervisors, and clinicians.

Facilities
A wide variety of counselor education professorial experiences is available in neighboring community agencies, schools, and colleges, as well as throughout the University.
Financial Aid

Depending on federal funding, graduate fellowshipships may be available for students entering rehabilitation counseling. Many other graduate schools in the Division of Counselor Education hold a wide variety of graduate assistantships. For example, many of the Sloan's student service units award part-time assistantships to graduate students in the division. Applicants for assistantships should contact the program coordinator for more information on the particular coordinator fellowship program they plan to enter.

Courses

TCD 100 Talking to Kids about Education

2 a.b.

TCD 105 Developing Academic and Social Skills in Children with Exceptional Needs

2 a.b.

TCD 110 Human Sexuality

1.5 a.b.

TCD 115 Cultural Diversity in Health Settings

1.5 a.b.

TCD 120 Planning for the Gifted

1.5 a.b.

TCD 150 School Psychology

1.5 a.b.

TCD 160 Introduction to Counseling: Life Span Development

1.5 a.b.

TCD 165 Introduction to Counseling: Psychology

1.5 a.b.

TCD 170 Group Work Principles

1.5 a.b.

TCD 180 Mindfulness in Counseling

1.5 a.b.

TCD 299 Education in School Counseling

1.5 a.b.

TCD 300 Counseling: Theory and Practice

1.5 a.b.

TCD 301 Counseling: Theory and Practice

1.5 a.b.

TCD 302 Counseling: Theory and Practice

1.5 a.b.

TCD 303 Counseling: Theory and Practice

1.5 a.b.

TCD 304 Counseling: Theory and Practice

1.5 a.b.

TCD 305 Counseling: Theory and Practice

1.5 a.b.

TCD 306 Counseling: Theory and Practice

1.5 a.b.

TCD 307 Counseling: Theory and Practice

1.5 a.b.

TCD 308 Counseling: Theory and Practice

1.5 a.b.

TCD 309 Counseling: Theory and Practice

1.5 a.b.

TCD 310 Counseling: Theory and Practice

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TCD 311 Counseling: Theory and Practice

1.5 a.b.

TCD 312 Counseling: Theory and Practice

1.5 a.b.

TCD 313 Counseling: Theory and Practice

1.5 a.b.

TCD 314 Counseling: Theory and Practice

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TCD 315 Counseling: Theory and Practice

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TCD 316 Counseling: Theory and Practice

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TCD 317 Counseling: Theory and Practice

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TCD 318 Counseling: Theory and Practice

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TCD 319 Counseling: Theory and Practice

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TCD 320 Counseling: Theory and Practice

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TCD 321 Counseling: Theory and Practice

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TCD 322 Counseling: Theory and Practice

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TCD 323 Counseling: Theory and Practice

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TCD 324 Counseling: Theory and Practice

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TCD 325 Counseling: Theory and Practice

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TCD 326 Counseling: Theory and Practice

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TCD 327 Counseling: Theory and Practice

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TCD 328 Counseling: Theory and Practice

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TCD 329 Counseling: Theory and Practice

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TCD 330 Counseling: Theory and Practice

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TCD 331 Counseling: Theory and Practice

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TCD 332 Counseling: Theory and Practice

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TCD 333 Counseling: Theory and Practice

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TCD 334 Counseling: Theory and Practice

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TCD 335 Counseling: Theory and Practice

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TCD 336 Counseling: Theory and Practice

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TCD 337 Counseling: Theory and Practice

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TCD 338 Counseling: Theory and Practice

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TCD 339 Counseling: Theory and Practice

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TCD 340 Counseling: Theory and Practice

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TCD 341 Counseling: Theory and Practice

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TCD 346 Counseling: Theory and Practice

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TCD 363 Counseling: Theory and Practice

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TCD 371 Counseling: Theory and Practice

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TCD 372 Counseling: Theory and Practice

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TCD 373 Counseling: Theory and Practice

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TCD 374 Counseling: Theory and Practice

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TCD 375 Counseling: Theory and Practice

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TCD 376 Counseling: Theory and Practice

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TCD 385 Counseling: Theory and Practice

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TCD 386 Counseling: Theory and Practice

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TCD 387 Counseling: Theory and Practice

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TCD 388 Counseling: Theory and Practice

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TCD 389 Counseling: Theory and Practice

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TCD 390 Counseling: Theory and Practice

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TCD 392 Counseling: Theory and Practice

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TCD 393 Counseling: Theory and Practice

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TCD 394 Counseling: Theory and Practice

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TCD 395 Counseling: Theory and Practice

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TCD 409 Counseling: Theory and Practice

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TCD 410 Counseling: Theory and Practice

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TCD 411 Counseling: Theory and Practice

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TCD 412 Counseling: Theory and Practice

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In order to be considered for admission, students must have completed a minimum of 30 semester hours of course work with a cumulative college grade-point average of 2.00. For some subject areas, additional criteria must be met. A limited number of applicants are accepted into each subject area TEP, so a 5.0 grade-point average does not assure admission. Admissions decisions are based on grade-point average in the major and other criteria relevant to teaching success.

If at any time after admission the student's grade-point average falls below 2.00, the student is placed on probation for one semester. If the 2.00 is not attained during the probationary period, the student is dropped from the TEP. Students should consult a College of Education advisor in their program area, or the Division of Curriculum and Instruction Office, N159 Lindquist Center, for more information on admissions criteria.

Graduate students who apply to the Graduate College for "certification only" or to an M.A. program so that they may apply to the teacher education program must obtain a letter of admission in their Graduate College application. This letter of admission must be submitted to the Graduate College of Education by 18 months prior to the beginning of the semester in which the teaching assistant is to begin.

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 and other criteria relevant to teaching. Upon submission to the Graduate College, students are assigned to a TEP program.

Admission to Student Teaching
Admission to the TEP permits students to take certain courses in Education courses and requires a 2.50 cumulative grade-point average. Admission to the student teaching semester, however, requires a separate application and verification of each student's credentials and progress to ensure that the student is capable of placement in the profession. Verification that the student meets the grade-point standards established by their program area is initiated by the Division of Curriculum and Instruction Office for more information about the admissions process and requirements for student teaching in their certification program.

Elementary Education
Foundation Courses
These courses must be completed before any methods courses are begun.

ED 110 Pre-education Practicum. Elementary Education 2 s.h.

ED 120 Introduction: Elementary and Early Childhood Teaching 3 s.h.

ED 190 Educational Psychology and Measurement 3 s.h.

Three methods courses should be completed before methods courses are begun. Students must be admitted into the TEP by the 1st semester of their 1st year of study in order to be considered for admission.

ED 901 Audition: Elementary School Conducting 1 s.h.

ED 902 Introduction to Microcomputer Use for Teachers 1 s.h.

ED 903 Special Area Students in Elementary School 3 s.h.

ED 912 Methods Courses
Three courses must be taken:

ED 123 Literature and Children 2 s.h.

ED 146 Methods: Elementary School Language Arts 3 s.h.

ED 154 Methods: Elementary School Reading 3 s.h.

ED 164 Methods: Elementary School Social Studies 2 s.h.

ED 172 Methods: Elementary School Science 2 s.h.

ED 184 Methods: Elementary School Mathematics 2 s.h.

ED 185 Mathematics, Science, or History 1 s.h.

ED 187 Music and Materials: Music for the Classroom Teacher 2 s.h.

ED 188 Methods and Materials: Art for the Classroom Teacher 2 s.h.

ED 277 Methods and Materials: Physical Education for the Elementary Teacher 2 s.h.

ED 312 Methods and Materials: Health Education for the Elementary Teacher 2 s.h.

ED 322 Methods and Materials: Art for the Classroom Teacher 2 s.h.

ED 334 Parent-Teacher Communication 1 s.h.

ED 369 History and Philosophy of Education 3 s.h.

ED 409 Development and Administration of Child Care Centers 3 s.h.

ED 426 Supervised Teaching Elementary School 7 s.h.

* Either ED 120 or ED 122 may be taken as part of the elementary major.

Students seeking teacher education or endorsements in other areas must assume the responsibility of determining what extra requirements have to be met. Addresses for those state certification offices are available in the College of Education Student Services Office, N159 Lindquist Center.

Secondary Education
Undergraduate students seeking secondary education degrees are required to complete the requirements for the Bachelor of Arts, Bachelor of Science, or Bachelor of General Studies degree in the
College of Liberal Arts section of the Catalog

Graduate students may be admitted to a program leading to teaching 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 seek teaching certification by pursuing an M.A.T. degree in English education, home economics education (must be completed by May 1991), foreign language education, or science education.

Certification requires a major of at least 30 semester hours of course work in a subject area and satisfactory academic standing. Course requirements for each major are available in the Division of Curriculum and Instruction Office, NS99 Lindquist Center. Candidates for secondary school teaching 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 presented in the following areas:

Art

- Coaching
- Communication studies (speech, communication/theatre arts)

English

- Foreign languages—Spanish, French, German, Russian, Latin, Chinese, and Japanese

- Health education

**Home economics

- Journalism

Mathematics

- Music

Physical education

- Psychology

Science, including general science, physical sciences, chemistry, physics, and earth science

Social science, including anthropology, economics, geography, history, political science, psychology, and sociology

- Sociology as an additional approval area only. A major in another subject area is required for certification.

- The home economics program will be closed after May 1992. Only students who can complete their home economics courses by that date may enter the secondary school TEP in home economics.

An Iowa secondary teaching certificate qualifies holders to teach in grades 7-12. Students planning to teach art, music, or physical education typically complete a program that prepares them for both elementary and secondary-level certification.

Secondary teacher preparation programs in several other subject area also offer a program that leads to certification as a subject matter specialist in grades K-8. This K-8 certification is available only in the same subject area as the secondary certification. Mathematics and science education require completion of the elementary subject certification. Completion of the elementary specialist certification is highly recommended for foreign language education.

Candidates are encouraged to obtain more information and the name of an advisor from the Curriculum and Instruction Office, NS99 Lindquist Center.

Requirements

Undergraduate candidates for certification to teach in secondary schools may complete requirements by taking 24-36 hours in the major and 3-6 hours in minor areas.

Out core from 250-299: Introduction to Teaching (a specific subject area, except science education)

- 75-100 Issues in Education
- 175-177 Educational Psychology and Measurement
- 175-178 Human Relations for the Classroom Teacher

One or more methods of teaching courses in the major and

- 3-6 hours

Competency in content-based education (CBE) only be met by taking 795-290 Introduction to Microcomputing for Teachers, by examination, or by completing a CBE course or module in the subject area.

Studies teaching

- 12 hours

With an advisor’s approval, a graduate student may elect optional graduate courses in lieu of 795-299, 75-100, 75-102, and 75-103. Students must complete the methods courses in their major teaching fields before student teaching.

All students must be enrolled in a graduate division.

Secondary, Special Education

A limited number of assistantships are available for graduate students pursuing advanced degrees. Assistantships may be awarded to any student who can demonstrate experience and ability in the teaching area. Assistantships may range from $1000 to $3000 per semester. Graduate students with assistantships must register for a minimum of 9 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 dean’s office.

Students may be admitted to the Graduate College for the purpose of obtaining one or more teaching certifications in special education. For course requirements, see specific programs listed for the Master of Arts under “Special Education” in this section of the Catalog. A list of minimum requirements under “Special Education.”

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 field experiences, and some involve teaching sections of undergraduate methods courses and supervising student teachers. Most assistantships are classified as one-half year. This classification permits students to register for a maximum of 12 semester hours at credit per semester. Graduate students with assistantships must register for a minimum of 9 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 dean’s office.

Secondary, Special Education

A limited number of assistantships are available for graduate students pursuing advanced degrees. Assistantships may be awarded to any student who can demonstrate experience and ability in the teaching area. Assistantships may range from $1000 to $3000 per semester. Graduate students with assistantships must register for a minimum of 9 semester hours per semester. Assignments vary.

Some involve teaching undergraduate courses or supervising practicum experiences. Experience and ability in the teaching area are used to determine eligibility.
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 non-thesis options.

Admission

Students must meet the general admission requirements of the Graduate College and have an undergraduate grade-point average of 2.50. Students must have a valid prekindergarten/paraprofessional or elementary endorsement or equivalent.

Non-native students must have a TOEFL score of at least 550 to be eligible for admission; those with scores of 500 to 600 are admitted conditionally and must sit for 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

TE 110 History and Philosophy of Early Childhood Education 3 s.h.
TE 119 Development and Administration of Child Care 3 s.h.
TE 216 Building Foundations for Reading (Preprimary and Primary) 3 s.h.
TE 227 Curriculum Development in Early Childhood (4-5 Years) 3 s.h.
TE 226 Curriculum Development in Early Childhood (0-3 Years) 3 s.h.
Total: 15 s.h.

Related Courses

One of these (or an approved substitute):
TP 206 Advanced Child Development 3 s.h.
31124 Cognitive Development of Children 3 s.h.
One of these:
TP 114 Parent-Child Relationships 3 s.h.
TP 214 Parent-Teacher Communication 3 s.h.
TP 233 Consultation Theory and Practice 3 s.h.
Total: 5-6 s.h.

Areas of Specialization

Curriculum

Students must complete at least 11 semester-hour credits in chosen areas, including at least one area of two content areas such as reading and/or language arts, mathematics, science, social studies, music, art, children's literature, and human relationships. The following are areas of specialization.

Human Relationships

Four of these:
TU 123 Exceptional Persons 3 s.h.
226 Guidance of Student Teachers and Auxiliary Personnel 2-3 s.h.
17114 Parent-Child Relationships 5 s.h.
1134 Parent-Teacher Communication 3 s.h.
Total: 10-12 s.h.

Community College Teaching

All of the following must be completed for the endorsement Post-Secondary Certification for Arts and Sciences.
TH 111 The Community College 2-3 s.h.
TH 102 Curriculum Development in Community College and Health Careers 3 s.h.
TH 210 Seminar in Social Policy Development 1-3 s.h.
TH 215 Pre-High School Staff Development Workshop 0-2 s.h.
TH 232 Teaching of Adults 3 s.h.
TH 234 College Teaching Internship 3 s.h.
TH 234 Introduction to Educational Measurement 3-4 s.h.

Counselling

TP 121 Introduction to Marriage and Family Counselling and Psychotherapy 3 s.h.
TP 126 Microeconomics 3 s.h.
TP 130 Group Process for Related Professions 3 s.h.
TP 222 Interventions for Primary Prevention in the Schools 3 s.h.
TP 283 Consultation Theory and Practice 3 s.h.
Total: 12-15 s.h.

Social Work

42-45 Organization and Community Practice 3 s.h.
42-46 Family Violence 3 s.h.
42-80 Social Policy and Interdisciplinary Systems 3 s.h.
Total: 12 s.h.

Thesis/Research

TP 130 Introduction to Statistical Methods 3 s.h.
TP 130 Introduction to Educational Measurement 4 s.h.
TP 225 Field Service Project 3 s.h.
Total: 6 s.h.

Comprehensive Examinations

All students take one written examination in general early childhood education. Synthesis students take a second written examination in their selected 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 teacher preparation of prekindergarten/paraprofessional or to any other teacher endorsement, with the exception in postsecondary certification. All of the required courses in this 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 teachers, grade level or subject area supervisor, or curriculum consultant, to 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. Graduates students who have not completed an undergraduate program in elementary education must be admitted initially as "certification only" students.

Requirements

The thesis option requires 36 semester hours of credit; the nonthesis option requires 34 semester hours, must be taken by University of Iowa residents, with 8 semester hours completed or completed on credit. Course work for the requirements of this program is the same as the above.

Funding and Educational Psychology

Two of these (4.5 s.h.):
TE 102 History of American Education 3 s.h.
TP 117 Philosophy of Education 2-3 s.h.
TP 130 Educational Sociology 2-3 s.h.
Total: 7.5-9.5 s.h.

Research and Curriculum

One of these (7.5 s.h.):
TP 204 Seminar: Current Issues and Research in Elementary Education 4 s.h.
TE200 Design and Organization of Curriculum 3 s.h.

Instructional Improvement 3 s.h.

Three of these (9 s.h.): 3 s.h.

TE204 Literature for Children I 3 s.h.

TE205 Supervision of Elementary School Language Arts 3 s.h.

TE206 Supervision of Elementary School Social Studies 3 s.h.

TE202 Advanced Techniques of Teaching Science in the Elementary School 3 s.h.

TE205 Supervision of Elementary School Mathematics 2-3 s.h.

TE204 Building Foundations for Reading: Preparatory and Primary 2-3 s.h.

TE205 Supervision of Intermediate Grade Reading 2 s.h.

TE207 Curriculum Development in Early Childhood (0-3 Years) 3 s.h.

TE206 Curriculum Development in Early Childhood (3-5 Years) 3 s.h.

TE209 Supervision of Students: Teachers and Auxiliary Personnel 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 below.

Electives

From 0 to 5 semester hours of credit in courses chosen with consent of the adviser.

Thesis

TE203 M.A. Thesis in Early Childhood and Elementary Education 2-3 s.h.

Comprehensive Examinations

The comprehensive examination consists of:

One three-hour examination. The examination will be based on the selected field of elementary education; the student can choose the content of the examination.

M.A. in Developmental Reading

This degree program prepares graduate students for positions as reading specialists in elementary 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 provides a background in reading for students who want to specialize further in the area and eventually 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 an undergraduate grade-point average of 3.00, 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, 35 without thesis, is required. The following courses are required of all candidates:

TP170 Introduction to the Psychology of Reading 3 s.h.

TP171 Reading Clinic: Teaching Techniques 3 s.h.

TP172 Reading Clinic: Teaching Prescriptions 3 s.h.

TE204 Building Foundations for Reading: Preparatory and Primary 2-3 s.h.

TE205 Supervision of Intermediate Grade Reading 3 s.h.

Either of the following courses:

TP194 Methods: High School Reading 3 s.h.

TP195 Developing Reading Skills in Secondary Schools 3 s.h.

Either of the following courses:

TP170 Introduction to Educational Measurement 3 s.h.

TP174 Diagnostic and Prescriptive Approaches to Reading Instruction I 1-3 s.h.

Either of the following courses:

TP204 Seminar: Secondary Reading 3 s.h.

TP205 Seminar: Research and Current Issues (Reading) 3 s.h.

One of the following courses:

TP110 Child Development 3 s.h.

TP121 Educational Psychology 3 s.h.

TP133 The Adolescent and Young Adult 3 s.h.

One of the following courses:

TE106 Curriculum Foundations 2-3 s.h.

TE211 Secondary School Curriculum 2-3 s.h.

TE205 Design and Organization of Curriculum 3 s.h.

TP206 Improving Instructive Practices in the Secondary School 3 s.h.

One of the following courses:

TE205 Supervision of Students: Teachers and Auxiliary Personnel 2-3 s.h.

TE206 Supervision of Students in Early Childhood and Elementary Education 3 s.h.

TE203 Master’s Degree Thesis 3 s.h.

MA Thesis: Thesis in Educational Psychology, Measurement, or Statistics

Students, in consultation with their adviser, may select the remaining hours as elective 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 the supporting areas. With the approval of 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 staff or departmental science specialists. The program may be taken with thesis (45-semester-hour minimum) or without (39-semester-hour minimum).

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 are required of all candidates:

TE2025 Science Education: Issues, History, and Resources 3 s.h.

TE2026 Science Education: Methodology and Nature of Science 3 s.h.

TE2027 Science Education: Teaching, Learning, and Current Issues 3 s.h.

TE2028 Advanced Techniques of Teaching Science in the Elementary School 3 s.h.

Science courses (18 semester hours) are selected by the candidate in consultation with the adviser. A series of application courses (50-100 Societal and Educational Applications of Earth and Environmental Sciences, 95-102 Societal and Educational Applications of Life Sciences, and 95-100 Societal and Educational Applications of Physical Sciences) are an integral component of the science courses. Candidates who have not taken comparable courses are expected to take two application courses. At least one corresponding science discipline course as a prerequisite is to be taken with the application courses. These courses, along with the electives (up to 6 semester hours), are determined in consultation with the advisor. All candidates for the Master of Science degree must satisfy the requirements for a basic science endorsement as outlined in the October 1986 Illinois Certification Rules.

Doctor of Philosophy

The doctoral program in educational administration prepares students for college and university teaching and research positions in educational administration, and for research, curriculum, supervisory, or administrative
Admission

Students 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, or a certificate to teach art. Applications must be accompanied by a representative portfolio of the candidate's work, consisting of eight slides reproductions of artwork and one example of a written work. The written work may be a super previously written for a course or it may be an original paper.\nn
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, curriculum and supervision, developmental reading, English education, foreign language education, home economics education, mathematics education, music education, physical education, school administration, and special education, and social studies education.\n
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.

M.A. 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 must apply for admission to the School of Art and Art History.

The purpose of the program is to prepare 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, or a certificate to teach art. Applications must be accompanied by a representative portfolio of the candidate's work, consisting of eight slides reproductions of artwork and one example of a written work. The written work may be a super previously written for a course or it may be an original paper.

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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 two-hour papers to be defined and limited by the student and an adviser when the plan of study is prepared.

M.A. in Curriculum and Supervision

The purpose of the program is to prepare 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 (15-20 s.h.):
- 75:186 Curriculum Foundations 2-3 s.h.
- 7F:117 Philosophies of Education (or its equivalent) 2 s.h.
- 7P:251 Educational Measurement and Evaluation 3 s.h.
- 7P:255 Construction and Use of Evaluation Instruments or 7P:150 Introduction to Educational Measurement

75:281 Junior High School and Middle School Curriculum 3 s.h.
7F:281 Secondary School Curriculum 3 s.h.
7E:300 Design and Organization of Curriculum 3 s.h.
7S:300 Instructional Strategies to Statistical Methods 3 s.h.

Cognates, in a subject field such as English:
Electives—selected in consultation with adviser 4-6 s.h.

Thesis, for students electing a thesis program
7S:300 Master's Degree Thesis 2-4 s.h.
Total 30-32 s.h.

Two three-hour comprehensive examinations, one in curriculum and one in a related field in education or in a cognate field, or three two-hour examinations.

Ph.D. in Curriculum and Supervision

This program is administered by the College of Education. It 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 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 (36-45 s.h.):
- 75:186 Curriculum Foundations 2-3 s.h.
- 75:281 Junior High School and Middle School Curriculum 3 s.h.
- 7F:281 Secondary School Curriculum 3 s.h.
- 7E:300 Design and Organization of Curriculum 3 s.h.
- 7E: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:257 Educational Measurement and Evaluation 3 s.h.
- 7P:255 Construction and Use of Evaluation Instruments or 7P:159 Introduction to Educational Measurement

75:293 Individual Instruction in Secondary Education (Practicum) 3-5 s.h.

A minimum of two research tools: typically statistics, data processing, research design, or foreign language 5-12 s.h.

Electives, to be chosen in consultation with an adviser:
Recommended Electives include: 7F:130 Educational Psychology 2 s.h.
- 7F:117 Philosophies of Education 2 s.h.
- 7F:131 Educational Psychology 3 s.h.
- 7F:152 Introduction to Psychology of Reading 3 s.h.
- 7T:297 Administrative Leadership Theory 4 s.h.
- 7F:152 Introduction to Instructional Design and Technology 3 s.h.
- 7T:130 Exceptional Persons 3 s.h.

All doctoral candidates are required to complete at least 8 semester hours of cognate work in related fields such as society psychology, political science.

75:405 Ph.D. Thesis 10-18 s.h.
Candidates take three three-hour comprehensive examinations in secondary school curriculum and two related fields in education, or in a cognate field.

M.A. in English Education

The program prepares apostles of English, department chairs, curriculum specialists for secondary schools, and teachers in English and Latin. Application should be made to the College of Education.

Admission

Students must meet the general requirements of the Graduate College. Hold a secondary school teaching certificate, and have acquired a minimum of 20 semester hours in English. Preferred application will have a composite score of 1000 on the verbal and analytical sections of the Graduate Record Examination (GRE). General Test. Students must maintain a 3.0 grade-point average while enrolled in the program.

Requirements

Students specialize in English education and one or two other areas. The other area(s) may be in literary field, junior high school teaching, curriculum, reading, writing, speech and drama, journalism, language development, literature for children, and adolescents. Students and their advisors plan the program of study. Nine semester hours must be earned in courses numbered 200 or above. Students take a comprehensive examination in English education and in their chosen area(s).

M.A.T. in English Education

The M.A.T. degree program is designed for students who have an undergraduate degree in English and a minor in educational studies or professional education courses. Successful completion of this program enables students to receive certification as secondary school teachers of English.

Admission

Applicants must have a bachelor's degree in English and a minimum undergraduate grade point average of 3.0. Those who are in a certification program, candidates must have completed the certification program. Applicants are expected to have no more than 5 semester hours in coursework in professional education courses prior to admission.

Requirements

Students must complete a minimum of 45 semester hours. This includes at least 18 semester hours of educational courses, offered by the Department of English, supplemented by the adviser to supplement the undergraduate major, and the following professional education courses:
- 7F:131 Educational Psychology 3 s.h.
- 7T:160 History of Western Education 3 s.h.
- 7F:117 Philosophies of Education 2-3 s.h.
- 7S:190 Individual Projects in Laboratory Practice 3 s.h.
- 7T:140 Relations for the Classroom Teacher 3 s.h.
- 7S:194 Methods: High School Reading 3 s.h.
- 7S:195 Developing Reading Skills in the Secondary School 3 s.h.
Basic competency in microcomputing 75:115 Methods: English 3 s.h. 75:287 French, German, and Student Teaching 2 s.h. 75:310-120 Observation and Laboratory Practice in the Secondary School 12 s.h.

A two-part comprehensive examination is required. One part covers methods, materials, and curriculum for high School English, the second part covers the comprehension examinations administered to Master of Arts (literary studies) candidates in the Department of English.

Ph.D. in English Education

This program is administered by the College of Education. It prepares teacher educators in English, specialists in literature for young people, specialists in reading at secondary and junior college levels, specialists in writing at secondary and junior college levels, and coordinators/ supervisors of language and arts programs.

Admission

Students must meet the basic requirements of the Graduate College for admission to a doctoral program. In addition, they must have a secondary school teaching certificate, a grade-point average of 3.00, a minimum composite score of 1000 on the verbal and analytical portions of the Graduate Record Examination (GRE) General Test, and two years successful teaching experience. Students admitted to the program are expected to provide evidence of the successful completion of a substantial research paper for a course included in the first 15 residence hours. Students must maintain a 3.00 grade-point average while enrolled in the program. Candidacy is recommended annually.

Requirements

A minimum of 45 semester hours is required. This includes 8-16 semester hours in the area of specialization—teaching of English—including four of the following courses:

75:360 Preparation of Elementary School Language Arts (Language Arts) 3 s.h. 75:308 Research and Current Issues (Sec 30) 3 s.h. 75:315 M.A. Seminar: English Education 3 s.h. 75:415 PhD. Seminar: English Education 2-4 s.h. (required for two or more registrations)

Cognates and electives (50-60 s.h.) may include reading, school curriculum, literature for young people, literature of a particular period or genre, educational psychology, social education, educational media, writing, linguistics, literary criticism, educational technology, theater, and art. Students and their advisor select two areas of specialization in addition to the teaching of English. Areas of specialization typically consist of a minimum of 9 semester hours of work in an area.

Students must have facility in a research tool that will help them achieve professional objectives. Choice of research tool is agreed upon by students and their advisors.

Students must take comprehensive examinations in three areas: the teaching of English, a foreign language, and an elective area. The minimal requirements for eligibility to write comprehensive area examinations vary, but the general requirement is three courses in an area.

Students write a dissertation (typically 12 semester hours).

M.A.T. in Foreign Language Education

The M.A.T. program in foreign language education is designed for superior liberal arts graduates who have had few or no professional education courses. Successful completion of the program leads to secondary school teacher certification.

Admission

A bachelor's degree with a major in a foreign 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:

75:96 Introduction to Teaching Foreign Language (credit not applicable to M.A.T. degree) 2 s.h. 75:131 Educational Psychology 3 s.h. 75:117 History of Western Education 3 s.h. 75:112 Philosophies of Education 3 s.h. 75:132 Topics in Foreign Language Instructional Technology (same as 75:115) 2 s.h. 75:116 Methods: Foreign Language 3 s.h. 75:191-192 Observation and Laboratory Practice in the Secondary School 12 s.h. 75:187 Seminar: Curriculum and Student Teaching 1 s.h. 75:140 Human Relations for the Classroom Teacher 3 s.h.

A comprehensive examination covering the candidate's knowledge and proficiency in the language, literary or cultural analysis, and foreign language education.

M.A.T., M.A., In Home Economics Education

The Master of Arts program is administered by the Department of Home Economics. Admission to the Master of Arts in Teaching program is through the College of Education. Both programs are described under "Home Economics" in the College of Liberal Arts section of the Catalog.

Both programs will be closed after May 1992. Only students who can complete their home economics courses by that date may enroll in the program.

M.A. in Mathematics Education

The program provides students who have advanced specialization in mathematics and education as a baccalaureate for teaching at the secondary level.

Admission

Candidates must meet the admission requirements of the Graduate College and, except in unusual cases, hold a professional certificate or basic secondary 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 coursework in mathematics approved by the student's advisor.

A minimum of four courses in mathematics education, which must include 75:236

Current Issues in Mathematics Education (3-5 s.h.), but remaining three courses are to be selected from the following:

75:230 Workshop in Secondary School Mathematics 1-3 s.h. 75:231 Computer-Based "Teaching of Second School Mathematics 2-3 s.h. 75:218 The Teaching of Geometry 2-3 s.h. 75:235 Teaching the Low Achievers in Mathematics 2-3 s.h. 75:229 Teaching of Algebra 3-5 s.h. 75:333 Seminar: Mathematics Education 2-3 s.h.

A minimum of two courses selected from a cognate area in education; suggested areas are educational psychology, educational statistics and measurement, elementary mathematics education, history or philosophy of education, instructional design, and technology in education, secondary school curriculum, secondary school administration, and special education, courses are to be selected in consultation with a faculty member from the cognate area.

Sufficient electives in mathematics and education selected with the approval of the advisor to complete 32 semester hours of credit.

These two-hour comprehensive examinations are given in secondary school mathematics and in mathematics, and the third in the cognate area.

M.S. in Mathematics with Education Option

The program prepares certified teachers with advanced specialization in mathematics and mathematics education. It is especially recommended for students.
considering work for the Ph.D. in mathematics education, the program is administered by the Department of Mathematics and Statistics and should be made to that department.

Requirements
A minimum of 24 semester hours in the Department of Mathematics, including the core master’s program for either pure mathematics or applied mathematics as described below.

Pure Mathematics Core
25:110 Introduction to Analysis I 3 s.h.
25:116 Introduction to Analysis II 3 s.h.
25:120 Abstract Algebra I 3 s.h.
25:121 Abstract Algebra II 3 s.h.
25:132 General Topology 3 s.h.

Applied Mathematics Core
25:142 Intermediate Differential Equations 3 s.h.
25:144 Introduction to Partial Differential Equations 2-3 s.h.
25:170 Numerical Analysis
Ordinary Equations and Approximation Theory 1 s.h.
25:172 Numerical Analysis
Differential Equations and Linear Systems 3 s.h.
25:174 Optimization Techniques
Two courses in mathematics education;
Comprehensive examination of six hours over the required courses in either pure mathematics or applied mathematics, and education courses, the results of which constitutes the candidate’s knowledge of mathematics and of the specific content relating to teaching secondary school mathematics.

Ph.D. in Mathematics Education
The program for a Ph.D. in mathematics education prepares supervisors, teacher education personnel, college-level mathematics teachers, and researchers in mathematics education at the graduate level as administered by the College of Education.

The 72 semester hours include work toward the undergraduate degree, a master’s degree, a master’s degree in education, and a Ph.D. degree in mathematics education. The program consists of a minimum of 36 semester hours, and the remaining must be in either field of study in the Division of Mathematical Sciences (mathematics, statistics, and computer science), including the master’s level core requirements for the Ph.D. in mathematics education.

Admission
The applicant must be a certified music teacher or be the process of completing certification requirements. An undergraduate degree in education is not 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
General
25:221 Introduction to Gravestones in Music 3 s.h.
Theory
25:240 Introduction to Contemporary Analysis and Theory 3 s.h.
25:241 Electives 3 s.h.
Specific hour and course requirements in the theory area are determined by scores on the advisory examinations.

History and Literature
25:201 Advanced History and Literature of Music I 3 s.h.
25:202 Advanced History and Literature of Music II 3 s.h.
Specific hour and course requirements in the history and theory area are determined by scores on the advisory examinations. Students enrolled from 25:201 and 25:202 will be elected through a final written examination administered during the school’s final examination in the Division of Mathematical Sciences (mathematics, statistics, and computer science), including the master’s level core requirements for the Ph.D. in mathematics education.

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 thesis (33-semester-hour minimum).
Ph.D. in Music Education

The program prepares students for teaching, research, or administration in the following areas of positions:

- College teachers of music education: courses and activities; band, choir, and orchestra directors; and administrators of music departments and schools of music;
- Public school teachers and research and curriculum consultants, and directors of local 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 fifth percentile on the verbal ability section of the Graduate Record Examination (GRE) General Test, hold or be qualified for a valid teaching 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 conjunction with the College of Education. Application is made to the School of Music.

Requirements

The Ph.D. degree is granted on the basis of achievement, as determined by course grades, comprehensive and final examinations, and not on the accumulation of semester hours of credit. The course requirements and semester hour totals are minimum requirements for the typical student in preparation for performance on the comprehensive and final examinations.

General (11 s.h.)
*6251 Introduction to Graduate Study in Music
*2525 Musical Acoustics
*6240 Introduction to Contemporary Analysis and Theory
*Elective (25-145-150)
Music History and Literature (15-15 s.h.)
*6230 Advanced History and Literature of Music
*6230 Advanced History and Literature of Music I
*Elective (25,205,319)
Applied and Ensemble (4 s.h.)
*Electives
Music Education (23 s.h.)
*75,144 Psychology of Music
*N5,189 Behavioral Research in Music
*75,294 Curriculum Development in Music Education

*75,246 Foundations of Music Education
3 s.h.
*Electives
3 s.h.
75,445 Social and Psychological Factors in Music Education
3 s.h.
75,141 Measurement and Evaluation in Music Education
3 s.h.
75,342 Supervision and Administration in Music Education
2 s.h.
75,372 Experimental Research in Music Education
3 s.h.
Education (8 s.h.)
75,146 Introduction to Statistical Methods
3 s.h.
75,342 Selected Applications of Statistical Techniques
Elective
2 s.h.

M.A. Level requirements

Students select elective courses, 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 minor area.

M.A., Ph.D. in Physical Education

The Master of Arts and Doctor of Philosophy programs in physical education are described in the College of Liberal Arts section of the Catalog.

M.A.T. in Science Education

The M.A.T. degree program is designed for a student who has an undergraduate degree in one of the sciences and who is enrolled on graduate studies. Successful completion of the program and fulfillment of the course work in science required by the endorsement program qualifies the student for an Iowa secondary teaching certificate.

The program is administered by the College of Education.

Admission

Applicants must have a bachelor’s degree with a major or a minor equivalent in one of the sciences and a minimum undergraduate grade-point average of 3.00.

Requirements

Professional Education Sequence

Component 1:
75,100 Issues in Education
2 s.h.
Component 2:
75,340 Human Relations for the Classroom Teacher
3 s.h.
Component 3:
75,131 Educational Psychology
3 s.h.
Component 4:
75,151 Science Methods I: Elementary School Seminar and Practicum
2 s.h.
Component 5:
75,152 Science Methods II: Resources, Research, Teaching Strategies, and Curriculum Development for K-12 Science
3 s.h.
Component 6:
75,181 Science Methods III: Multicultural High School
2 s.h.
75,190 Elementary School Special Subject Area Student Teaching
3 s.h.
Component 7:
75,187 Seminar: Curriculum and Student Teaching
2 s.h.
75,190 Individual Projects in Teaching
3 s.h.
75,191 Observation and Laboratory Practice in the Secondary School
3 s.h.
75,192 Observation and Laboratory Practice in the Secondary School
3 s.h.
Comprehensive Exams: 5, 6, 7, and 7 must be taken in sequence and only one per semester. These courses are not offered summer sessions.

Science Core

97,128 Meaning of Science
2 s.h.
97,336 Science in Historical Perspective
2 s.h.
97,302 Social and Educational Applications of Earth Sciences
3 s.h.
or
97,102 Social and Educational Applications of Biological Sciences
3 s.h.
or
97,105 Social and Educational Applications of Physical Sciences
3 s.h.
Science electives
11 s.h.

M.S. 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 certification unless they are preparing for careers in allied health, museums, or community colleges.

Requirements
A total of 32 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 (24 s.h.):
7E/7S/7S 260 Science Education: Issues, History, and Natio 3 s.h.
7S/7S 261 Science Education and the Nature of Science 3 s.h.
7E/7S 262 Science Education: Teaching, Learning, and Curriculum Models 3 s.h.
7E/7S 263 Science Education: Research Models and Conceptual Schemes 3 s.h.
*7E/S/7S 265 Ph.D. Internship 3 s.h.
7E/7S 266 Science Education Internship: Teacher Education, Supervision, and Administration 1-3 s.h.
*7E/S/7S 267 Science Education Internship: Teaching and Learning Strategies 1-3 s.h.
7E/7S 350 Seminar: Science Education 0-2 s.h.
Total 20 s.h.

May be repeated
Science Specialization (6-8 s.h.):
Courses that supplement undergraduate preparation, chosen from regular graduate offerings in biochemistry, biotechnology, chemistry, environmental studies, geology, microbiology, physics, radiation education, and zoology, should include a concentration of 15 semester hours in at least one field of science.

Program Specialization (8-10 s.h.):
An integrated group of supporting courses selected from a limited number of areas such as education, applied science, science, and the history/philosophy of science, in consultation with the adviser.

Correlates (5-6 s.h.):
Science and applied science courses selected from any areas other than the specialization area.

Ed.D. in Science Education
The Ed.D. in Science Education is an interdisciplinary degree program that is 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 2.75 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.

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
A minimum of 112 semester hours of course work, which must include the courses listed below; courses taken toward a master's degree count toward this total.

Science Education (90 s.h.):
7E/7S/7S 260 Science Education: Issues, History, and Natio 3 s.h.
7S/7S 261 Science Education and the Nature of Science 3 s.h.
7E/7S 262 Science Education: Teaching, Learning, and Curriculum Models 3 s.h.
7E/7S 263 Science Education: Research Models and Conceptual Schemes 3 s.h.
*7E/S/7S 265 Ph.D. Internship 3 s.h.
7S/7S 266 Science Education Internship: Teacher Education, Supervision, and Administration 1-3 s.h.
*7E/S/7S 267 Science Education Internship: Teaching and Learning Strategies 1-3 s.h.
7E/7S 350 Seminar: Science Education 0-2 s.h.
Total 100 s.h.

May be repeated
Science Specialization (6-8 s.h.):
Courses that supplement undergraduate preparation, chosen from regular graduate offerings in biochemistry, biotechnology, chemistry, environmental studies, geology, microbiology, physics, radiation education, and zoology, should include a concentration of 15 semester hours in at least one field of science.

Program Specialization (8-10 s.h.):
An integrated group of supporting courses selected from a limited number of areas such as education, applied science, science, and the history/philosophy of science, in consultation with the adviser.

Candidates must complete 28 semester hours of work in the following as one of the major areas of study: biological science, physical science, earth science, or environmental studies.

They also complete 8 semester hours in an integrative group of supporting courses selected from a limited number of areas such as education, applied science, science, and the 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 (comprised of a pilot study), foreign language (French, German, Russian, or Chinese). 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 (7E/7S/893).

The comprehensive examination consists of three parts: one dealing with science education, another with an area of science, and a third with the correlating 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 the social sciences and greater problem-solving and research skills. 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 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 cumulative grade-point average of 3.00, or a 3.00 grade-point average in history and/or 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 is shown 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 certificate. After declaring a social studies education major, students must maintain a cumulative grade-point average of at least a 3.0 grade-point average.

Program A Requirements

Program A students must complete 18 semester hours distributed among history, social sciences, or related areas, with a minimum of 10 semester hours in each of three fields. Nineteen to 20 total semester hours must consist of graduate courses numbered 200 or above divided among the fields selected for concentration.

If the thesis option is selected, the student completes a research or investigative project in history or social sciences, or in related area, in which case the thesis director is a member of the appropriate department. An investigative project in social studies education, in which the thesis director is a member of the College of Education. A two-hour written examination is required in each of the three fields selected for concentration. An oral examination following the written examination, conducted by the candidate's committee as a whole.

Program B Requirements

Program B students must complete a total of 24 hours, 12 of which are upper-division courses. 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 39. In all instances, the student must take appropriate work for meeting all Iowa Department of Education requirements for teacher certification.

Professional Education Courses:
- 75:100 Issues in Education 2 s.h.
- 75:133 Educational Psychology 3 s.h.
- 75:188 Human Relations for the Classroom Teacher 3 s.h.
- 75:120 Introduction to Instructional Design and Technology 3 s.h.
- 75:170 Methods: Social Studies 3 s.h.
- 75:117 Philosophies of Education 3 s.h.
- 75:130 Educational Sociology 3 s.h.
- 75:277 Seminar: Social Studies Education 3 s.h.
- 75:203 Observation and Laboratory Practice in the Secondary School 3 s.h.
- 75:205 Observation and Laboratory Practice in the Secondary School 3 s.h.
- 75:265 Observation and Laboratory Practice in the Secondary School 6 s.h.
- 75:266 Observation and Laboratory Practice in the Secondary School 6 s.h.
- 75:267 Observation and Laboratory Practice in the Secondary School 6 s.h.
- 75:268 Observation and Laboratory Practice in the Secondary School 6 s.h.
- 75:269 Observation and Laboratory Practice in the Secondary School 6 s.h.

Candidates also are required to register for a practicum in a public school.

Subject Area Specializations Courses:
- Fifteen semester hours of course work in one or two history or other social science fields to be selected in consultation with the advisor.

Comprehensive Examination

The comprehensive examination consists of three parts: a two-hour examination in the area specified as concentration, a two-hour examination in general professional education, and a two-hour examination in social studies education.

Ph.D. in Social Studies Education

This program is administered by the College of Education. It prepares secondary school 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 grade-point average of 3.00 or above. A minimum Graduate Record Examination (GRE) Verbal 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 at 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 divided among history, social sciences or related areas, and professional education, depending on the background and goals of the candidate. Seminars and courses numbered 200 or above are required in each of the areas of study constituting the major. A minimum of 2.5 semester hours of 96:201, 96:202, or 75:255 must be completed with one of the faculty members in social studies education, unless other course work with three 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-hour examinations, one in each of the areas of study. Depending on the distribution of work taken, the hours of written examination may be rearranged.

The Ph.D. committees consist of a minimum of the faculty member from the liberal arts disciplines and one from social studies education. The remaining members (to a maximum of six) are selected by the candidate and must be approved by the Graduate College. All members of the Ph.D. program and dissertation course work. An oral examination is conducted by the committee as a whole following the written examinations.

Alternatives to the traditional written comprehensive examination may be considered by the candidate's committee.

Dissertation

A dissertation is required on a research problem in history or the social sciences, or in a related area, which is supervised by the dissertation director. The dissertation director is a faculty member of the appropriate department, and 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 dissertation must present a prospectus of the research to the dissertation committee prior to undertaking the study. Upon completion, oral examination is conducted in defense of the dissertation. Continuing requirements for maintaining candidacy are a grade-point average of 3.00 plus annual renewal.

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
Admission
Admission requirements include:
Completed graduate application form;
Copies of official transcripts for all previous college courses;
Official report of the Graduate Record Examination (GRE) General Test, verbal and quantitative;
Three current letters of recommendation; and
Evidence of experience in teacher certification (series depending on program).
An interview may be requested. In addition to the above, the following represent minimum requirements:
Master of Arts: An undergraduate grade-point average of 2.75 or 3.00 on at least 12 semester hours of graduate course work; and cumulative verbal and quantitative GRE score of 1000.
Doctor of Philosophy: An undergraduate grade-point average of 3.00 or a graduate grade-point average of 3.50 or an M.A. degree has been conferred, and a combined verbal and quantitative GRE score of 1000. For students without an M.A. thesis, an equivalent project must be completed.
Final admission decisions are made by the division admission committee and are based on a composite analysis of the candidate’s likelihood to succeed in the division. This analysis may include consideration of available resources, comparative standing, and specific program requirements (intended to meet 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
The purpose of the graduate programs 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. Special education certification requires that students already be eligible for either elementary or secondary certification. Students who do not seek certification may be admitted selectively to the M.A. program.
The program requires a minimum of 38 semester hours.
Admission
Admission requirements are:
A completed graduate application form;
Copies of official transcripts for all previous college courses;
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
An undergraduate grade-point average of at least 2.75 or 3.00 on at least 12 semester hours of graduate course work.
An interview may be requested.
Program Core
Special education core requirements for all programs include:
7H.110 Exceptional Persons 3 s.h.
7H.134 Parent/Teacher Communication 3 s.h.
7H.206 Practicum with Exceptional Persons 3 s.h.
7H.207 Assessment of Learning Disabilities 1.5 s.h.
Program Specializations
Learning Disabilities
A core of courses in learning disabilities (LD) is required for all students. It includes:
7H.110 Introduction to Learning Disabilities 3 s.h.
7H.206 Supervised Teaching with Learning Disability 5 s.h.
7H.209 Seminar: Graduate Supervised Teaching 1 s.h.
Students seeking an elementary (K-6) LD teaching certificate must obtain or already have a regular elementary teaching certificate. The following courses also are required:
7H.171 Reading Clinic: Teaching Techniques 2.5 s.h.
7H.172 Reading Clinic: Teaching Practicum 2.5 s.h.
7H.173 Teaching Elementary School Mathematics 2.5 s.h.
7H.201 Methods: Children with Learning Disabilities 3 s.h.
Total 30-50 s.h.
Students seeking a secondary (7-12) LD teaching certificate must obtain or already have a regular elementary teaching certificate. The following courses also are required:
7H.111 Career Education and Transition 3 s.h.
7H.173 Teaching Elementary School Mathematics 3 s.h.
7H.194 Methods: High School Reading 2-3 s.h.
7H.205 Developing Reading Skills in the Secondary Schools 2-3 s.h.
7H.209 Methods: Adolescents with Learning Disabilities Total 3 s.h.
12-33 s.h.
The remainder of the required 38 semester hours are elective courses chosen by the student and the academic advisor.
Behavior Disorders
A core of courses in behavior disorders (BD) is required for all students. It includes:
7H.112 Introduction to Behavioral Disorders 3 s.h.
7H.210 Characteristics and Programs: Persons with Severe Behavioral Disorders 2 s.h.
7H.211 Interventions: Persons with Severe Behavioral Disorders 2 s.h.
7H.240 Behavioral Principles 1.5 s.h.
7H.208 Supervised Teaching with Behavior Disorders 5 s.h.
7H.209 Seminar: Graduate Supervised Teaching 1 s.h.
Students seeking an elementary (K-6) BD teaching certificate must obtain or already have a regular elementary teaching certificate. The following courses are also required:
7H.202 Methods: Children with Behavioral Disabilities Total 3 s.h.
7H.203 Characteristics and Programs: Persons with Behavioral Disorders 31 s.h.
7H.209 Seminar: Graduate Supervised Teaching 1 s.h.
Students seeking a secondary (7-12) BD teaching certificate must obtain or already have a regular secondary teaching certificate. The following courses also are required:
7H.204 Methods: Adolescents with Behavior Disorders 3 s.h.
7H.212 Career Education and Transition Total 3 s.h.
7H.213 Characteristics and Programs: Persons with Autism 3 s.h.
7H.215 Seminar: Behavior Assessment and Evaluation 3 s.h.
Mental Retardation—Mild/Moderate
A core of courses in mental retardation (MR) is required for all students. It includes:
7H.201 Mental Retardation 3 s.h.
7H.240 Behavior Principles 3 s.h.
7H.242 Mental/Severe/Professionals 3 s.h.
7H.209 Seminar: Graduate Supervised Teaching 1 s.h.
7H.220 Supervised Teaching with Mild Mentally Retarded 3 s.h.
TU244 Supervised Teaching: Moderate Mentally Retarded 3 s.h.
Students seeking certification must complete an 11 semester-hours of professional education course as follows.

TU117 Interdisciplinary Programming for Disabled 3 s.h.
TU121 Assessment of Young Children with Disabilities 2 s.h.
TU272 Development of Young Children with Disabilities 2 s.h.
TU275 Teaching Early Childhood Special Education Ages 0-3 3 s.h.
TU274 Teaching Early Childhood Special Education Ages 3-6 3 s.h.
TU272 Families of Young Children with Disabilities 3 s.h.
TU118 Language Development 3 s.h.
TU120 Manual Communication 1 s.h.
TU271 Supervised Teaching: Early Childhood Special Education I 3 s.h.
TU272 Supervised Teaching: Early Childhood Special Education II 3 s.h.
TU271 Seminar: Early Childhood Special Education 1 s.h.
CardioPulmonary resuscitation course 0 s.h.
Total 27 s.h.

The remainder of the required 38 semester hours are elective courses chosen by the student and the academic advisor.

Moderate/Severe Profound Mental Disabilities
Prior certification is desirable but not required for admission to the moderate/severe/profound mental disabilities certification program. Applicants who do not have prior certification must complete an 11 semester-hours of professional education course as follows.

TU121 Career Education and Transition 3 s.h.

TU216 Methods: Elementary Resource Teaching 3 s.h.
TU17 Reading Clinic Teaching Techniques 2-3 s.h.
TU12 Reading Clinic Teaching Practices 3 s.h.
TU12 Teaching Elementary School Mathematics 3 s.h.
TU18 Teaching Children with Behavioral Disorders 3 s.h.
Total 36-42 s.h.

Students seeking a secondary (7-12) multicultural resource teaching certificate must obtain (or already have) a regular secondary teaching certificate. The following courses also are required.

TU121 Career Education and Transition 3 s.h.

TU18 Teaching Elementary School Mathematics 3 s.h.
TU194 Developing Reading Skills in the Secondary School 2-3 s.h.
Total 36-42 s.h.

TU216 Methods: Elementary Resource Teaching 3 s.h.
TU17 Reading Clinic Teaching Techniques 2-3 s.h.
TU12 Reading Clinic Teaching Practices 3 s.h.
TU12 Teaching Elementary School Mathematics 3 s.h.
TU18 Teaching Children with Behavioral Disorders 3 s.h.
Total 36-42 s.h.

Students seeking an elementary (K-6) multicultural resource teaching certificate must obtain (or already have) a regular elementary teaching certificate. The following courses also are required.

TU216 Methods: Elementary Resource Teaching 3 s.h.
TU17 Reading Clinic Teaching Techniques 2-3 s.h.
TU12 Reading Clinic Teaching Practices 3 s.h.
TU12 Teaching Elementary School Mathematics 3 s.h.
TU18 Teaching Children with Behavioral Disorders 3 s.h.
Total 36-42 s.h.

Students seeking an elementary (K-6) multicultural resource teaching certificate must obtain (or already have) a regular elementary teaching certificate. The following courses also are required.

TU121 Career Education and Transition 3 s.h.
For students seeking secondary (7-12) approval, the course 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 special education. Included are 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 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 40 semester hours. The flexible plan of study is developed by the student and advisor. Degree requirements include written Comprehensive examinations and a research paper (70,015 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 Administration with an educational administration concentration in school administration. Its primary objective is to provide sufficient training and experience to enable graduates to attain entry-level positions in administration. The career focus of the program is on middle management positions such as principals and assistant directors. Successful completion of the program qualifies students for certification in teaching and administration in special education (State of Iowa Endorsement 239) and certification in general school administration (State of Iowa Endorsement 117). The program requires a minimum of 40 semester hours of credit.

Admission to the program is limited to available positions. Five to eight new students are admitted each year. Admission requirements include a master's degree and certification in some area of teaching exceptional children, and administrative experience as a teacher or equivalent experience.

Doctor of Philosophy

The Ph.D. program in special education prepares students for positions in higher education research and teaching, and for curriculum, supervisory, research, and administrative 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 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. A plan of study is flexible and may depend on the student's background and educational goals. In general, students are expected to possess a general background in all fields of special education and one or two areas of specialization. The actual course of study is developed by the student and the academic advisor. Students are required to write comprehensive examinations and complete a doctoral dissertation (70,003 Ph.D. Thesis in Special Education, 50 semester hours minimum).

Facilities

Special facilities available to students in special education include the University Hospital, for mentally and physically disabled, and the University Psychiatric Hospital/Child Psychiatry Program, for children and youth with behavioral disorders.

Courses

Early Childhood and Elementary Education

TE11 Human Growth and Motor Development 2 semester hours.

Theoretical bases for developing physical education for children ages 3-11. Development of the human sensorimotor system in the context of normal growth and development. Movement and physical activity are explored through movement vocabulary. Spasticity, cerebral palsy, and mild visual and hearing impairments are considered. Exercises in life-long physical activity are designed for each level.

TE12 Methods and Materials in Elementary Physical Education for Early Childhood--Elementary School 2 semester hours.

Problem-solving and decision making in the elementary classroom. Planning and implementing physical education programs. Development of skills to plan for elementary physical education. Open only to physical education TEP majors.

TE162 Progress in Physical Growth (Development of gross and fine basic motor skills. Consent of instructor required. See also TE16)

TE20 Pre-Professional Practicum, Elementary Education 2 semester hours.

Students spend six hours per week working with children in a volunteer elementary school. Assignments to schools are made in TE12. Admission to elementary TEP required. Consent of instructor. TE159.

TE20 Pre-Professional Practicum, Preschool Education 2 semester hours.

Students spend six hours per week working with children and teachers in a preschool/elementary setting. Assignments to caring are made in TE12. Admission to elementary TEP required. Consent of instructor. TE159.

TE220 Pre-Professional Practicum, Kindergarten and Early Elementary 1 semester hour.

Students spend two hours per week for eight weeks working with children and teachers in a kindergarten/elementary setting. Assignments to schools are made in TE12. Admission to elementary TEP required. Consent of instructor. TE159.
TE244 Curriculum Development in Early Childhood Education 3 a.

Current and crucial issues in curriculum development and the application of research in group settings. Prerequisite: TE 211 or equivalent.

TE254 Advanced Reading Clinic Techniques 3 a.

Special instructional procedures for children with learning problems. Focus on reading, spelling, and other instructional processes. Enrollment limited to 10 students.

TE264 Advanced Reading ClinicPracticum 3 a.

Practices in reading and spelling through special instructional procedures. Emphasis on individualized instructional techniques. Enrollement limited to 10 students.

TE274 Supervision of Elementary and Intermediate Classroom Instruction 3 a.

Strategies for effective classroom management and supervision. Emphasis on integrating instructional strategies with classroom management. Prerequisite: TE 211 or permission of instructor.

TE284 Curriculum Development in Early Childhood Education 3 a.

Current and crucial issues in curriculum development and the application of research in group settings. Prerequisite: TE 211 or equivalent.

TE294 Teaching and Supervision of Reading in the Elementary School 3 a.

Current and current issues in supervision and evaluation of students in elementary schools. Prerequisite: TE 211 or permission of instructor.

TE304 Special Education for Reading 3 a.

Strategies for teaching reading to students with special needs. Emphasis on integrating instructional strategies with classroom management. Prerequisite: TE 211 or permission of instructor.

TE314 Reading Clinic: Supervision 3 a.

Individualized instruction and supervision for students with special needs. Prerequisite: TE 211 or permission of instructor.

TE324 Laboratory in Special Education 3 a.

Individualized instruction and supervision for students with special needs. Prerequisite: TE 211 or permission of instructor.

TE334 Practicum in Elementary Teacher Education 3 a.

Field experience in an elementary classroom under the supervision of a mentor teacher and a university instructor. Prerequisite: TE 211 or permission of instructor.

TE344 Art Therapy in Early Childhood and Elementary Education 3 a.

Introduction to the field of art therapy, including theoretical and practical aspects. Prerequisite: TE 211 or permission of instructor.

TE354 Child and Family Art Education 3 a.

Analysis and evaluation of current concepts of child development, family dynamics, and group process in the context of art education. Prerequisite: TE 211 or permission of instructor.

TE364 Research in Art Education 3 a.

Individual research under supervision, applicable to their preparation and to empirical research projects. Prerequisite: TE 211 or permission of instructor.

TE374 Practicum in Early Childhood and Elementary Education 3 a.

Supervision of a student teacher in an elementary classroom under the supervision of a university instructor. Prerequisite: TE 211 or permission of instructor.

TE384 Teaching English as a Second Language 3 a.

Focus on reading, writing, and speaking English as a second language. Prerequisite: TE 211 or permission of instructor.

TE394 Teaching Multicultural and Bilingual Education 3 a.

Focus on reading, writing, and speaking English as a second language. Prerequisite: TE 211 or permission of instructor.

TE404 Educational Psychology 3 a.

Focus on reading, writing, and speaking English as a second language. Prerequisite: TE 211 or permission of instructor.

TE414 Reading Clinic: Supervision 3 a.

Individualized instruction and supervision for students with special needs. Prerequisite: TE 211 or permission of instructor.

TE424 Laboratory in Special Education 3 a.

Individualized instruction and supervision for students with special needs. Prerequisite: TE 211 or permission of instructor.

TE434 Practicum in Elementary Teacher Education 3 a.

Field experience in an elementary classroom under the supervision of a mentor teacher and a university instructor. Prerequisite: TE 211 or permission of instructor.

TE444 Art Therapy in Early Childhood and Elementary Education 3 a.

Introduction to the field of art therapy, including theoretical and practical aspects. Prerequisite: TE 211 or permission of instructor.

TE454 Child and Family Art Education 3 a.

Analysis and evaluation of current concepts of child development, family dynamics, and group process in the context of art education. Prerequisite: TE 211 or permission of instructor.

TE464 Research in Art Education 3 a.

Individual research under supervision, applicable to their preparation and to empirical research projects. Prerequisite: TE 211 or permission of instructor.

TE474 Practicum in Early Childhood and Elementary Education 3 a.

Supervision of a student teacher in an elementary classroom under the supervision of a university instructor. Prerequisite: TE 211 or permission of instructor.

TE484 Teaching English as a Second Language 3 a.

Focus on reading, writing, and speaking English as a second language. Prerequisite: TE 211 or permission of instructor.

TE494 Teaching Multicultural and Bilingual Education 3 a.

Focus on reading, writing, and speaking English as a second language. Prerequisite: TE 211 or permission of instructor.

TE504 Educational Psychology 3 a.

Focus on reading, writing, and speaking English as a second language. Prerequisite: TE 211 or permission of instructor.

TE514 Reading Clinic: Supervision 3 a.

Individualized instruction and supervision for students with special needs. Prerequisite: TE 211 or permission of instructor.

TE524 Laboratory in Special Education 3 a.

Individualized instruction and supervision for students with special needs. Prerequisite: TE 211 or permission of instructor.

TE534 Practicum in Elementary Teacher Education 3 a.

Field experience in an elementary classroom under the supervision of a mentor teacher and a university instructor. Prerequisite: TE 211 or permission of instructor.

TE544 Art Therapy in Early Childhood and Elementary Education 3 a.

Introduction to the field of art therapy, including theoretical and practical aspects. Prerequisite: TE 211 or permission of instructor.

TE554 Child and Family Art Education 3 a.

Analysis and evaluation of current concepts of child development, family dynamics, and group process in the context of art education. Prerequisite: TE 211 or permission of instructor.

TE564 Research in Art Education 3 a.

Individual research under supervision, applicable to their preparation and to empirical research projects. Prerequisite: TE 211 or permission of instructor.

TE674 Practicum in Early Childhood and Elementary Education 3 a.

Supervision of a student teacher in an elementary classroom under the supervision of a university instructor. Prerequisite: TE 211 or permission of instructor.

TE784 Teaching English as a Second Language 3 a.

Focus on reading, writing, and speaking English as a second language. Prerequisite: TE 211 or permission of instructor.

TE794 Teaching Multicultural and Bilingual Education 3 a.

Focus on reading, writing, and speaking English as a second language. Prerequisite: TE 211 or permission of instructor.

TE804 Educational Psychology 3 a.

Focus on reading, writing, and speaking English as a second language. Prerequisite: TE 211 or permission of instructor.
Undergraduate Program

Higher Education—Major in Health Occupations Education

The health occupations education major prepares teachers for employment at the community college level in preparatory health occupations education programs. In addition to basic skill and General Education Requirements of the College of Liberal Arts, students complete courses in professional education and in the health occupations education specialty field and/or supporting areas.

Students who apply to this program must hold current appropriate certification, license, or registry appropriate to the area of health occupations education in which they wish to teach (e.g., dental assisting, medical office assisting, or respiratory therapy). The health occupations education major is planned on this base artic with work in professional education and liberal studies appropriate to teachers who want to earn a baccalaureate degree.

Applicants to this program must satisfy criteria for admission to the teacher education program (TET) of the College of Education.

Program requirements are as follows:

Professional Education Component

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7913</td>
<td>Educational Psychology and Measurement</td>
<td>3 h</td>
</tr>
<tr>
<td>7945</td>
<td>Audiovisual Equipment for Instruction</td>
<td>1 h</td>
</tr>
<tr>
<td>7942</td>
<td>Introduction to Elementary Teachers</td>
<td>1 h</td>
</tr>
<tr>
<td>7916</td>
<td>Teaching of Adults</td>
<td>3 h</td>
</tr>
<tr>
<td>7917</td>
<td>Foundations of Vocational Education</td>
<td>2 h</td>
</tr>
<tr>
<td>7945</td>
<td>Social and Health Occupations Education</td>
<td>1-3 h</td>
</tr>
<tr>
<td>7941</td>
<td>Community College Teaching Internship</td>
<td>6-12 h</td>
</tr>
<tr>
<td>7945</td>
<td>Community College Curriculum Development - Application to Community College and Health Careers</td>
<td>3 h</td>
</tr>
<tr>
<td>7941</td>
<td>Evolving Application: Application to Community College and Health Careers</td>
<td>2-3 h</td>
</tr>
</tbody>
</table>

Additional course work in Social Foundations: 2-3 h

Additional specialty course work in health occupations education. Course work in health occupations education specialty and supporting field should be planned carefully in consultation with the adviser.

Students may take workshops or courses offered by specific health colleges or associations such as development of nursemaid skills or computers in education, as keeping with their educational goals.

Graduate Programs

Educational Administration

The programs in educational administration prepare individuals for leadership positions. Its programs lead to the M.A. Ed.S., Ph.D. degrees and administrative certification. Educational administration offers programs with other divisions in the College of Education and with other colleges in the University.

Certification

To be eligible for recommendation by The University of Iowa for 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 registrar’s 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 twenty-four-hour program for the certification level they seek. An administrative certification program at a level different from that certificating the student’s prior preparation and experience must be planned with an adviser. Because of the specific requirements for each administrative certification, candidates are required to plan their program with their adviser’s approval.

Master of Arts

The primary purpose of the M.A. program is to prepare individuals for appointments as elementary or secondary school principal, central staff, and for certain positions within area education agencies and state departments of education.

The student may take the program with or without thesis (12-semester-hour minimum).

Admission

Applicants must satisfy Graduate College admission requirements and are admitted 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.

Course Requirements

With the aid of the adviser, the student prepares a plan of study including the following core requirements:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-201</td>
<td>Foundations of School Administration</td>
<td>3 h</td>
</tr>
<tr>
<td>70-239</td>
<td>Administration of Strategies with Special Needs</td>
<td>3 h</td>
</tr>
<tr>
<td>70-202</td>
<td>The Principalship</td>
<td>3 h</td>
</tr>
<tr>
<td>70-206</td>
<td>Legal Aspects of School Personnel</td>
<td>3 h</td>
</tr>
<tr>
<td>70-363</td>
<td>Supervision and Evaluation</td>
<td>3 h</td>
</tr>
<tr>
<td>72-300</td>
<td>Design and Organization of Curriculum</td>
<td>3 h</td>
</tr>
</tbody>
</table>

Students must meet the common relations requirement of the state of Iowa and specialize in elementary, secondary, or central staff administration by completing one of the programs outlined below.

Candidates may choose electives approved by the adviser from the following degree requirements:

Elementary Level

- 70-256 Contemporary Management Strategies for the Elementary Principal 3 h
- 70-417 Field Service Project in Elementary Administration 3 h
- Electives selected with approval of adviser

Secondary Level

- 70-266 Contemporary Management Strategies for the Secondary Principal 3 h
- 70-412 Field Service Project in Secondary Administration 3 h
- Electives selected with approval of adviser

Central Staff Administration

- 70-143 Introduction to Statistical Methods 3 h
- 70-289 Financial Management of Local School Systems 3 h
- 70-410 Field Service Project in Central Administration 3 h
- Electives selected with approval of adviser

Specialist in Education

The U.S.S. program prepares candidates for administrative appointments in area education agencies, state departments of education, and the U.S.S. Office of Education. It also assists school administrators in upgrading their administrative skills at the level of superintendent of schools. Students seeking certification plan a program approved by an adviser to meet State of Iowa certification requirements.

Admission

Applicants must satisfy Graduate College admission 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

- 20-291 Administration of Educational Programs and Personnel 4 h
Ed.S. in Special Education Administration

The Education Specialist in Special Education Administration program is offered jointly with the Division of Special Education.

The primary objective of the program 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 supervisor and assistant director. Successful completion of the program qualifies the student for certification in Iowa to serve as a supervisor of special education (State of Iowa Endorsement 225, 228) or director of special education (State of Iowa Endorsement 229). It also qualifies the students for certification in general administration (State of Iowa Endorsement 171). The program requires a minimum of 62 semester hours of credit.

Admission to the program is limited by available resources. First to eighth year students are admitted each year. In addition to the general requirements, admission requirements include a master's degree, certification in some area of teaching exceptional children, qualification for a candidate's endorsement, and classroom experience as a teacher or equivalent experience.

Doctor of Philosophy

The primary purpose of the Ph.D. program is to prepare 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 philosophy and research. Students are expected to achieve competence in the areas of educational program planning, finance and governance, leadership theory, evaluation, and research methods that include statistical methods. They also must gain expertise in areas of specialized areas of personnel policy analysis.

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 areas of personnel policy analysis.

Course content in the Ph.D. program is divided into two phases: a core coursework, at least one specialization in the administrative field, and a comprehensive examination. 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 areas of personnel policy analysis.

Comprehensive Examination

The comprehensive examination is a two-phase examination that includes a written examination and an oral presentation. The examination is designed to assess the student's knowledge of the principles of educational administration and to evaluate the student's ability to synthesize and analyze current educational issues.

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 administration. The four core courses integrate planning of educational personnel programs, analysis of the political and economic circumstances of education, and the financing of public education, evaluation of administrative leadership theories, and options in research methodology and quantitative research.

Electives

Each course may be taken for credit or for transfer. Students are encouraged to develop a program of study that is tailored to their specific interests and career goals.

Doctoral students specializing in educational administration must complete at least one semester course of educational administration. Students may choose to specialize in any area of educational administration, such as curriculum development, educational policy, school finance, curriculum, legal aspects, theory, and school personnel. Students must demonstrate proficiency in two research tool areas.

Admission

Applications must be submitted by January 1 for fall semester admission. Admission decisions are made by the division faculty and are notified by February 15.

Cognates

Students specializing in educational administration must complete at least one semester of educational administration. Students may choose to specialize in any area of educational administration, such as curriculum development, educational policy, school finance, curriculum, legal aspects, theory, and school personnel. Students must demonstrate proficiency in two research tool areas.

Comprehensive Examinations

Doctoral students must successfully complete a comprehensive examination in one of the six common areas of educational administration, and a three-hour exam that covers the student's areas of specialization and approved by the student's advisory committee. Students must pass the comprehensive examination on the first try. 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 areas of personnel policy analysis.

The comprehensive examination is a two-phase examination that includes a written examination and an oral presentation. The examination is designed to assess the student's knowledge of the principles of educational administration and to evaluate the student's ability to synthesize and analyze current educational issues.

Core Courses

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Admission

Applications must be submitted by January 1 for fall semester admission. Admission decisions are made by the division faculty and are notified by February 15.
time of the exams. No Ph.D. comprehensive examinations are held during summer session.

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 the Director of Educational Administration early in the fall semester in the Dean's office.

Any of the areas of specialization open to doctoral students in educational administration are open to other doctoral students who meet the necessary registration requirements for specific courses. Students would 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 semesters hours of diversified coursework in educational administration.

Research Dissertation
Prospectus
All students must write a formal dissertation prospectus and submit it for approval first by their advisor and then by the entire committee of doctoral candidates. A student and advisor 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 prospectus committee meeting. Dissertations and prospectuses are not held during summer session.

Completions and Final Examination
Students must accumulate 18 semester hours of dissertation research credit. The Research Committee will determine the amount of credit the student will receive for the final portion of the dissertation. Students usually take the examination within a month of their anticipated year of graduation. They must be registered at the University of Iowa during the semester in which they graduate.

Residency
Each doctoral candidate must successfully complete two consecutive semesters (a minimum of 9 semester hours including thesis credit if 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
72-105 Administration of Educational Programs and Policies 4 s.h.
72-204 Politics and Economics of the Governance and Financing of Public Education 4 s.h.
72-205 Administrative Leadership Theory 4 s.h.
72-210 Research Methodology and Quantitative Analysis 4 s.h.
Other Required Courses
Cognate courses selected with approval of advisor 9 s.h.
Research design and/or statistics 6 s.h.
Thesis 10 s.h.
Examinations 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 enable students to better understand 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.

General requirements for admission to the Graduate College. A personal interview with one or more members of the social foundations faculty is desirable and may be required. An undergraduates and graduate emphasis in philosophy, the humanities, or the social sciences and two or more years of teaching experience are strongly recommended. Students must maintain a 3.00 overall grade-point average to remain in the program.

Master 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 one of the five areas of specialization. The remainder of the required 32 semester hours of coursework must be in an area of concentration appropriate to students' career and academic goals for example, special interests in philosophy of education usually take these courses in the Department of Philosophy.

Doctor of Philosophy
The Ph.D. program requires a minimum of 24 semester hours in social foundations, which must include at least 12 semester hours in the major area of specialization and a minimum of 3 semester hours from each of two additional areas. In addition, students must take at least 12 semester hours in related courses in the College of Education, that must be in an area of concentration in either educational administration, educational psychology, measurement and evaluation, and higher education.

Approximately one-third to one-half (30 to 45 semester hours) of each student's program is devoted to coursework in depth at least one other area of the University, such as history, philosophy, political science, or sociology. These sequences are individually planned by the student with the aid of his or her advisor and suggestions from the appropriate department or departments.

Two research tools are required. They may be selected from the following alternatives in accordance with the individual candidate's research interests and program or two courses in a graduate-level statistics sequence, philosophy of science and philosophy of social science.

Heterodoxy, foreign language(s) proficiency exams.

In addition, all students are required to successfully complete 72-205 Research Process and Design. Dissertation research is usually taken for 12-15 semester hours of credit.

Higher Education
Postsecondary and continuing education is an extensive and complex function of programs. The academic programs in higher education encompass a complex of programs. These programs are offered in a variety of settings including schools, colleges, universities, and other institutions of higher education. The master's, doctorate, and professional degree programs in higher education. The master's, doctorate, and professional degree programs in higher education.
of written examinations based on the core, concentration, and specialization, according to the plan of study developed individually for each student.

Areas of concentration in which examinations may be written are administrative practices, academic practices, continuing education practices, and policy studies. Students majoring in another field who want to complete a related field in higher education and to be eligible to write a related-field examination should consult with a higher education advisor early in their studies. Plans of study will be developed individually.

Specialist In Education

The Ed.S. program provides advanced graduate education in higher education in the areas of administration, academic planning and program development— including an emphasis on academic administration, community college administration, and continuing education for students usually not planning to continue for the doctorate. The specialist degree also may be awarded upon completion of a joint program that consists of a minimum of 40 semester hours of graduate work in higher education and an academic field, or upon completion of a higher education sequence following a master's degree program.

Admission

Applicants for admission must satisfy the general requirements for admission to the Graduate College. Candidates are selected on the basis of grade-point average, GRE General Test scores, and the Force for professional potential and academic aptitude index or the GRE General Test scores. Three letters of recommendation, and a statement of educational goals are required for regular admission.

Deadlines for the receipt of application for admission are December 31 for the fall semester, March 1 for the summer semester, and May 1 for the fall semester. The last day to register for the 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 advisor to be appropriate for one of the following areas: administration, academic planning and program development—including an emphasis on academic administration, community college administration, continuing education, and community college teaching. At least 28 semester hours in the area of specialization, to be determined in consultation with the advisor. Ten semester hours of electives, to be approved by the advisor. Research conducted under regulation in

768.355 Education Specialist Research in Higher Education for 4 semester hours, and

Two three-hour comprehensive examinations: one that covers the field of higher education in general; and one in one of the four 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 advisor or their studies. Plans of study are developed individually.

Teaching Internship

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 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. Some interns are accommodated at nearby community colleges, but preference is given to those willing to travel for that experience.

Doctor of Philosophy

The Ph.D. program is designed for persons who are likely to serve as administrators, specialists, researchers, and teachers in higher education.

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.

It requires a minimum of 90 semester hours beyond the baccalaureate degree.

All higher education students are required to participate in the core experiences (16-24 semester hours). In addition, candidates choose one area of concentration and must earn 15-24 semester hours of credit in that area. Ordinarily, candidates choose the related field of 9-12 semester hours as a minor (approximately 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 in the area of concentration.

These three components—concentration major and 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 at both the theoretical and applied levels, students are expected to take courses work outside the college, using the flexibility of the program to develop expertise in areas such as organizational analysis and the design and evaluation of instructional strategies.

Comprehensive examinations for the doctorate cover the general areas of higher education and the candidates an area of concentration, minor and/or related field, and dissertation.

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 potential for professional growth.

Transcripts of the GRE General Test scores, three letters of recommendation, and a statement of educational goals are required for regular admission.

Deadlines for the receipt of application for admission, transcripts, GRE General Test scores, three letters of recommendation, and a statement of educational goals are November 1 for spring semester admission and April 1 for summer session and fall semester admission.

Courses

Educational Administration

7450 Foundations of School Administrators 3.0

Introduction to organization and administration of elementary public schools; principles and concepts of education, school organization, administration, supervision, political and administrative trends and policy making, and school administration.

7452 College Teaching in Education 3.0

Current issues of public sector bargaining in the U.S.; faculty development through such workshops as faculty development, academic leadership, and management issues.

7625 Individualized Instruction, Foundations 4.0

A research project based on research, special research, minor studies, and other programs. Research project: the plan must be approved by the advisor and instructor required.

7625 Individualized Instruction, Theory 4.0

An individually designed course based on research, special research, or minor studies that is designed to meet individual needs. Content of advisor and instructor required.

7625 Individualized Instruction, Personnel 4.0

An individually designed course based on research, special research, or minor studies that is designed to meet individual needs. Content of advisor and instructor required.

7625 Individualized Instruction, Finance 4.0

An individually designed course based on research, special research, or minor studies that is designed to meet individual needs. Content of advisor and instructor required.

7625 Individualized Instruction, Law 4.0

An individually designed course based on research, special research, or minor studies that is designed to meet individual needs. Content of advisor and instructor required.
Social Foundations of Education

17-102 History of American Education 2.0 a
Survey of the history of education in the United States, including English, colonial, and colonial-styled educational institutions, and fundamental issues affecting educational development. Prerequisites: None.

17-103 Education in the Third World 2.0 a
An examination of educational development issues in the third world, focusing on historical, social, and political influences on educational development. Prerequisites: None.

17-107 History of Western Education 2.0 a
A study of the development of education in Western societies, the role of religion, and the impact of modernization on educational development. Prerequisites: None.

17-117 Philosophy of Education 2.0 a
An introductory survey of the principal philosophical and conceptual foundations of education, emphasizing selected philosophical traditions and modern problems. Prerequisite: None.

17-120 Politics of Education 2.0 a
An examination of the role of politics in the development of education, including legal, political, and governmental influences. Prerequisites: None.

17-122 Educational Sociology 2.0 a
An introduction to the sociological study of education, emphasizing social structural, cultural, and societal influences on educational development. Prerequisites: None.

17-124 Education and the Work World 2.0 a
An overview of the relationship between education and work in the context of individual and social change, and the development of educational policies and practices. Prerequisites: None.

17-130 Into Diversity and Education 2.0 a
A study of the role of diversity in education, with emphasis on the development of multicultural perspectives and strategies for educationally disparate students. Prerequisites: None.

17-145 Education of Immigrants and Refugees 2.0 a
An examination of the educational needs of immigrants and refugees, emphasizing the role of education in promoting social inclusion and equity. Prerequisites: None.

17-150 Education, Race, and Social Class 2.0 a
An examination of the role of race and social class in the study of education, emphasizing the role of education in promoting social justice and equity. Prerequisites: None.

17-150 Research and Design 2.0 a
Types of research studies, review of literature, sampling techniques, data collection, data analysis, and the evaluation of the quality of research. Prerequisites: None.

17-160 Human Relations for the Classroom Teacher 2.0 a
Social behavior such as charisma, empathy, warmth, and effectiveness in teacher-student interactions; the role of teacher and student in the classroom context. Prerequisites: None.

17-164 Research Process and Design 2.0 a
Introduction to the research process, with emphasis on data collection, analysis, and interpretation. Prerequisites: None.

17-165 Educational and Social Change 2.0 a
Focus on the role of education in social change, including the role of education in promoting social justice and equity in the United States. Prerequisites: None.

17-210 Seminar: Theory and Practice of Leadership 2.0 a
An examination of the role of leadership in education, emphasizing the development of educational leaders and the role of leadership in educational change. Prerequisites: None.

17-210 History and Philosophy of Postsecondary Education 2.0 a
An examination of the role of history and philosophy in the development of educational institutions in the postsecondary sector. Prerequisites: None.

17-215 Educational narratives and critical issues in American higher education. Prerequisites: None.

17-215 Educational narratives and critical issues in American higher education. Prerequisites: None.

17-220 Seminar in Social Foundations of Education 2.0 a
An examination of the role of social foundations in educational policy and practice. Prerequisites: None.

17-225 Educational Development and Policy in the Third World 2.0 a
An examination of the role of educational development and policy in the third world, emphasizing the role of international organizations and policies. Prerequisites: None.

17-230 Individual and Social Foundations of Education 2.0 a
An examination of the role of individual and social foundations in educational policy and practice. Prerequisites: None.

17-234 American Contributions to International Philosophy 2.0 a
An examination of the role of American contributions to international education. Prerequisites: None.

17-235 Pre-1930 Education 2.0 a
An examination of the role of education in the period before 1930. Prerequisites: None.

17-236 Educational Responses to Social Change 2.0 a
An examination of the role of educational responses to social change, emphasizing the role of education in promoting social justice and equity. Prerequisites: None.

17-250 Seminar in Higher Education 2.0 a
An examination of the role of instruction in higher education. Prerequisites: None.

17-251 Sophomore Seminar 2.0 a
An examination of the role of sophomore seminars in educational policy and practice. Prerequisites: None.

17-260 Seminar in Leadership and Administration 2.0 a
An examination of the role of leadership and administration in educational policy and practice. Prerequisites: None.

17-275 The American Higher Education System 2.0 a
An examination of the role of the American higher education system in educational policy and practice. Prerequisites: None.

17-280 Advanced Seminar in Leadership and Administration 2.0 a
An examination of the role of advanced seminars in leadership and administration in educational policy and practice. Prerequisites: None.

17-285 Postsecondary and Continuing Education 2.0 a
An examination of the role of postsecondary and continuing education in educational policy and practice. Prerequisites: None.

17-290 Individual and Social Foundations of Education 2.0 a
An examination of the role of individual and social foundations in educational policy and practice. Prerequisites: None.

17-291 Issues in Postsecondary Education 2.0 a
An examination of the role of issues in postsecondary education in educational policy and practice. Prerequisites: None.

17-292 Topics in Continuing Education 2.0 a
An examination of the role of topics in continuing education in educational policy and practice. Prerequisites: None.

17-293 Research and Design 2.0 a
An examination of the role of research and design in educational policy and practice. Prerequisites: None.

17-294 Seminar in Educational Policy and Administration 2.0 a
An examination of the role of seminar in educational policy and administration in educational policy and practice. Prerequisites: None.

17-295 Seminar in Educational Policy and Administration 2.0 a
An examination of the role of seminar in educational policy and administration in educational policy and practice. Prerequisites: None.

17-296 Seminar in Educational Policy and Administration 2.0 a
An examination of the role of seminar in educational policy and administration in educational policy and practice. Prerequisites: None.

17-297 Seminar in Educational Policy and Administration 2.0 a
An examination of the role of seminar in educational policy and administration in educational policy and practice. Prerequisites: None.

17-298 Seminar in Educational Policy and Administration 2.0 a
An examination of the role of seminar in educational policy and administration in educational policy and practice. Prerequisites: None.

17-299 Seminar in Educational Policy and Administration 2.0 a
An examination of the role of seminar in educational policy and administration in educational policy and practice. Prerequisites: None.

17-300 Seminar in Educational Policy and Administration 2.0 a
An examination of the role of seminar in educational policy and administration in educational policy and practice. Prerequisites: None.

17-301 Seminar in Educational Policy and Administration 2.0 a
An examination of the role of seminar in educational policy and administration in educational policy and practice. Prerequisites: None.

17-302 Seminar in Educational Policy and Administration 2.0 a
An examination of the role of seminar in educational policy and administration in educational policy and practice. Prerequisites: None.

17-303 Seminar in Educational Policy and Administration 2.0 a
An examination of the role of seminar in educational policy and administration in educational policy and practice. Prerequisites: None.

17-304 Seminar in Educational Policy and Administration 2.0 a
An examination of the role of seminar in educational policy and administration in educational policy and practice. Prerequisites: None.

17-305 Seminar in Educational Policy and Administration 2.0 a
An examination of the role of seminar in educational policy and administration in educational policy and practice. Prerequisites: None.

17-306 Seminar in Educational Policy and Administration 2.0 a
An examination of the role of seminar in educational policy and administration in educational policy and practice. Prerequisites: None.

17-307 Seminar in Educational Policy and Administration 2.0 a
An examination of the role of seminar in educational policy and administration in educational policy and practice. Prerequisites: None.

17-308 Seminar in Educational Policy and Administration 2.0 a
An examination of the role of seminar in educational policy and administration in educational policy and practice. Prerequisites: None.

17-309 Seminar in Educational Policy and Administration 2.0 a
An examination of the role of seminar in educational policy and administration in educational policy and practice. Prerequisites: None.

17-310 Seminar in Educational Policy and Administration 2.0 a
An examination of the role of seminar in educational policy and administration in educational policy and practice. Prerequisites: None.

17-311 Seminar in Educational Policy and Administration 2.0 a
An examination of the role of seminar in educational policy and administration in educational policy and practice. Prerequisites: None.

17-312 Seminar in Educational Policy and Administration 2.0 a
An examination of the role of seminar in educational policy and administration in educational policy and practice. Prerequisites: None.

17-313 Seminar in Educational Policy and Administration 2.0 a
An examination of the role of seminar in educational policy and administration in educational policy and practice. Prerequisites: None.

17-314 Seminar in Educational Policy and Administration 2.0 a
An examination of the role of seminar in educational policy and administration in educational policy and practice. Prerequisites: None.
PSYCHOLOGICAL AND QUANTITATIVE FOUNDATIONS

Undergraduate Course Work

The division offers an undergraduate minor in the combined areas of educational psychology, measurement, and statistical analysis.

The primary mission of the minor is to provide an educational background in psychological and statistical methodology, as well as to prepare students for careers in the fields of educational and psychological testing, measurement, and evaluation.

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, 17-25).

Elementary Statistics and Inferential may be used to satisfy this requirement.

Graduate Programs

Educational Measurement and Statistics

Master of Arts

The M.A. degree in this field prepares students for positions that require a basic knowledge of educational testing, program evaluation, and assessment. The programs accredited by the National Council on Measurement in Education provide evidence of professional competence and are designed to meet the needs of the educational profession.

Admission

Graduate programs require a minimum GPA of 3.0 in the last 60 undergraduate hours. The GRE scores in verbal and quantitative sections of the Graduate Record Examination (GRE) are required. The school of education may consider applicants who do not meet the minimum requirements.

Requirements

The degree may be conferred with thesis (30 semester hours minimum) or non-thesis (minimum 24 semester hours of coursework with no thesis course). All students must complete a comprehensive examination. Non-thesis students must fulfill the same requirements for the degree as those in the thesis option.
Admission

Applications for admission to the program must hold an M.A. degree from an accredited institution. The grade-point average requirement is the same for all students. Such students generally are found in colleges and universities, state departments of education, large public and private school systems, testing agencies, and research centers.

Requirements

In addition to the substantive courses in educational measurement and statistics offered in the division, all students must complete the following related courses:

PSY 110 Introduction to Computing
PSY 115 Educational Psychology
PSY 120 Educational Research Methodology
PSY 204 Approval in Counseling

The student's advisor specifies additional course work in areas appropriate to the student's interests and to the student's educational psychology objectives. These courses typically include additional courses in educational psychology and courses offered by other College of Education divisions and University departments.

Counseling Psychology

Psychology, elementary and intermediate courses in statistical methods, a course in educational research methodology, and experience in the interpretation and use of evaluation instruments.

The 40 hours of formal 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 statistics. Such positions generally are found in colleges and universities, state departments of education, large public and private school systems, testing agencies, and research centers.

Admission

Applications for admission to the program must hold an M.A. degree from an accredited institution. The grade-point average requirement is the same for all students. Such students generally are found in colleges and universities, state departments of education, large public and private school systems, testing agencies, and research centers.

Requirements

Visit the American Psychological Association's website for detailed information.
Psychological and Quantitative Foundations – Education

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7P:550 Processes and Outcome in Counseling and Psychotherapy
3 s.h.

7P:552 Psychology II: Cognitive and Behavioral Anxieties
3 s.h.

7P:465 Issues and Ethics in Professional Psychology
3 s.h.

7P:436 Practicum in Counseling Psychology
3 s.h.

7P:437 Advanced Practicum in Counseling Psychology (may be repeated)
3-9 s.h.

Total (minimum) 21 s.h.

Students must enroll in practice to reach a specified level of client contact, and additional experience beyond the one practicum required for service at the University Counseling Service. Placement value than the University Counseling Service must have prior approval of the counseling psychology faculty. Students must successfully complete at least one quarter of TP:436 Practicum in Counseling Psychology before enrolling in TP:437 Advanced Practicum in Counseling Psychology. Fulfilling of practicum requirements may be granted under special circumstances by a majority vote of the Counseling Psychology faculty.

Other Requirements

A major area of specialization is planned individually in collaboration with the doctoral student’s major and minor advisors. Elective courses are determined in consultation with the major advisor. A research project equivalent to the research requirements should 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 advisor. The dissertation 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 director must approve the site for the intern for a minimum of one of the four quarters. The program faculty considers candidate graduate, evidence of critical and analytical skills, development during the year, and prior two combined graduate. Students selected for the program are asked to the university. Students may be dropped from the program at the discretion of the faculty.

Comprehensive Examinations are written in four areas: counseling psychology, educational psychology, counseling psychology research, counseling psychology practice, and a major area. It is strongly recommended that attempts 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 Ethics Principles in Psychology.

Educational Psychology

Master of Arts

This program provides an overview of educational psychology to be an area of inquiry. It includes course work in basic development, cognitive, learning, motivation, socialization, personality, educational psychology, and research methods. The program does not prepare students for entry into a specific vocation. Rather, it is designed for a broad understanding of the psychological principles on which educational activities are based.

Admission

Admissions requirements are the same as those established by the Graduate College. Teaching experience is desirable but not required. The faculty reserves application to those they consider.

Requirements

Students may take the degree with or without thesis. The degree without thesis requires a minimum of 22 semester hours of course work and a thesis. It requires a minimum of 28 semester hours of course work plus 2-4 semester hours of thesis credit. Both programs require TP:455 Introduction to Statistical Methods or the equivalent. Students who intend to apply for admission to the Ph.D. program should take the M.A. degree with these.

Students plan the remainder of the program in consultation with their advisors. Courses range from the following four areas: human development, cognitive learning, motivation, and socialization/personality. Students must take at least one course in each area. The faculty encourages the equivalent degree and credits to at least two courses outside the discipline. The content of the senior student admitted to the program is reviewed at the end of the second semester. The program faculty considers evidence of critical and analytical skills, development during the year, and prior two combined graduate. Students selected for the program are asked to the university. Students may be dropped from the program at the discretion of the faculty.

The program culminates in six courses or comprehensive examinations consisting of either three two-hour or three three-hour courses. The three-hour exam calls for a minimum of three courses in each area tested. The two-hour exam calls for a minimum of two courses in each area. The comprehensive exam is planned jointly by the student and advisor and must be approved by the M.A. committee.

Doctor of Philosophy

This doctoral program prepares graduates for a variety of careers that share a concern with the application of psychological principles to educational practices. Such careers include psychologists at the university and college level and research or administrative positions in educational agencies, clinical schools, counseling, and public schools.

Admission

An applicant for admission to the program must hold an M.A. degree from or be an M.A. degree candidate in good standing at an accredited institution. Applicants who hold an M.S. degree are not directly relevant to educational psychology, but they may be admitted conditionally. The student must complete the M.A. program before taking the Ph.D. comprehensive exams.

The graduate group point average requirements for admission is the same as that established by the Graduate College. Applicants are expected to have earned a grade point average of 3.0 or better in the last 60 semester hours.

Candidacy may be admitted conditionally on the basis of other evidence, such as high grade point average, strong academic preparation, letters of recommendation. Applications are encouraged as received.

Requirements

The program requires a minimum of 72 semester hours beyond the bachelor’s degree and encourages four substantive areas: human development, cognitive 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 substantive competence in at least one of these areas. A minimum dissertation of competency is required for all of the comprehensive exams based on no fewer than 24 semester hours. Students are encouraged to take courses that develop their experience.

Education in their area of interest. Graduate work beyond the bachelor’s degree without thesis must undertake a project in at least one area. This project must be approved by three members of the educational psychology faculty. The candidate’s program is planned jointly by the student and the advisor.

The record of every student admitted to the program is reviewed near the end of the second semester of residence. The program faculty considers evidence of critical and analytical skills, development during the year, and prior two combined graduate. 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 may write comprehensive examinations Six of the eight hours of comprehensive
transmissions 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 adviser. The proper examination schedule must be approved by the comprehensive examination committee.

School Psychology

Specialist in Education
The E.S.D. program 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
Undergraduate preparation in psychology or education is desirable but alternative backgrounds are considered. Qualifications include an undergraduate grade-point average of 3.00, Graduate Record Examination General Test scores above 500 in the verbal and quantitative areas, strong letters of recommendation, and a demonstrated interest in working with children. Application and supporting materials must be submitted by February 1 for consideration for fall admission. Decisions are made by March 15. Up to 40 students are admitted per year.

Requirements
The program requires a minimum of 60 semester hours. The plan of study includes courses in psychological foundations, educational psychology, and research methods. Degree requirements include a written comprehensive examination and a research paper prepared in conjunction with course TP-205 Educational Specialist Research (1 semester hour).

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 General Test in the Graduate Record Examination. The faculty also encourages applications from students who have taken courses with M.A. or Ed.S. degrees. 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 admission. Decisions are made by March 15. A maximum of five students are admitted to the program each year.

Requirements
The program requires a minimum of 90 semester hours. Course work is chosen from four areas: psychological foundations, educational foundations, school psychology, and research methods. The course of study is developed by the student and the academic advisor. Students are required to write comprehensive examinations, carry out a research project equivalent in scope to an M.A. thesis, serve as an intern, and complete a doctoral dissertation through enrollment in TP-493 Ph.D. Thesis in Psychological and Quantitative Foundations.

Instructional Design and Technology

Master of Arts
The M.A. in instructional design and technology promotes 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 consists of 35 semester hours of course work and may be completed with either a thesis or a project.

Admission
Regular admission requires a minimum grade-point average of 2.70 on all previous course work and a score of 500 or higher on both the quantitative and verbal sections of the Graduate Record Examination 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 attain a grade-point average of at least 3.00. Applicants are encouraged to include with the application an autobiographical statement about their interest in the field.

Applications for full admission must be received by May 1; for spring admission, by October 1; for summer admission, by March 1. Admissions decisions are announced approximately one month after the deadline.

Requirements
The degree requires the following core courses (or approved equivalents): TP-130 Introduction to Instructional Design and Technology TP-120 Selection and Use of Media for Instruction TP-107 Psychological Bases of Instructional Design TP-129 Introduction to Educational Measurement TP-220 Advanced Instructional Design and Technology

Specialist in Education
The Educational Specialist program in instructional design and technology consists of 60 semester hours of course work beyond the Bachelor's degree. The E.S.D. is usually considered a first 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 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 3.00 grade-point average. Applicants are encouraged to discuss their plans with a faculty member and include a personal letter with an application describing their interests in the instructional design grants program, and the information that may be helpful in the application process.

Applications for fall admission must be received by May 1; for spring admission, by October 1; for summer admission, by March 1. Admissions decisions are announced approximately one month after the application deadline.

Requirements
Course work required for the degree includes three core courses (or equivalent): three research methods courses (TP-143 Introduction to Statistical Methods, TP-220 Educational Research Methodology, TP-229 Survey Research in Instructional Design and Technology, or equivalent), and 18 semester hours of study in one area: classroom instruction, computer applications, instructional development, health sciences education, initiating and developing, media production, or school media. In addition,
Doctor of Philosophy

The Ph.D. program is instructional design and technology provides a broad background for those interested in teaching, research, and leadership positions. The 90-semester-hour program emphasizes the acquisition of knowledge and tools needed to expand the understanding of instruction and training and their effects on learning and performance.

Admission

Admission to the program is competitive. Bishop requirements are a grade-point average above 3.20 on previous coursework and a score of 500 or higher on both the quantitative and the verbal sections of the Graduate Record Examination General Test. Other factors considered are the number of previous courses and experiences, beginning and advanced-level research methods and letters of recommendation. Applicants must include a personal letter with the application, describing their interests in the instructional field, and any additional information that may be pertinent. Applicants are strongly encouraged to discuss their plans with a member of the faculty before admission. Applicants for fall admission must be received by May 1; for spring admission, by October 1; and for summer admission, by March 1. Admission decisions are announced approximately one month after the application deadlines.

Requirements

Course work required for the degree includes the following: a core of six courses or equivalent; five research-oriented courses, one of which must be in instructional design and technology; and 21 seminar hours in the specialized area. Additional courses may be taken for credit in the instructional design and technology program. In addition, students must complete nine semester hours of course work in a cognate area outside the College of Education.

Not the end of the course work requirements, students must submit a written paper that reflects their ability to organize and present a topic at the conceptual level expected for the dissertation. The required project must be approved by a faculty committee before the comprehensive examinations may be taken.

All students must successfully pass a three-hour set of comprehensive examinations that include the core research, and specialized courses as follows: general instructional design, 3 or 5 hours; area of specialization, 3 or 4 hours; other, 0 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 positions are typically half-time for the academic year, and are held for a carryover and research load of up to 1200 hours per semester. Students should address inquiries to the chair of the division.

Other types of graduate assistantships are supported by the Iowa Testing Program. Utilities are varied, including responsibilities such as test development, test scoring, and data analysis. There are also a few other assistantships supported by Iowa Testing Programs that are specific to the programs cited above. Students should be directed to the program directly.

Courses

Psychology, Measurement, Statistics

Research Design and Inference 1+5

Graphical techniques for examining data, descriptive statistics, hypothesis testing, measures of association, internal variability, measures of significance, correlation, and regression. 280: quantitative and psychological emphasis. Prerequisite: 285 or equivalent. Same as CH 225.

Psychological Testing (Pragmatic)

Measurement Techniques for evaluating intellectual and personality differences, constructed tests, attitude tests, and personality tests. Prerequisite: 285 or equivalent, or PSY 100.

Psychology of Academic Learning


Research (Pragmatic)

Survey research on individual differences in aptitude and achievement, research in educational psychology required in social and educational psychology. Prerequisites: PSY 210 or equivalent, or PSY 100.

Children (Pragmatic)

Developmental analyses of the role of curiosity and achievement in personality development and classroom practice. Prerequisite: 100 or equivalent. Same as CH 210.

Psychological Foundations of Instructional Design

Same as CH 210.

Research (Pragmatic)

Survey on the role of individual differences in intellectual ability and achievement. Research in educational psychology required in social and educational psychology. Prerequisite: PSY 210 or equivalent, or PSY 100.

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Developmental analyses of the role of curiosity and achievement in personality development and classroom practice. Prerequisite: 100 or equivalent. Same as CH 210.

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Developmental analyses of the role of curiosity and achievement in personality development and classroom practice. Prerequisite: 100 or equivalent. Same as CH 210.

Psychological Foundations of Instructional Design

Same as CH 210.
Engineering is defined by the Accreditation Board for Engineering and Technology as that field in which knowledge of the mathematical and physical sciences gained by study, experience, and practice is applied with judgment to design, construct, operate, maintain, economically, the materials and forces of nature for the benefit of mankind.

In short, engineering is the application of scientific and mathematical knowledge to solve problems for society.

The major aim of engineering is the creation of a new product, process, material, or system. This activity demands a high degree of creativity coupled with a full understanding of existing 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, government agencies, and private practice.

The College of Engineering has no major requirements. 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 that meet the need of industry for engineers at all levels.

Graduate education involves intensive study of a creative nature that is expected to result in original contributions to the literature in the Ph.D. level.

Programs

The College of Engineering offers programs leading to the Bachelor of Science in Engineering. There are 38 undergraduate degree programs 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 biological 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 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 in the College of Liberal Arts. These combined degree programs usually take about five years. In addition, a minor in the College of Business Administration or a minor in mathematics at any degree-granting department or an interdisciplinary 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).

Graduation With Distinction

The college awards degrees "with highest distinction" to students in the top 5 percent of their graduating class, "with high distinction" to students in the next 5 percent, and "with distinction" to students in the next 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 level of recognition, students must have completed at least 60 semester hours of graded work with no lower than a grade of C or higher. The grade-point average must be at least 3.80, as calculated on a 4.0 scale.

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, or other sponsored undergraduate research activities. Honors students may participate in a college-wide honors seminar with faculty and other honors students. Junior and senior engineering students with college and cumulative grade-point averages of 3.80 and higher are eligible to apply to the program. Successful completion of departmental requirements leads to a Bachelor of Science in Engineering with Honors. A permanent notation of this achievement is recorded on the student's University academic record.

Preapproval and stop-off students interested in honors are encouraged to participate in the College of Liberal Arts Honors Program, which provides access to all of the services offered by the thromnsford Honors Program. Students with a strong foundation in the specific area of study are encouraged to join the Society of Iowa Honors Students, which sponsors a variety of social and cultural activities each year. Engineering students are the second largest college group in the College of Liberal Arts Honors Program.

For more information or to apply, contact the Office of the Dean, College of Engineering, 3150 Engineering Building.

Graduation With Honor

High scholastic achievement is certified in two ways: graduation with distinction based on grades only and graduation with honors based on both grades and instructional accomplishment. To be eligible for graduation with honors, students must be recommended by their major department and approved by the Academic Honors Committee and the director of the honors program.
Engineering

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; and 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 two years of physical sciences.

Completed the Enhanced ACT Assessment with a composite standard score of 25 or above and a standard score of 26 or above in mathematics (or equivalent SAT scores) and

Ranking in the upper one-third of their high school graduating class.

Nonresident freshman applicants must have completed the same high school requirements as required and recommended for resident applicants, and at least have:

Completed the Enhanced ACT Assessment with a composite score of 25 or above and a mathematics score of 26 or above (equivalent SAT scores), and

Ranked in the upper 40 percent of their graduating class.

Transfer applicants must complete the same college core requirements as earning 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, equivalent to MATH 165, and

Maintained a cumulative grade-point average of at least 2.35.

Freshman and transfer applicants who do not meet the foreign language requirement may be admitted upon a conditional basis for a maximum of four regular semesters in order to complete courses 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 enroll in deficiencies. Courses taken at The University of Iowa to make up deficiencies do not count toward graduation.

Fulfillment of the admission requirements for admission does not guarantee admission to the College of Engineering. The college selects those applicants who appear to be 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 in a degree that is 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-oriented graphics.

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 area 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 basic sciences course beyond these minimum requirements that provides a base appropriate to its major.

Engineering Sciences

The second 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 sciences courses to understand and predict the behavior of idealized models of real systems or systems encountered in engineering. These courses include statistics, 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 specific needs. It is a design-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 constraints, the development of a conceptual design, analysis, fabrication, testing, and evaluation. It culminates in the creation of a product. The design process often involves the inclusion of realistic constraints such as economics, materiality, aesthetics, ethics, and social impact.

Because of the need to utilize a spectrum of basic and applied science material, which involves course work taken early in the curriculum, the design project activities usually begin in the junior year and culminate in a full-sized vehicle or project 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.

All of the courses in these curriculum stems are sequenced and integrated in meaningful ways so that students better understand the interrelationships and importance of each stem.

Freshman and Sophomore Year

Approximately one-half of the course requirements in each engineering program are common to all the 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, and the core program is similar for all majors. Hence, students generally may postpone elective decision making until engineering major is pursued, or may change their engineering major through the freshman- sophomore year with minimal loss of academic credits.

Exceptions to the common freshman and sophomore year course requirements include specific engineering, both of which require a second and core science course during the second semester of the freshman year. Irrespective of planning, undecided engineering majors may schedule the science courses and postpone the decision about a major until as late as the end of the third semester. However, because of prerequisite sequencing, a second science course may result in an extra semester or a summer session. The curriculum for each engineering program is listed as the archived version to each major in this section under Curriculum.

The following are freshman year courses that are common to all engineering curricula:

First Semester

4.13 Principles of Chemistry I 3 s.h.
1603 Physics I 4 s.h.
2525 Engineering Calculus I 5 s.h.
574 Engineering Graphics 2 s.h.
H1 Humanities or social science elective 3 s.h.
Total 17 s.h.

Second Semester

410 Principles of Chemistry II 2 s.h.
2525 Engineering Calculus II 5 s.h.
11 s.h.
2244 Matrix Algebra for Engineers 3.0
2917 Introductory Physics I 4.0
3715 Engineering II 3.0
Total 15.0
The courses listed above are required of all students in engineering. 4-14 Principles of Chemistry II is recommended during the second semester for students who are biochemical or chemical engineering majors. Students in these majors usually postpone taking ZIN 40 Math Lab 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 science courses.

The above list of courses that are common for all the engineering majors assumes that freshman chemistry qualify for the advanced rhetoric class. 193. Students who do not meet this eligibility requirement for 193 are required to complete the two-course sequence 191-1-2 rhetoric. For a total of 8 semester hours, however, only 4 semester hours may be counted toward the degree requirement for rhetoric.

Credits earned for courses below the level of the beginning courses specified in each engineering curriculum apply on a student's grade report and permanent record, but generally are not selected to satisfy any electives or required courses for an engineering degree. Examples of courses in this category besides 191 rhetoric include mathematics courses ZIN 21-2, chemistry courses 45-5, and physics courses 294-295.

For undeclared engineering majors who want to pursue a second or engineering major beyond the freshman year, a third semester of courses common to all the majors could include the following:

Third Semester
2244 Differential Equations 3.0
2918 Introductory Physics II 4.0
517 Statics 3.0
519 Electrical Circuits 3.0
9 Thermodynamics I 3.0
Total 15.0

Students pursuing the second semester of courses common to all majors may encounter a delay in graduation because of scheduling problems for junior courses that require completion 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 curricula.

Students select, with their advisor's approval, a minimum of 10 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 9 semester hours usually include a broad-level course followed by advanced-level courses 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 science courses.

Courses that are primarily mathematical or scientific in nature and those that are design-specific or 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, Language, Literature, and the Arts, Music; Philosophy; Religion; Linguistics; or other departments approved by the curriculum committee of the College of Engineering.

Following an introductory-level course, students select a minimum of 6 semester hours of advanced (junior-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. These 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, and Social Work; or other departments 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 (junior-level) course work. This advanced course work must be in the same department as the introductory course unless prior approval has been received from the curriculum committee of the College of Engineering.

Combined Engineering/Liberal Arts Program

Students may earn two University of Iowa bachelor's 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.A. (Bachelor of Fine Arts), B.S., (Bachelor of General Studies) 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 four academic years. The exact length of time necessary to complete the program is determined by the major or majors selected in each college. Students entering the combined degree program will assume two faculty advisors, one from their major department in the College of Engineering and the other from 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 entering this 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 curriculum requirements for admission apply to combined degree program applicants.

It is crucial that students enroll in the proper mathematics and engineering 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 the humanities, social sciences, and foreign languages and literature are the same for 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 180 semester hours of credit, including at least 55 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 undergraduate students who want to obtain their M.B.A. coursework while finishing their engineering degree. Strategically selected course work may allow such students to complete the baccalaureate degree in four years and the M.B.A. degree in the fifth year. Exceptional students with interest and commitment in the professional program and business administration may enhance their managerial career opportunities through this combined degree program.
To qualify for the APT program, students must have completed at least one undergraduate engineering study, earned a 3.50 grade-point average or better, and indicated the intent to pursue both degree programs simultaneously on a full-time basis. Students selected for admission to the program may be candidates for the Master of Science in Engineering (M.S. for graduate students) and graduate students. The graduate fellowships are provided by the College of Business Administration.

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 demands a high level of academic performance, students accepted to the program will readily qualify for admission to the graduate M.S. program upon application.

A cooperative education internship experience with industry is arranged for students. This professional employment experience with private industry is considered to be an integral part of the combined degree program. It is generally scheduled for the summer session after the completion of the bachelor’s degree.

The M.B.A. curriculum is designed for upper-level students; no previous courses in business are required. The program consists of these components: foundation courses, integrated core courses, and elective courses. The integrated core consists of courses taken by all students admitted to the program. The foundation courses taken by all students admitted to the program are designed to provide students with a core understanding of basic business principles. The core curriculum is designed to provide students with a core understanding of basic business principles. The core curriculum is designed to provide students with a core understanding of basic business principles. The core curriculum is designed to provide students with a core understanding of basic business principles.

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.

Planets devote courses of action to respond 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 civil engineering and a M.S. or M.A. 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 engineering college or before they complete their sophomore year following matriculation. A letter reporting admission to this program should be submitted by the student to the College of Engineering, and the student should be admitted to the program.

With the combined engineering/R.B.A. program, students in the program need not pass the admission to the Graduate College, which is required in order to complete the degree requirements in the planning program. Hence, students in the combined degree program should be aware of the admission requirements for the graduate planning program in order to prepare to meet these requirements when they apply for admission to the program (since 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 enable them to identify issues and recommend appropriate action. These issues and recommendations are based on the needs of a variety of organizations and political environments. Students learn well integrated in topics such as economic theory, courses in quantitative methods, planning procedures, and planning, as well as in public and private sectors.

At the heart of the University of Iowa planning program is an integrated core curriculum. Its purpose is to provide a rigorous foundation in the methods necessary for public and private officials. The core program is completed by selected courses for the following years in the last two years of the first undergraduate program. Students receive (or at least one concentration) are organized around public policy and public policy issues. There are also two separate areas of concentration: transportation, housing, and land use planning, environmental quality, urban infrastructure, and economic development. Students fulfill the core 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 student is assigned an adviser from engineering and one from planning. During their first four years of professional experience, students work primarily with their engineering adviser and the assistant to the dean of the College of Engineering. For the fifth year, students meet 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 both the degrees are similar, but the requirements for the second degree are more demanding. The requirements for both the degrees are similar, but the requirements for the second degree are more demanding. The requirements for both the degrees are similar, but the requirements for the second degree are more demanding. The requirements for both the degrees are similar, but the requirements for the second degree are more demanding. The requirements for both the degrees are similar, but the requirements for the second degree are more demanding. The requirements for both the degrees are similar, but the requirements for the second degree are more demanding.

The Bachelor’s degree in engineering satisfies the requirements for the second degree, including the science level design sequence courses of the second degree program as well as any specific social science and requirements. The Bachelor’s degree in engineering satisfies the requirements for the second degree, including the science level design sequence courses of the second degree program as well as any specific social science and requirements. The Bachelor’s degree in engineering satisfies the requirements for the second degree, including the science level design sequence courses of the second degree program as well as any specific social science and requirements. The Bachelor’s degree in engineering satisfies the requirements for the second degree, including the science level design sequence courses of the second degree program as well as any specific social science and requirements. The Bachelor’s degree in engineering satisfies the requirements for the second degree, including the science level design sequence courses of the second degree program as well as any specific social science and requirements.

Students must pass an academic plan of study which must be approved by the faculty's second degree program and submitted to the Office of the Dean before the degree can be awarded. The plan of study must be submitted to the office of the Dean before the degree can be awarded. The plan of study must be submitted to the office of the Dean before the degree can be awarded. The plan of study must be submitted to the office of the Dean before the degree can be awarded. The plan of study must be submitted to the office of the Dean before the degree can be awarded. The plan of study must be submitted to the office of the Dean before the degree can be awarded.

Minors

While fulfilling requirements in engineering, undergraduates also students may fulfill requirements for a minor in other departments in the College of Business Administration or a minor in areas in any degree-granting department or approved program in the College of Liberal Arts. A minor in another college can be required by satisfying requirements established by the college offering the minor. A minor in the College of Engineering can be earned by fulfilling the requirements for a minor in the College of Engineering. A minor in the College of Engineering can be earned by fulfilling the requirements for a minor in the College of Engineering. A minor in the College of Engineering can be earned by fulfilling the requirements for a minor in the College of Engineering. A minor in the College of Engineering can be earned by fulfilling the requirements for a minor in the College of Engineering. A minor in the College of Engineering can be earned by fulfilling the requirements for a minor in the College of Engineering.

Students must submit to their registrar’s office 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 a minor are two economic courses (E 41 and E 42), two accounting courses (44.41 and 44.42), a marketing course (49.400), a management course (59.100), a finance course (94.100), and a legal course (94.47). In addition to these required courses, students usually complete a calculus course, a computer course, and a probability and statistics course.

Engineering majors satisfy the mathematics, statistics, computer science, and management requirements with courses 232.43, 235.40, 51.6, and 57.41. A 4.20 grade-point average in courses applicable to the minor is required. Students who want to complete a degree in Business Administration degree track should select courses that satisfy M.B.A. requirements.

Minor In Liberal Arts
Requirements for a 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 2.0 grade-point average in the course applicable to the minor. Courses to be counted toward the minor may not be taken pass/no-pass.

Cooperative Education Program
Cooperative education 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 summer terms, but the success of the program depends on the work experience being appropriate and having educational value as well. This is assured by the monitoring of the work experience provided by cooperating employers and by reaching without 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 period, 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 technical considerations involved in any engineering project.

The co-op phase ordinarily begins during or immediately following the sophomore year and continues until the beginning of the senior year. The total time for the degree program under this option usually is five years and includes the equivalent of at least one full year of work experience. The student is in an option available to qualified seniors as a voluntary basis.

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 advisor from the Undergraduate, Academic Advising Center. With the advisor's help, students select courses appropriate for the engineering program while they explore other fields of interest. Students meet frequently and regularly with their advisors for the intensive advising support they need as they evaluate their educational alternatives and plan their programs of study. The advisor's offices are located in Burge Hall and Dey House. For more information, contact the Undergraduate Academic Advising Center, Burge Hall or Dey House, The University of Iowa.

Academic Standards
Semester Load Limit
A normal academic load is about 16 semester hours of course work for a 14-semester hour for a summer session. No student may register for more than 15 semester hours in a regular semester or for 12 semester hours in a summer session, without the permission of the assistant to the dean.

Classification of Students
Students in the College of Engineering are classified by the registrar according to the number of credit earned applicable to a Bachelor's degree in engineering, according to the following:

- Freshman: fewer than 25 semester hours.
- Sophomore: 25 to 39 semester hours.
- Junior: 40 to 65 semester hours.
- Senior: 65 or more semester hours.

Grading System
The college uses a letter grading system with a plus or minus designation. Graduates in performance between the letters. The numerical equivalent for the letter grades with plus and minus options are as follows:

<table>
<thead>
<tr>
<th>Grade (definition)</th>
<th>Grade points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+ (A++-AS)</td>
<td>4.33</td>
</tr>
<tr>
<td>A (A+--A-)</td>
<td>4.00</td>
</tr>
<tr>
<td>B+ (B+-B+)</td>
<td>3.33</td>
</tr>
<tr>
<td>B (above average)</td>
<td>3.00</td>
</tr>
<tr>
<td>C (average)</td>
<td>2.00</td>
</tr>
<tr>
<td>C+ (C+-C-)</td>
<td>2.33</td>
</tr>
<tr>
<td>C- (C--C-)</td>
<td>1.67</td>
</tr>
</tbody>
</table>

D+ (above average)  1.30
D (below average)    1.00
D (failing)          0

This grading system is used for all students in all academic programs. Grades of A+, D, and C- are passed grades, that is, courses completed with grades of D+ or better count toward college graduation requirements. Grades of A- have a value of 4.25, and grades of C or lower have a value of 4.5 in calculating grade-point averages for a student, but the average displayed in University records will be truncated so that 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 on or continued on academic probation:

- Freshman: 1.80
- Sophomore: 1.90
- Junior: 1.95
- Senior: 2.00

Students whose semester and cumulative grade-point averages equal or exceed those appropriate to their classifications 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 regular semester. 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 remain after an interval of two regular semesters.

Dropping and Adding Courses
Courses may be added with permission of the advisor and the instructor during the first five weeks of the semester or first one and one-half weeks of the summer session.

Courses may be dropped with permission of the advisor and the instructor within the first five weeks of the semester. Only under compelling circumstances may courses be dropped after the tenth week, with the written consent of the department head. Under such special circumstances, students are permitted to drop after the beginning of the scheduled final examination period.

Undergraduates 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. To count for unit registration and dropping of the same course, students may not drop the same course with a mark of W more than once.

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Withdrawal of Registration

Students in good academic standing who wish to withdraw from 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 accepted by the registration office within fifteen days of the last day on which registration is accepted. The withdrawal card must be signed by the student and department chair.

Pass/Nonpass Option

A maximum of two courses taken in the College of Liberal Arts or Business Administration on a pass/ nonpass basis may be applied toward fulfillment 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 these 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:

(1) The signatures of the adviser and instructor must be obtained on the proper forms and the completed form must be submitted to the registrar by the student before any grade can be recorded.
(2) The student must be majoring in a program that is established by University policy.
(3) 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 by the repeat eligible course is a prerequisite. The option may be applied to no more than three courses. It may be applied only once in 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 satisfactory/fail grade system is used in certain health care professions. No other engineering courses are offered on this basis. A F (failure) grade counts for only 0.0 credits toward 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 incompletes 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 (AP) of the College Entrance Examination Board and have achieved satisfactory scores on the comprehensive examination administered through the Advanced Placement Program are awarded college-level credit. For example, students earning a score of 3, 4, or 5 in an AP-level calculus course in the Advanced Placement Program receive 4 semester hours of credit for ZIM235, Engineering Calculus I-L. Likewise, students earning a score of 3, 4, or 5 in a BC-level calculus course receive 5 semester hours of credit for ZIM236-36 Engineering Calculus III. Credit earned through other AP courses also may be applied to other engineering and science courses, provided that the student informs the assistant to the dean.

CLEP Credit

Credit earned through the College-Level Examination Program (CLEP) may be applied to meet appropriate requirements in engineering. For example, up to 7 semester hours of credit earned on the social science general exam and/or on the subject exams on neither social science topics may be applied to satisfy a portion of the social science requirement. Similarly, up to 7 semester hours of credit in the general and/or separate subject exams in the humanities may be applied to satisfy a portion of the humanities requirement. However, no more than a total of 16 semester hours of CLEP credit may be applied to the total credit hours and social sciences requirements for engineering.

Completion of the depth requirement in the social sciences and humanities or in CLEP credit to satisfy the beginning level prerequisite can be accomplished as follows:

Social sciences: CLEP credit in the general social sciences category, followed by a 100-level course in any acceptable social science area.

Humanities: CLEP credit in literature, followed by a 100-level course in literature; CLEP credit in historical perspectives, followed by a 100-level course in history; CLEP credit in natural sciences, followed by a 100-level course in any acceptable humanities area, including literature and history.

Credit earned on either CLEP subject exams also may be applied to meet other course requirements as appropriate in content and level at a nonduplication basis. Overtures about CLEP exams and credits should be directed to the assistant to the dean.

Credit by Examination

Students who have acquired knowledge in an engineering subject matter from sources other than the University of Iowa may be granted the opportunity to obtain credit toward graduation by examination. For example, credit for an engineering course may be earned by achieving a satisfactory test score on a comprehensive exam similar to a final exam for that course. The policies for evaluating this course credit 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 credits up to a maximum of 12 semester hours. Credit validation may be granted after students have completed at least 24 semester hours of cumulative work at The University of Iowa that includes appropriate courses for which the work to be validated is prerequisite. 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 in 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 evaluated, the student must request approval from the Office of Admissions. Once approved, credit is given on a course-by-course basis. If a course is equivalent to the student's course, it may be accepted for transfer. University students must meet the grade requirements for admission or be in good academic standing. If the student's grade falls below the required level, the student must re-take the course.

Satisfaction of engineering course requirements by transfer course work may be approved by the assistant to the dean. If, on a course-by-course basis, there is a match in the course number and level of the transfer courses, the grades earned for such courses are honored as higher. Students who want to satisfy the engineering sciences and humanities requirements of The University of Iowa need to contact the dean for the details.

Students planning to attend a two- or four-year institution before transferring to the College of Engineering will be advised to discuss the planned transfer with officials at both schools before embarking on a transfer program. The College of Engineering has 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 the students are enrolled in the College of Engineering, all course work taken at other institutions must be approved by the dean before credit is awarded. Requirements for each department may vary, so students should check the catalog for specific requirements.

By policy of the Iowa 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 from a two-year college, the student's transcript is reviewed and given credit of the courses that meet the university's general education requirements. The student is required to complete the remaining 52 semester hours as required by the university at graduation. If the petition involves a required engineering core course, it must also be approved by the assistant to the dean. This ensures that the student's course work is equivalent to the university's requirements.

The College of Engineering, like other colleges and universities, is governed by the faculty of that department. Approval of these course substitutions is needed only from the faculty advisor 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 advisor. The audit fee will be assigned to those registered for the course for zero credit where attendance and activity performance are satisfactory; if the satisfactory, the grade may be assigned. Courses completed with a mark of D or less are not required but they cannot carry any credit toward graduation. Auditing may be used as a second-grade-only option.

To register on an audit basis, students must enter the course on their registration card in the usual manner, except that they should indicate zero credit hours. The instructor's authorization and the advisor's signature must be on the reverse side of the registration card. 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
Students Academic Misconduct
Types of academic misconduct are cheating, plagiarism, or plagiarism by a colleague. In cases of cheating or plagiarism, the instructor makes the decision on the conduct violation. 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. In the faculty chair. If 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 member when attempting to resolve a complaint. However, assistance from the dean's office to resolve a complaint is available. If the faculty chair is not satisfied with the outcome of this procedure, the student should discuss the concern with the dean of engineering.

Student Organizations and Activities
The College of Engineering student body is organized as the Associated Students of Engineering. This organization provides a mechanism for planning and carrying out activities involving the entire college such as the student and faculty picnic, the homecoming corn roast, MCCA Week, and sponsoring of a nationally known speaker during National Engineers Week. The organization also acts on college-wide matters of general student interest.

Engineering students publish their own student newspaper, The Iowa Engineer, which is published weekly. All positions are staffed by students, with the faculty advisor serving as a consultant on the organization.

The following technical societies are represented by the University of Iowa student chapters: American Institute of Chemical Engineers, Institute of Industrial Engineers, Society of Computer Simulation, American Society of Civil Engineers, American Society of Mechanical Engineers, and Institute of Electrical and Electronics Engineers.

A student club of the Society of Automotive Engineers is open to all engineering majors, and a student society of biomedical engineers, which is formally recognized by the University, is open to biomedical engineering majors. The 1973 chapter of Tau Beta Pi, a national honorary society for students in all engineering fields, gives special recognition to superior students in their junior and senior years. Senior and graduate engineering students who have special ability in research are eligible for membership in Sigma Xi. The work of students who are outstanding in their respective fields is recognized by the Alumnae Da Mu Beta, honorary biomedical engineering society; Phi Lambda Ukai, honorary chemical engineering society; Omega Chi Epsilon, honorary chemical engineering society; Chi Epsilon, honorary civil engineering society; Tau Rho Nu, honorary electrical engineering society; Alpha Pi Mu, honorary industrial engineering society; and Pi Tau Sigma, honorary mechanical engineering society.
Student organizations dedicated to providing support and assistance in the development of more equitable enrollments of minorities and women in the college are the Black Students in Engineering and the student chapter of the Society of Women Engineers. A local chapter of Theta Tau, a national professional engineering fraternity, is active in service to the college and draws its membership from students throughout the college.

**Professional Registration**

Registration as a professional engineer is governed by the laws of each state. The Iowa requirements include graduation from an accredited engineering curriculum at least four years, followed by at least four years of practical experience.

In Iowa the agency that controls and monitors the licensing procedure is the State of Iowa Engineering and Land Surveying Examining Board. The first step is the procedure for students enrolled in an accredited program 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 first step in the procedure is to pass the advanced practical engineering examination following a minimum of four years of approved professional practice. At this point the engineer graduate 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 determined and administered by the individual programs. Also included in these sections is a description of the curricula and 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. It houses 35,000 books and 500,000 articles and microfiche models and provides study spaces for 100 library users.

**Iowa Computer-Aided Engineering Network (IAKEN)**

The facility provides primary support for instructional computing in the College of Engineering. IAKEN consists of approximately 100 computer engineering work stations manufactured by the Apollo division of Hewlett-Packard. Each of these is a powerful computer joined with a high-resolution video display for graphics applications. The Apollo's are tied together by a high-speed network allowing all stations to share common data, programs, and peripheral devices.

The Apollo's are augmented by a large number of Apple Macintosh personal computers. The Macintoshes can, at the user's command, function as stand-alone facilities, be tied to the Apollo network or to the engineering computer network (ECS). A variety of printers, plotters, and other specialized devices are available through the IAKEN system.

Software supported by IAKEN includes several programming languages as well as graphics and word processing facilities. Also available are a number of high-quality computer science packages for computer-aided engineering, including two- and three-dimensional drafting and design, surface and solids modeling, finite element modeling and analysis, system simulation, control system analysis, and electronic design.

IAKEN facilities are used by students throughout the undergraduate and graduate engineering programs and in all engineering disciplines. Several large student laboratories provide engineering students with access to IAKEN. The Howard J. Elder Laboratory for Engineering Computing, located on the fourth floor of the Engineering Building houses 30 Apple work stations and 40 Macintoshes, together with printers, plotters, and other related equipment. A second, functionally identical facility is located on the third floor. A third student facility, intended to support more advanced applications, is located on the first floor.

Small work station clusters for software and course development are located in each of the six engineering departments. Remote clusters are located in the chemical engineering department in the Chemistry-Biology Building and in the Hydraulics Laboratory of the Iowa Institute of Hydraulic Research.

**Computer Services**

In addition to local facilities provided by IAKEN, services of the Wang Computing Center are available to students and faculty of the college. Access to Wang 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 an Apple II Plus microcomputer, a VAX 11/780 super-minicomputer, and advanced graphics equipment for research in computer-aided design.

The electrical and computer engineering department has two VAX 11/750 minicomputers and a number of Sun and Apollo graphics work stations for teaching and research. In addition, a number of microcomputers and minicomputers are available within the college for specialized use by students and faculty.

**Career Planning and Placement Services**

The Engineering Placement Office is a resource center for students and alumni seeking professional and summer employment. Services provided to graduating students include on-campus interviews, current job listings, information and assistance with resumes, cover letters, interview techniques, and assistance in career decision making.

Major resources available to all engineering students and alumni include a comprehensive employer library, information from employers specifically seeking to hire engineers for full-time and summer positions, current data on hiring projections and starting salaries, and placement data on recent graduates. The Engineering Placement Office, with interviewers on site, is located in Room 3321 of the Engineering Building.

**The Organization of the College**

The College of Engineering is organized into six departments and three research units.

The department of biomedical engineering, chemical and biochemical engineering, civil and environmental engineering, electrical and computer engineering, industrial engineering, and mechanical engineering 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. Descriptions of these units follow.

**Iowa Institute of Hydraulic Research**

The Iowa Institute of Hydraulic Research (IIHR) has been widely recognized for many years to be an international leader in numerous areas of hydraulic and fluid mechanics. It was organized formally in 1911 to coordinate capabilities, facilities, and resources available at the University for research on problems in engineering hydrology and hydrodynamics, and...
soon broadened its scope of activities to include fluid mechanics. Active programs of both basic and applied engineering research are conducted at SBH in five modern, well-equipped laboratories with total floor space exceeding 72,000 square feet. Programs currently being pursued in the following areas: solid-state transport mechanisms, river engineering, dispersion processes, ceramic engineering, hydraulics-structures-water resources simulation, computational hydraulics and fluid mechanics, hydrosystems, solid-liquid transport (with emphasis on thick and three-dimensional boundary layers), turbulence and turbulent shear flows, and water quality dynamics.

High-impact involvement of graduate students is a hallmark of most SBH projects. Because it is a part of the College of Engineering, and because it is heavily involved in Fluids Engineering for industry and in fundamental research programs, SBH provides unique opportunities for valuable research and engineering experience to advanced SBH students and postdoctoral trainees as part of their educational programs.

Center for Computer-Aided Design

The Center for Computer-Aided Design was founded to enhance research and development of design methods using modern computer technology. In 1987 it was designated a National Science Foundation as an Industry/University Cooperative Research Center in Design Optimization of Mechanical Systems. The research program of the center is focused on mechanical system dynamics analysis and design, control system analysis, structural optimization, and dynamic control. A research facility consisting of an Alliant FX/75 supercomputer, graphic workstations, a dynamic graphics system, and other related computer equipment supports the faculty, staff, and students associated with the center.

Faculty, staff, and students participating in the center develop and apply computer software to government and industrial participants for use in a wide spectrum of 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 promotes 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 advanced biomedical engineering techniques. It has developed ties with several Iowa companies and has provided research assistance on the construction of specialized vehicles for the handicapped 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. Faculty, laboratory engineers and postdoctoral investigators 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 department as follows:

1. Biomedical engineering

2. Chemical and biochemical engineering

3. Civil engineering

4. Computer science

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 10 designate courses primarily for undergraduates, numbers 10 to 19 designate courses for undergraduates and graduates, and numbers 20 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—Senior core courses

20—Beginner courses in undergraduate programs

91—Undergraduate professional program

16—Contemporary topics courses for undergraduates

16—Individual investigation courses for undergraduates

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." Courses below follow for these 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. Courses required in a specific major are given in the curriculum listing in the section that describes the major. The following courses are available to nonmajors unless special permission is obtained from the assistant to the dean.
BIOMEDICAL ENGINEERING

Odeh: Yassine K. Gofeld

Professor: Richard A. Brueck, Thuc Thuy D. Brown, J. Ross Cameron, R. Craig Baker, J. D. Calise, Yassine K. Gofeld, Robert S. Lakes, Y. King Chien, and Eric K. Park.

Assistant professor: Wen C. Wu, Chris N. Wart Hamp.


R.R.I.: Department of Biomedical Engineering

The past two decades have seen a tremendous growth of technological activity in biology and medicine. As engineers have increasingly become involved with projects in the life and health sciences, there has been a greater need for them to become more familiar with the fields of biology and medicine. Recognizing this need has led to the emergence of a new interdisciplinary engineering activity designed to bridge the gap between the life sciences and engineering—the biomedical engineering discipline.

Students who complete this program may pursue career opportunities in industry, the design and development of biomedical instrumentation, diagnostic aids, life support systems, prosthetic devices, orthopedic devices, mechanical systems, in government (Veterans Affairs, National Institute of Health, Environmental Protection Agency, Food and Drug Administration), or they may elect to continue their formal education in the engineering, medical, or legal professions.

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 election course, the College of Medicine.

Curriculum

*The human and social science questions must be selected to satisfy the humanities and social science requirements of the College of Engineering.

Freshman Year

First Semester

4.06 Principles of Chemistry I 3.0
103 Blotto (or 10.1-3) 4.0
2325 Engineering Calculus I 4.0
371 Engineering I 3.0

3.0

Second Semester

4.06 Principles of Chemistry II 3.0
103 Blotto (or 10.1-3) 4.0
2525 Engineering Calculus II 4.0
372 Principles of Chemistry Lab 3.0

3.0

Sophomore Year

First Semester

10420 Matrix Algebra for

2.0

3.0

Second Semester

2342 Vector Calculus for

2.0

3.0


3.0

3.0

3.0

3.0

3.0

3.0

3.0
<table>
<thead>
<tr>
<th>Junior Year</th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td>57.17 Computers in Engineering</td>
<td>3 s.h.</td>
<td>57.18 Principles of Electronic Instrumentation</td>
<td>4 s.h.</td>
<td>51.40 Biological Systems Analysis I (see &quot;Biomedical Engineering Electives,&quot; below)</td>
</tr>
<tr>
<td></td>
<td>Engineering science core elective (see &quot;Engineering Science Core Electives,&quot; below)</td>
<td>3 s.h.</td>
<td>Humanities or social science elective</td>
<td>3 s.h.</td>
<td>51.39 Professional Seminar: Biomedical Engineering</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>16 s.h.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Second Semester</td>
<td>225.39 Probability and Statistics for the Engineering and Physical Sciences</td>
<td>3 s.h.</td>
<td>57.21 Principles of Design I</td>
<td>3 s.h.</td>
<td>51.70 Biomaterials I</td>
</tr>
<tr>
<td></td>
<td>Engineering science elective (see below)</td>
<td>3 s.h.</td>
<td>51.80 Biomedical Measurements I</td>
<td>3 s.h.</td>
<td>51.91 Professional Seminar: Biomedical Engineering</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>16 s.h.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior Year</td>
<td>51.85 Biomedical Engineering Systems Design</td>
<td>3 s.h.</td>
<td>51.95 Biomedical Computer Systems</td>
<td>3 s.h.</td>
<td>51.169 Biomaterials Processes</td>
</tr>
<tr>
<td></td>
<td>Biomedical engineering design elective (see &quot;Biomedical Engineering Electives,&quot; below)</td>
<td>3 s.h.</td>
<td>51.177 Composite Materials</td>
<td>3 s.h.</td>
<td>51.178 Intermediate Mechanics of Deformable Bodies</td>
</tr>
<tr>
<td></td>
<td>Biomedical engineering science elective (see below)</td>
<td>3 s.h.</td>
<td>51.179 Ceramics and Glasses as Biomaterials</td>
<td>3 s.h.</td>
<td>51.180 Biomedical Measurements II</td>
</tr>
<tr>
<td></td>
<td>*Humanities or social science elective</td>
<td>4 s.h.</td>
<td>51.187 Polymers as Biomaterials</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>51.91 Professional Seminar: Biomedical Engineering</td>
<td>0 s.h.</td>
<td>51.176 Metals as Biomaterials</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>16 s.h.</td>
<td>51.174 Ceramics and Glasses</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>51.175 Composite Materials</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>51.180 Biomedical Measurements II</td>
<td>3 s.h.</td>
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<td></td>
<td></td>
<td></td>
<td>51.181 Biomedical Engineering Design Project</td>
<td>4 s.h.</td>
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<td></td>
<td></td>
<td>Biomedical engineering elective (see below)</td>
<td>5 s.h.</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td>*Humanities or social science elective</td>
<td>6 s.h.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>51.91 Professional Seminar: Biomedical Engineering</td>
<td>0 s.h.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td>15 s.h.</td>
</tr>
</tbody>
</table>

| Engineering Science Core Electives |  |  |  |  |  |
| Students select one of the following courses |  |  |  |  |  |
| 57.12 Linear Systems Analysis | 3 s.h. | 57.13 Introduction to Digital Design | 3 s.h. | 57.20 Heat Transfer | 3 s.h. |
| 57.15 Materials Science | 3 s.h. | 57.20 Introduction to Software Design | 3 s.h. | 57.10 Intermediate Heat Transfer | 3 s.h. |
| 57.17 Mechanics of Deformable Bodies | 3 s.h. | 57.21 Thermodynamics II | 3 s.h. | 57.160 Intermediate Mechanics of Fluids | 3 s.h. |
| 57.20 Mechanics of Fluids and Transfer Processes | 4 s.h. | 57.140 Digital Image Processing | 3 s.h. |  |  |
|  |  | 57.144 Computer-Based Control Systems | 3 s.h. |  |  |
|  |  | 57.48 Organic Chemistry I | 3 s.h. |  |  |
|  |  | 57.52 Organic Chemistry Lab | 3 s.h. |  |  |

Other science, engineering, and design courses approved by the advisor

| Biomedical Engineering Electives |  |  |  |  |  |
| Students select one of the following courses |  |  |  |  |  |
| 57.12 Linear Systems Analysis | 3 s.h. | 57.13 Introduction to Digital Design | 3 s.h. | 57.42 Signals and Systems | 3 s.h. |
| 57.15 Materials Science | 3 s.h. | 57.140 Digital Image Processing | 3 s.h. | 51.160 Biomedical Computer Systems | 3 s.h. |
| 57.17 Mechanics of Deformable Bodies | 3 s.h. | 57.21 Thermodynamics II | 3 s.h. | 51.177 Composite Materials | 3 s.h. |
| 57.20 Mechanics of Fluids and Transfer Processes | 4 s.h. | 57.140 Digital Image Processing | 3 s.h. |  |  |
|  |  | 57.144 Computer-Based Control Systems | 3 s.h. |  |  |
|  |  | 57.48 Organic Chemistry I | 3 s.h. |  |  |
|  |  | 57.52 Organic Chemistry Lab | 3 s.h. |  |  |

Other engineering, science, and design courses approved by the advisor

| Biomedical Engineering Subtracks |  |  |  |  |  |
| Biomedical engineering majors are encouraged to pursue one of the following three subtracks curricula. |  |  |  |  |  |
| Biomechanics/Biofluids |  |  |  |  |  |
| Fifth Semester | 57.19 Mechanics of Deformable Bodies | 3 s.h. | 57.20 Mechanics of Fluids and Transfer Processes | 4 s.h. |
|  | 57.22 Principles of Design II, or equivalent | 3 s.h. | 51.150 Biomechanics I | 3 s.h. |
|  | 51.151 Intermediate Mechanics of Deformable Bodies | 3 s.h. | 58.50 Biomechanics/Biofluids | 3 s.h. |
|  | 57.22 Principles of Design II, or equivalent | 3 s.h. |  |  |

| Seventh Semester | 57.22 Principles of Design II, or equivalent | 3 s.h. | 51.150 Biomechanics | 3 s.h. |
|  | 51.151 Intermediate Mechanics of Deformable Bodies | 3 s.h. | 58.50 Biomechanics/Biofluids | 3 s.h. |
|  | 57.22 Principles of Design II, or equivalent | 3 s.h. |  |  |

| Eighth Semester | 57.22 Principles of Design II, or equivalent | 3 s.h. | 51.150 Biomechanics | 3 s.h. |
|  | 51.151 Intermediate Mechanics of Deformable Bodies | 3 s.h. | 58.50 Biomechanics/Biofluids | 3 s.h. |
|  | 57.22 Principles of Design II, or equivalent | 3 s.h. |  |  |

| Ninth Semester | 57.22 Principles of Design II, or equivalent | 3 s.h. | 51.150 Biomechanics | 3 s.h. |
|  | 51.151 Intermediate Mechanics of Deformable Bodies | 3 s.h. | 58.50 Biomechanics/Biofluids | 3 s.h. |
|  | 57.22 Principles of Design II, or equivalent | 3 s.h. |  |  |

| Tenth Semester | 57.22 Principles of Design II, or equivalent | 3 s.h. | 51.150 Biomechanics | 3 s.h. |
|  | 51.151 Intermediate Mechanics of Deformable Bodies | 3 s.h. | 58.50 Biomechanics/Biofluids | 3 s.h. |
|  | 57.22 Principles of Design II, or equivalent | 3 s.h. |  |  |

| Eleventh Semester | 57.22 Principles of Design II, or equivalent | 3 s.h. | 51.150 Biomechanics | 3 s.h. |
|  | 51.151 Intermediate Mechanics of Deformable Bodies | 3 s.h. | 58.50 Biomechanics/Biofluids | 3 s.h. |
|  | 57.22 Principles of Design II, or equivalent | 3 s.h. |  |  |

| Twelfth Semester | 57.22 Principles of Design II, or equivalent | 3 s.h. | 51.150 Biomechanics | 3 s.h. |
|  | 51.151 Intermediate Mechanics of Deformable Bodies | 3 s.h. | 58.50 Biomechanics/Biofluids | 3 s.h. |
|  | 57.22 Principles of Design II, or equivalent | 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 as engineering design, development, and research.

Each student’s course of study is based on individual background and career objectives, and on academic performance. Department faculty members have teaching and research expertise in areas related to biomechanics, cardiovascular and fluid biomechanics, biocomposites, biomaterials, instrumentation, 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 biology. M.S. students who want a general program may combine electives, while those who want some specialization in a particular field may concentrate on these preferences through the combination of departmental courses and a number of approved electives from other departments of the College of Engineering and the University.

Ph.D. programs may center on any one or the previously described areas through the choice of appropriate coursework and research topic.

Master of Science

The M.S. degree in biomedical engineering requires a minimum of 30 semester hours of course work and research. Students may choose either a thesis or non-thesis program, the latter must include at least 6 semester hours of 400-level courses. Students who choose the thesis program may count 6 hours of thesis research and writing toward satisfying the 30-semester-hour requirement. 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 advisor. All M.S. candidates of all three graduate faculty members, including at least two on the biomedical engineering faculty, are 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.

The requirements for the M.S. degree may be completed within 2 calendar years. However, students with appropriate duties and/or other constraints may need up to two calendar years to complete the degree.

Candidate for either of the M.S. degrees must have satisfactorily completed the following courses or their equivalents as undergraduates or graduates:

58:133 Mathematical Methods in Engineering 3 s.h.
58:130 Biomedical Engineering Lab. 2 s.h.
72:154 Biomedical Engineering Physiology 4 s.h.

Two biomedical engineering courses chosen from any of the following: biomechanics, biostatistics, and biostatistics (the acceptable courses are listed below).

51:141 Graduate Biomedical Systems Analysis 3 s.h.
or
51:145 Biomedical Computer Systems 3 s.h.
or
51:150 Biomechanics 3 s.h.
or
51:155 Cardiovascular Biomechanics 3 s.h.
or
71:171 Intermediate Biostatistics 3 s.h.

And additional 15 semester hours or more as approved by the student’s advisor.

Biomedical Engineering Project Traineeship

Under the auspices of M.S. degree program, the biomedical engineering department offers a small number of biomedical engineering project traineeships to selected incoming graduate students who are interested in acquiring practical engineering project experience.

First Semester

58:133 Mathematical Methods in Engineering 3 s.h.
or
58:130 Biomedical Engineering Lab. 2 s.h.
or
58:189 Advanced Biomedical Engineering Project I 1 s.h.
Design elective 3 s.h.
Technical elective 4 s.h.
Total 15 s.h.

Second Semester

58:133 Finite Element Techniques in Engineering I or equivalent 3 s.h.
or
58:287 Advanced Biomedical Engineering Project II 1 s.h.
Design elective 3 s.h.
Technical elective 3 s.h.
Total 15 s.h.

Each trainee receives a $500 per-month stipend per project work (ten hours per week).

Doctor of Philosophy

The doctoral program, including acceptable transfer credits, requires a minimum of 72 semester hours of graduate credit. Of these 72 hours, at least 60 semester hours must be in formal course work taken after the B.S. degree is awarded, and at least 12 semester hours must be in research and thesis credits. For students entering with an M.S. degree, at least 36 semester hours of formal course work must be completed past the M.S. degree, 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 coursework in order to strengthen areas of perceived weaknesses.

Admissions to the Ph.D. program is conditional until students successfully complete a qualifying examination, which is administered by the biomedical engineering faculty. The decision whether the student is to be allowed to continue examination is made by the Ph.D. program and by the biomedical engineering faculty.

Admissions to the Ph.D. program is conditional until students successfully complete a qualifying examination, which is administered by the biomedical engineering faculty. The decision whether the student is to be allowed to continue examination is made by the Ph.D. program and by the biomedical engineering faculty. The decision whether the student is to be allowed to continue examination is made by the Ph.D. program and by the biomedical engineering faculty.

Having satisfied all requirements, candidates for the Ph.D. degree are eligible to complete and defend their dissertation at the master’s degree. Requirements for the Ph.D. degree 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, mathematics or science discipline in the mathematical or physical sciences, with a minimum grade-point average of 3.0 and an acceptable score on the Graduate Record Examinations General Test (combined verbal and quantitative score of 1250) are eligible to be considered for admission to the Master of Science degree program in biomedical engineering. Students may, under exceptional circumstances, be
11:19 Advanced Biomedical Engineering

Individual projects for biomedical engineering graduate students, such as cardiovascular engineering design project, analysis and simulation of an engineering system, computer software development, and implant. Graduate standing and consent of instructor required.

11:19 Research Biomedical Engineering

For students wishing to undertake original research in biomedical engineering. Graduate standing and consent of instructor required.

12:00 Advanced Biomedical Engineering

Projects in advanced development of an engineering system. Graduate standing and consent of instructor required.

12:00 Advanced Topics in Biomedical Engineering

Advanced topics in biomedical engineering. Graduate standing and consent of instructor required.

12:30 Digital Processing of Biomedical Signals

An introduction to systems and signals with emphasis of biomedical problem solving, system identification, sampling theory, linear systems analysis, filtering, analog-digital system design, programming techniques, numerical methods, and computer applications. Prerequisite: ECE 221 or consent of instructor.

Graduate Seminar, Advanced Biomedical Engineering

A seminar in advanced biomedical engineering. Graduate standing and consent of instructor required.

Graduate Seminar, Advanced Topics in Biomedical Engineering

A seminar in advanced topics in biomedical engineering. Graduate standing and consent of instructor required.

Undergraduate Program

The Bachelor of Science in engineering degree is designed to meet modern technological requirements. Extensive preparation in chemistry courses brings chemical engineers to a comparable level in this subject as chemistry majors. A sequence of mathematics courses together with the common engineering core courses provides a strong foundation.

During the junior and senior years, the emphasis is on chemical engineering courses such as momentum transport, mass transfer operations, thermodynamics, 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. An undergraduate computer cluster is available for student use in the units operations laboratory. 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 cutting edge of technology. It emphasizes fundamental concepts, problem solving, laboratory techniques, and the communications skills needed to keep pace with 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.

Freshman Year

First Semester

10:00 Calculus I

Prerequisite: Successful completion of high school mathematics.

11:00 Calculus II

Prerequisite: Successful completion of high school mathematics.

12:30 Principles of Chemistry I

Prerequisite: Successful completion of high school mathematics.

1:30 Computer Engineering

Prerequisite: Successful completion of high school mathematics.

Second Semester

10:00 Introduction to Engineering

Prerequisite: Successful completion of high school mathematics.

11:30 General Chemistry II

Prerequisite: Successful completion of high school mathematics.

1:30 Chemical Engineering

Prerequisite: Successful completion of high school mathematics.

3:00 Total
Sophomore Year
First Semester
4121 Organic Chemistry I 3 s.h.
2284-40 Matrix Algebra for Engineers 2 s.h.
2261 Differential Equations for Engineers 3 s.h.
2618 Introduction to Physics II 4 s.h.
571 Statics 2 s.h.
*Humanities or Social Science elective 3 s.h.
Total 15 s.h.
Second Semester
4122 Organic Chemistry II (or science elective) 3 s.h.
4135 Physical Chemistry 3 s.h.
2284-72 Elementary Numerical Analysis 3 s.h.
5241 Process Calculations 3 s.h.
574 Electrical Circuits 3 s.h.
Total 15 s.h.

Junior Year
First Semester
4131 Physical Chemistry I 3 s.h.
5242 Momentum Transport 3 s.h.
5243 Chemical Engineering Thermodynamics 3 s.h.
5715 Materials Science 3 s.h.
5713 Engineering Biocatalysts Science 3 s.h.
520 Professional Seminar: Chemical Engineering 0 s.h.
Total 15 s.h.
Second Semester
4132 Physical Chemistry II (or science elective) 3 s.h.
4135 Physical Chemistry 2 3 s.h.
2262 Probability and Statistics for the Engineering and Physical Sciences 2 s.h.
5246 Heat Transfer Operations 3 s.h.
5246 Heat Transfer 2 3 s.h.
572 Principles of Design I 3 s.h.
Total 15 s.h.
Senior Year
First Semester
5245 Chemical Reaction Kinetics 3 s.h.
5230 Process Dynamics and Control in Design 3 s.h.
5247 Unit Operations Laboratory I 2 s.h.
574 Engineering Economy 3 s.h.
*Humanities or social science elective 3 s.h.
Technical elective 3 s.h.
Total 15 s.h.
Second Semester
5248 Unit Operations Laboratory II 2 s.h.
526 Chemical Engineering Process Design 3 s.h.
Technical elective 3 s.h.
Humanities and social sciences elective 3 s.h.
529 Professional Seminar: Chemical Engineering 0 s.h.
Technical elective 3 s.h.
Total 15 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 engineering science and then apply those principles to contemporary problems such as energy, environment, biotechnology, and materials. The emphasis is on research 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 design, reactor design, global and regional environmental research, separation and bioprocesses, chemical engineering and applied biocatalysts, as well as material manufacturing sciences.

Catalog and Reactor Design
Within the general field of kinetics, catalysis, and reaction engineering, research is being conducted in the areas of heterogeneous, homogeneous, and supported metal catalysts; gas-solid reactions; modeling and analysis of heterogeneous reactions; and design of novel reactor-separation catalytic routes being developed for both metals and chemicals from renewable resources.

Global and Regional Environmental Research
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 had an active research program in the environmental area 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.

Separation and Bioseparations Processes
Research at the University of Iowa is devoted to better understanding and development of new techniques in the areas of separation and bioprocess operations. In particular, researchers are investigating novel techniques in ultrafiltration and microfiltration called transmembrane pressure puling. This process, high frequency oscillating pressure across the membrane, causes the various fluids through the membrane. Another new device is being investigated for preoperative continuous electrophoresis. Electrocatalytic dispersions, photoreactive membranes for gas separation, and enzymatic membrane reactors are also being investigated.

Biochemical Engineering and Applied Biocatalysis
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 strategies in biocatalytic processing, including enzymes in organic solvents, enzyme-based biosensors, and biologically active membrane separations. The department also is engaged in the scale-up animal cell cultures (insect and mammalian) for the production of recombinant proteins and monoclonal antibodies. The integration of biotechnology with traditional chemical engineering has led to the interdisciplinary area involving other engineering departments and the Departments of Chemistry, Botany, Biochemistry, and the College of Pharmacy.

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, deposition and precipitation (determination of size and weight), and fuel explosions and contamination of particles (particle behavior).

Master of Science
A thesis and a minimum of 24 semester hours must be completed in residence at The University of Iowa. Work completed in the Summer and Evening Class Program as residence credit may not exceed 6 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

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. degree, students are required to maintain a minimum grade-point average of 3.00. M.S. degree candidates must defend their thesis at the final oral examination. Although it is possible to obtain an M.S. degree in one year, most students require three or four semesters to complete the requirements.

Doctor of Philosophy

The Ph.D. degree 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. In any case, degree candidates are required to have completed at least 72 semester hours of graduate credit.

Ph.D. candidates are expected to pass a qualifying examination and a written and oral comprehensive examination prior to candidacy for the degree. The Ph.D. comprehensive examination may be a special design project or, at the discretion of the examining committee, may consist of a written examination covering graduate work. These examinations are arranged by the department and take place during the fall semester. The examinations may be repeated at the discretion of the candidate. The order for the comprehensive examination is published in the Course Bulletin of the Graduate College.

There is no foreign language requirement. A special design project, 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. degree in chemical engineering with satisfactory grades at a reputable 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 grade-point average of 3.00. 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, quantitative, and advanced part 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 that they can perform in the graduate courses with minimum difficulty. Since these undergraduate courses are taken as make-up courses, most do not carry credit toward a graduate degree.

Financial Aid

A number of fellowships, scholarships, and stipends 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 metallurgical preparation, including a darkroom. Mechanical testing laboratories include instruments and hardness testing machines also available. Heat treatment and aging treatments may be performed in a nearby laboratory. Teaching aids include micrographs of specimen areas, distinction in the LIT kia, and crystallite phase analysis.

Required Course Laboratories

Unit Operations Laboratory

This is primarily an instructional laboratory for senior undergraduate students. It includes experiments on transport phenomena, heat transfer, fluid-flow chemical engineering unit operations, and reaction kinetics of catalysts. The laboratory includes pilot plant equipment, such as a distillation column interfaced with a microprocessor, a stirred tank reactor, a packed column for gas absorption, fluid- and fiber-filled press, and agitated reactor. Other equipment includes a stirred tank reactor, packed-bed reactor, gas chromatograph, 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 microfluid reactor, membrane apparatus, and polymer synthesizer. A small shop area is available for students to use under a technician’s supervision.

Process Control Laboratory

The process control laboratory is a modern, computer-based instructional laboratory for seniors. It is integrated to the senior process control course. The laboratory consists of computer control of a shell-in-shell heat exchanger, a stirred-tank reactor, and a three-tank flow process. Additional laboratories include equipment for the use of analog controllers.

The computer control laboratory is set up to provide an ensemble of learning experiences with real-time operation, so that analogues and better insight into the control concept can be obtained. Topics include determination of the gain and time constants for simple systems, systematic determination of gain, time constant, and damping factor of second-order processes, determination of the step-size and closed-loop response to steps and ramp changes in input for simple capacitance and multiscale processes; process models of various systems as the 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, I, and D); and system identification through frequency response methods. Methodology. methods for system testing and development of feed-forward control schemes.

The laboratory is set up so that the experimental arrangements are simple enough in design to be easily understood yet complicated enough to give students an appreciation for system characteristics inherent in industrial processes (i.e., linear time lags, error in parameter estimation).

Graduate Facilities and Laboratories

To support and develop research activities, the department offers a wide variety of facilities and research equipment within and available to the department through the University.

Computer Facilities

The departmental computer facilities contain a variety of terminals, plotters, printers, and minicomputers. The department is connected to the University’s Wescor Computing Center, which makes available these computing facilities: B3200, Prime 1010, IBM System 36, Xerox 754, HP500A, and a VAX 11/780. They also provide access to the College’s Computer-Aided Engineering Laboratory.

The department also is connected to the Iowa Supercomputer Network, which includes Apple work stations augmented with Apple Macintosh personal computers. In addition, the department has access to the University’s central mainframe facility in high-speed vector computing. This facility has Execu-94 Micros and Alliant FX-8 minicomputers and provides nodes for several links for access to supercomputers.

Catalysis and Reaction Engineering Facilities

A variety of equipment is available for the study of catalysis. Techniques currently available include chromatography and pyrolysis by infrared detection (IR), microanalysis, mass
spectrometer system, mercury-arc spectrophotometry, gas chromatography, laser-emitted ultraviolet spectrometry, X-ray diffraction, scanning electron microscopy (SEM), transmission electron microscopy (TEM), a variety of reactor systems including a 1-MW reactor, high-pressure reactor-separators for heterogeneous catalysis, a slurry reactor, and catalyst preparation facilities including radiofrequency (RF) sputtering, metal-clusted ion-implantation source, and glove box system. Also available are general research facilities such as the Iowa Laser Facility, with a variety of stand-alone laser instrumentation, and the High-Field Nuclear Magnetic Resonance Facility.

Materials Characterization Facilities

Facilities include a specially equipped laboratory for the characterization of powders and particulates. The laboratory contains a variety of size and morphology instruments including a Cahn/Quanta S3000 FEI Magellan 400 Field Emission Scanning Electron Microscope, a high-resolution, 500x-10,000x optical microscope, a 300x-300x stereo microscope, an optical microscope, and a single-beam interferometer for phase and wavelength measurement. The laboratory also contains a controlled environment chamber with a temperature and humidity control system for the measurement of sorption properties of powders and particulates.

Other facilities include sampling devices, devices for characterizing bulk properties, various mixers, grinders, and sizing equipment, optical microscopy, electron microscopy, scanning electron microscopy, a 1-MW laser, and an analytic laser for the production of particles. The laboratory also contains a fully controlled working environment chamber with a temperature and humidity control system. The laboratory also contains a high-resolution, 500x-10,000x optical microscope, a 300x-300x stereo microscope, and an optical microscope for phase and wavelength measurement. The laboratory also contains a controlled environment chamber with a temperature and humidity control system for the measurement of sorption properties of powders and particulates.

Laboratory of Applied Biocatalysis

The Laboratory of Applied Biocatalysis, located in the chemistry department, is focused on the development of organic synthesis, fermentation, and biocatalysis. The laboratory is equipped with a high-resolution, 500x-10,000x optical microscope, a 300x-300x stereo microscope, and an optical microscope for phase and wavelength measurement. The laboratory also contains a controlled environment chamber with a temperature and humidity control system for the measurement of sorption properties of powders and particulates.

Separation and Bioseparation Processes

Equipment available for the study of separation processes includes a large-scale, continuous-flow, membrane-based, electrodialysis system, a packed-bed electrodialysis system, and a high-resolution, 500x-10,000x optical microscope. The laboratory is also equipped with a high-resolution, 500x-10,000x optical microscope, a 300x-300x stereo microscope, and an optical microscope for phase and wavelength measurement. The laboratory also contains a controlled environment chamber with a temperature and humidity control system for the measurement of sorption properties of powders and particulates.

Analytical Chemistry

Analytical chemistry facilities include a high-resolution, 500x-10,000x optical microscope, a 300x-300x stereo microscope, and an optical microscope for phase and wavelength measurement. The laboratory also contains a controlled environment chamber with a temperature and humidity control system for the measurement of sorption properties of powders and particulates.

Biomedical Engineering

Biomedical engineering facilities include a high-resolution, 500x-10,000x optical microscope, a 300x-300x stereo microscope, and an optical microscope for phase and wavelength measurement. The laboratory also contains a controlled environment chamber with a temperature and humidity control system for the measurement of sorption properties of powders and particulates.

Special Technologies

Special technologies include a high-resolution, 500x-10,000x optical microscope, a 300x-300x stereo microscope, and an optical microscope for phase and wavelength measurement. The laboratory also contains a controlled environment chamber with a temperature and humidity control system for the measurement of sorption properties of powders and particulates.
CIVIL AND ENVIRONMENTAL ENGINEERING

CIVIL AND ENVIRONMENTAL ENGINEERING

Undergraduate Program

Civil engineering courses build on the Civil Engineering core curriculum and are designed to give students the broad educational background essential to modern civil engineering practice. Students in the senior year may pursue greater breadth or additional concentration in areas of specialization such as structure and foundation engineering; environmental engineering; hydraulic engineering; and transportation engineering.

Curriculum

The humanities and social science requirements must be satisfied. Students must complete a year of calculus and a year of physics, and must take at least one introductory course in art, music, or foreign language. Students must also complete a major in one of the sciences.

Freshman Year

First Semester

- 41:01 Principles of Chemistry I 3 s.h.
- 21:102 Mathematics I 3 s.h.
- 21:103 Mathematics II 3 s.h.
- 21:104 Mathematics III 3 s.h.
- 21:105 Mathematics IV 3 s.h.
- 21:106 Mathematics V 3 s.h.
- 21:107 Mathematics VI 3 s.h.
- 21:108 Mathematics VII 3 s.h.
- 21:109 Mathematics VIII 3 s.h.
- 21:110 Mathematics IX 3 s.h.
- 21:111 Mathematics X 3 s.h.
- 21:112 Mathematics XI 3 s.h.
- 21:113 Mathematics XII 3 s.h.
- 21:114 Mathematics XIII 3 s.h.
- 21:115 Mathematics XIV 3 s.h.
- 21:116 Mathematics XV 3 s.h.
- 21:117 Mathematics XVI 3 s.h.
- 21:118 Mathematics XVII 3 s.h.
- 21:119 Mathematics XVIII 3 s.h.
- 21:120 Mathematics XIX 3 s.h.
- 21:121 Mathematics XX 3 s.h.
- 21:122 Mathematics XXI 3 s.h.
- 21:123 Mathematics XXII 3 s.h.
- 21:124 Mathematics XXIII 3 s.h.
- 21:125 Mathematics XXIV 3 s.h.
- 21:126 Mathematics XXV 3 s.h.
- 21:127 Mathematics XXVI 3 s.h.
- 21:128 Mathematics XXVII 3 s.h.
- 21:129 Mathematics XXVIII 3 s.h.
- 21:130 Mathematics XXIX 3 s.h.
- 21:131 Mathematics XXX 3 s.h.
- 21:132 Mathematics XXXI 3 s.h.
- 21:133 Mathematics XXXII 3 s.h.
- 21:134 Mathematics XXXIII 3 s.h.
- 21:135 Mathematics XXXIV 3 s.h.
- 21:136 Mathematics XXXV 3 s.h.
- 21:137 Mathematics XXXVI 3 s.h.
- 21:138 Mathematics XXXVII 3 s.h.
- 21:139 Mathematics XXXVIII 3 s.h.
- 21:140 Mathematics XXXIX 3 s.h.
- 21:141 Mathematics XL 3 s.h.
- 21:142 Mathematics XLI 3 s.h.
- 21:143 Mathematics XLI 3 s.h.
- 21:144 Mathematics XLII 3 s.h.
- 21:145 Mathematics XLIII 3 s.h.
- 21:146 Mathematics XLIV 3 s.h.
- 21:147 Mathematics XLV 3 s.h.
- 21:148 Mathematics XLVI 3 s.h.
- 21:149 Mathematics XLVII 3 s.h.
- 21:150 Mathematics XLVIII 3 s.h.
- 21:151 Mathematics XLIX 3 s.h.
- 21:152 Mathematics L 3 s.h.
- 21:153 Mathematics LI 3 s.h.
- 21:154 Mathematics LII 3 s.h.
- 21:155 Mathematics LIII 3 s.h.
- 21:156 Mathematics LIV 3 s.h.
- 21:157 Mathematics LV 3 s.h.
- 21:158 Mathematics LX 3 s.h.
- 21:159 Mathematics LXI 3 s.h.
- 21:160 Mathematics LXII 3 s.h.
- 21:161 Mathematics LXIII 3 s.h.
- 21:162 Mathematics LXIV 3 s.h.
- 21:163 Mathematics LXV 3 s.h.
- 21:164 Mathematics LXVI 3 s.h.
- 21:165 Mathematics LXVII 3 s.h.
- 21:166 Mathematics LXVIII 3 s.h.
- 21:167 Mathematics LXIX 3 s.h.
- 21:168 Mathematics LXX 3 s.h.
- 21:169 Mathematics LXXI 3 s.h.
- 21:170 Mathematics LXXII 3 s.h.
- 21:171 Mathematics LXXIII 3 s.h.
- 21:172 Mathematics LXXIV 3 s.h.
- 21:173 Mathematics LXXV 3 s.h.
- 21:174 Mathematics LXXVI 3 s.h.
- 21:175 Mathematics LXXVII 3 s.h.
- 21:176 Mathematics LXXVIII 3 s.h.
- 21:177 Mathematics LXXIX 3 s.h.
- 21:178 Mathematics LXXX 3 s.h.
- 21:179 Mathematics LXXXI 3 s.h.
- 21:180 Mathematics LXXXII 3 s.h.
- 21:181 Mathematics LXXXIII 3 s.h.
- 21:182 Mathematics LXXXIV 3 s.h.
- 21:183 Mathematics LXXXV 3 s.h.
- 21:184 Mathematics LXXXVI 3 s.h.
- 21:185 Mathematics LXXXVII 3 s.h.
- 21:186 Mathematics LXXXVIII 3 s.h.
- 21:187 Mathematics LXXXIX 3 s.h.
- 21:188 Mathematics XC 3 s.h.
- 21:189 Mathematics XCI 3 s.h.
- 21:190 Mathematics XCI 3 s.h.
- 21:191 Mathematics XCII 3 s.h.
- 21:192 Mathematics XCIII 3 s.h.
- 21:193 Mathematics XCIV 3 s.h.
- 21:194 Mathematics XCV 3 s.h.
- 21:195 Mathematics XCVN 3 s.h.
- 21:196 Mathematics XCIV 3 s.h.
- 21:197 Mathematics XCV 3 s.h.
- 21:198 Mathematics XCVII 3 s.h.
- 21:199 Mathematics XCVIII 3 s.h.
- 21:200 Mathematics XCV 3 s.h.
- 21:201 Mathematics XCVI 3 s.h.
- 21:202 Mathematics XCVII 3 s.h.
- 21:203 Mathematics XCVIII 3 s.h.
- 21:204 Mathematics XCV 3 s.h.
- 21:205 Mathematics XCVI 3 s.h.
- 21:206 Mathematics XCVII 3 s.h.
- 21:207 Mathematics XCVIII 3 s.h.
- 21:208 Mathematics XCV 3 s.h.
- 21:209 Mathematics XCVI 3 s.h.
- 21:210 Mathematics XCVII 3 s.h.
- 21:211 Mathematics XCVIII 3 s.h.
- 21:212 Mathematics XCV 3 s.h.
- 21:213 Mathematics XCVI 3 s.h.
Research

Environmental Engineering and Science

This curriculum provides a comprehensive base of course work and research in the areas of air- and water-quality management, environmental chemistry and microbiology, water resources management, land use, solid waste disposal, pollution control, and solid and hazardous waste management. Interdisciplinary specialization and study is conducted with programs including the Iowa Institute of Hydraulic Engineering, the Center for Global and Environmental Research, and the Center for Health Effects of Environmental Contamination and the Departments of Chemical Engineering, Geography, Geology, Microbiology, and Preventive Medicine and Environmental Health. New areas of interdisciplinary focus include groundwater contamination, biotechnology, global climate change, and hazardous substances.

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. The 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 digital computers in mathematical modeling and in the acquisition and processing of data. The Computational Laboratory for Hydrodynamics and Water Resources, with its high-speed computer facilities and advanced graphics and communication software, provides a powerful tool for the study of hydraulics 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 emphasis is placed in the areas of structural optimization, computational methods, concrete and prestressed concrete structures, soil mechanics, 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 design mechanics of materials 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 Urban and Regional Planning, and the DOT Midwest Transportation Center. 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 program in civil and environmental engineering is designed to permit further concentration in the 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 studies. Currently and projected demand for M.S. graduates is excellent.

In general, the plan of study, with or without thesis, must include at least 30 semester hours credit; with no more than 6 semester hours of credit allowed for the thesis. An additional 3 semester hours are required in the area of environmental engineering curricula.

Students, with the approval of their advisors, develop a plan of study that satisfies special requirements of their chosen curriculum. M.S. candidates are expected to have a minimum grade-point average of 3.00. They must pass an oral examination and, in some program options, a written examination.

Doctor of Philosophy

The doctorate 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. 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 is usually 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 grade-point average of 3.20 throughout the course of their programs.

The program also cooperates in interdisciplinary doctoral programs with the program in applied mathematical sciences (see the Division of Mathematics in the “Liberal Arts” section of the Catalog).

Admission

Each curriculum of the program is quite flexible; students may be admitted from any discipline of engineering as well as from the mathematical and basic sciences.

Applicants for the master’s degree program are expected to have a cumulative undergraduate grade-point average of at least 2.50, 3.00 is preferred. For admission to candidacy for the doctorate, the minimum grade-point average is 3.50 based upon previous graduate work. Applicants whose grade-point averages are slightly lower are invited to correspond regarding admission possibility. A Graduate Record Examination 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). GRE General Test scores are used in admission and financial aid decisions.

All applicants must meet the general admission requirements of the Graduate College (see “Graduate College” section of the Catalog).

Financial Aid

A significant number of research assistantships are available on a variety of research projects, as well as a limited number of teaching assistantships. Selection of recipients is based on academic achievement and research interest.

Special Facilities and Laboratories

Undergraduate Instruction

Engineering Core

The freshman engineering course D5.3 (Introduction to the Iowa Computer-Aided Engineering Network (ICAEN), which is described under “College Facilities”) Students in the course learn word processing on Macintosh microcomputers and elementary graphics using Apollo 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 civil engineering programs, consult engineering departments and appropriate officials.

Required and Elective Course Laboratories

• 53.30 Soil Mechanics (3 s.h.). Equipped for determining the classification, shear strength, deformation, and durability of soils.
From its early beginnings of electrical power from cranks, cradles, to recent developments in semiconductors, nuclear power, and telecommunications, electrical engineering has evolved through telephone, radio, and television to modern computers and microprocessors and modern computers.

Electrical engineering is concerned with the generation, measurement, transmission, processing, control, and utilization of electrical energy and information in the form of electrical signals. The most important role of the digital computer in these activities is emphasized by the program title, electrical and computer engineering.

Graduates of the program are employed in semiconductors, aerospace, telecommunications, radio, television, computer, and power industries. The electrical engineers work in design, development, manufacturing, sales, market analysis, consulting, field service, and management. The employment outlook for the foreseeable future is quite favorable.

**Undergraduate Program**

The electrical and computer engineering program provides a strong background in basic electrical and computer engineering subjects, physics, and mathematics and allows for concentration in several areas through five technical elective courses usually taken in the senior year. Students can concentrate in one or more areas closer related to their major interest. Communication, electronics, and applied physics.

**Curriculum**

*The humanities and social sciences electives must be selected to total 12 credit hours of humanities and social science requirements of the College of Engineering.*

**15.91 Professional Seminar: Electrical Engineering must be taken once in the junior year and once in the senior year.

**Freshman Year**

| First Semester | 4.13 Principles of Chemistry I 2 s.h. | 10.32 Fourier Series 3 s.h. | 22M.35 Engineering Calculus I 4 s.h. | 57.14 Engineering I 3 s.h. | 15 s.h. |
| Second Semester | 4.14 Principles of Chemistry Lab I 2 s.h. | 22M.36 Engineering Calculus II 4 s.h. | 524.40 Matrix Algebra I 4 s.h. | 57.15 Engineering II 3 s.h. | 16 s.h. |

**Sophomore Year**

| First Semester | 2M.41 Differential Equations for Engineers 3 s.h. | 29.18 Introductory Physics II 4 s.h. | 57.18 Electromagnetism I 3 s.h. | 57.19 Electronics I 3 s.h. | 15 s.h. |
| Second Semester | 22M42 Vector Calculus for Engineers 3 s.h. | 57.12 Linear Systems Analysis 3 s.h. | 57.17 Principles of Electronic Instrumentation 4 s.h. *Humanities or social science elective 3 s.h.* | Total 16 s.h. |

**Junior Year**

| First Semester | 225.39 Probability and Statistics for the Electrical and Physical Sciences 3 s.h. | 55.32 Introduction to Digital Design 3 s.h. | 55.49 Electronic Circuits 3 s.h. | 55.42 Signals and Systems 3 s.h. | 15 s.h. |
| Second Semester | 55.23 Introduction to Software Design 3 s.h. | 55.46 Control Systems 3 s.h. | 55.94 Principles of Electrical Engineering Design I 3 s.h. | Total 15 s.h. |

**Senior Year**

| First Semester | 55.72 Electrical Engineering Materials and Devices 3 s.h. | 55.85 Principles of Electrical Engineering Design II 3 s.h. | 25.51 Professional Seminar: Electrical Engineering 1 s.h. | Technical electives (see "Technical Electives" below) 9 s.h. | Total 17 s.h. |
| Second Semester | 29.49 Modern Physics 3 s.h. | 55.90 Principles of Electrical Engineering Design III 3 s.h. | Technical electives (see "Technical Electives" below) 9 s.h. *Humanities or social science elective 3 s.h.* | Total 18 s.h. |

**Technical Electives**

Technical electives must include at least two of the following.

- 55.45 Computer Architecture and Organization 3 s.h.
- 55.68 Power Systems Analysis 3 s.h.
- 55.69 Computer Organization and Digital Systems 3 s.h.
- 55.73 Introduction to VLSI Design 3 s.h.
- 55.108 Design of Computer-Based Systems 3 s.h.
- 55.118 Testing Digital Logic Circuits 3 s.h.
- 55.119 Design of Digital Systems 3 s.h.
- 55.151 Power Electronics 3 s.h.
- 55.152 Linear Integrated Electronics 3 s.h.
- 55.153 Digital Integrated Electronics 3 s.h.
- 55.154 Digital Signal Processing 3 s.h.
- 55.155 Digital Image Processing 3 s.h.
- 55.156 Communication Theory 3 s.h.
- 55.157 Introduction to Information and Coding Theories 3 s.h.
- 55.158 Control Theory 3 s.h.
- 55.159 Computer-Based Control Systems 3 s.h.
- 55.160 Introduction to Robotics 3 s.h.
- 55.162 Solid State Physical Electronics 3 s.h.
- 55.163 Optical Signal Processing 3 s.h.
- 55.21 Principles of Devices I 3 s.h.
- 55.22 Principles of Design II 3 s.h.

**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. Excellence in scholarship and research is stimulated by close contact with the faculty throughout the period of graduate study and through programs tailored to individual needs.

Students select an advisor and, with the advisor, plan a individual graduate program bounded only by a few broad guidelines imposed by the Graduate College and by the program. Close interdisciplinary ties are maintained between students and faculty within and outside the college, especially with the Depts of Biomedical Engineering, Biophysics, Biomedical Engineering, and Biomedical Engineering.

**Research**

**Waves and Materials**

Pulsus physics, electro-optics, nonlinear optics, optical signal processing, and acoustics. Research interests include specialized laboratories in both the Engineering Building and Van Allen Hall. Collaborative research with the physics department is directed toward topics in solid state physics, physics of a theoretical as well as experimental nature. These topics include plasma confinement and stability and nonlinear wave phenomena, such as solitons and shockwaves. Plasma physics
laboratory is available to support this activity. An electron- and laser-laboratory and an ultrasonic-facility are used to conduct gradient research in the area of spectral-analyses, especially in diffraction and nonlinear wave phenomena at ultrasonic frequencies.

In the area of optical-signal processing, projects involve the use of optical filters and various light amplifiers to build special-purpose analog processors for parallel computation and signal manipulation. A small associative optical processor is being developed in the optical-processing laboratory.

**Computer Systems**

Research emphasis is directed toward design of highly reliable computer systems, distributed computing, parallel processing, and reconfigurable computer systems. Areas of interest include fault-tolerant computing, applications of large-scale distributed and parallel processing, coding, VLSI design, computer graphics, optical computers, and computer security.

This work is supported by departmental facilities including several supercomputer systems and a variety of graphics workstations, as well as through a network connection to the College of Engineering's High-Speed Computing Facility. Network access to National Supercomputer Centers is also used.

Current research includes design of easily testable, high-performance, integrated circuits, parallel-CAS algorithms for VLSI, applications of parallelized computing and graphics for real-time rendering, performance evaluation of parallel computers, software tools for developing parallel and distributed software, display of distributed images, neural networks, and optical computing.

**Signal and Image Processing**

Cardiovascular signal and image processing, signal processing associated with speech and hearing, estimation theory, and adaptive signal processing currently are active areas. Collaborative efforts involve the Department of Biomedical Engineering and the College of Medicine. A digital signal-processing laboratory and a computer-aided image-processing center, the latter located in the Cardiovascular Research Center, are available to support this research. Collaborative initiatives have included image-processing, detection of cardiac motion, efficient coding and transmission of speech, speech-processing aids for the hearing-impaired, and the detection, analysis, and design of efficient adaptive signal processing for speech and communication problems.

**Control Systems and Robotics**

Current research emphasizes optimal control, learning and adaptive control, multi-robot manipulation, and sensor-based robotics. Work also is being done in estimation, identification, and robust control for nonlinear and non-linear systems. A modern control systems research laboratory supports this effort. Other topics include applications of stochastic processes to problems in control and communications systems such as spectral estimation, identification, adaptive filtering and control for stochastic dynamical systems.

**Master of Science**

There are two M.S. degree options with and without thesis. The thesis option requires 30 semester hours of course work, including at least 12 semester hours of approved coursework 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 courses must include courses required for electrical engineering undergraduate curricula. With the thesis, up to 12 semester hours of the 36 may be research credit. At least 12 semester hours of credit must be earned in 500-level Research in Electrical and Computer Engineering. M.S. Thesis by students in the nonthesis 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 course work.

Candidates for the master's degree in electrical and computer engineering 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 these candidates must consist of a written and oral defense of the thesis. At the time of graduation, candidates for the master's degree must have acquired a cumulative grade-point average of 3.0 or higher.

**Doctor of Philosophy**

Requirements are:

- At least 72 semester hours of credit in a coherent program acceptable to the advisor and approved by the graduate committee, with at least 45 semester hours of credit earned in formal courses (not thesis or independent study).
- Including 30 semester hours from an approved list of courses in electrical and computer engineering.

Successful completion of the Ph.D. qualifying examination.

Successful completion of the Ph.D. comprehensive examination.

Successful completion of a final oral defense of the thesis and a cumulative grade-point average of 3.0 or higher in graduate coursework.

The Ph.D. qualifier examination, taken just after students have completed 30 semester hours of graduate work, is an all-day examination that requires students to write problems from four out of the specified areas plus one individual area. The qualifier examination has two purposes: to eliminate very weak students who are not qualified to pursue Ph.D. studies, and to enforce minimal knowledge of breadth in students' overall plan of study. After students pass this examination, their advisor and Ph.D. committee have primary responsibility for the design of their dissertation plans of study. The qualifier examination is given once a year; students have two chances to pass it. A comprehensive examination including a dissertation prospectus follows within three calendar years of the qualifier, and the program ends with a final (oral) thesis defense.

**Admission**

The usual requirement for admission to the graduate program is a grade-point average of at least 3.0 for M.S. students and 3.25 for Ph.D. students on all courses in electrical and computer engineering, mathematics, and physics. A grade-point average of less than 3.00 but better than 2.50 in courses in electrical and computer engineering, mathematics, and physics is acceptable for consideration. Students with baccalaureate degrees in related areas (e.g., electronics, mathematics, and computer science) may be admitted. In such cases, additional course work will be required, but undergraduate credit may be applied toward the degree. Each application is reviewed on an individual basis. Estimating circumstances may effect deviations from the usual standards.

**Financial Aid**

A number of fellowships, traineeships, 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, electric circuits, and electronics.
Digital Systems and Computers

2.10 Introduction to Digital Design 2.12
Modern design and analysis of digital and analog circuits, combinational logic, sequential circuit design, circuits and system design, design methodologies using logic and microprocessor circuits. 1.5 ECE 102, 103.

30.11 Introduction to Software Design 3.1
Design of software for performance engineering, software architecture, and software design principles. 3.0 CSE 104, 105.

3.4 Computer Architecture and Organization 3.4
Introduction to computer architecture, microprocessors, operating systems, and computer systems. 3.0 CSE 104, 105.

3.11 Introduction to Computer Architecture 3.11
Introduction to computer architecture, microprocessors, operating systems, and computer systems. 3.0 CSE 104, 105.

3.11 Introduction to Computer Architecture 3.11
Introduction to computer architecture, microprocessors, operating systems, and computer systems. 3.0 CSE 104, 105.

3.11 Introduction to Computer Architecture 3.11
Introduction to computer architecture, microprocessors, operating systems, and computer systems. 3.0 CSE 104, 105.

3.11 Introduction to Computer Architecture 3.11
Introduction to computer architecture, microprocessors, operating systems, and computer systems. 3.0 CSE 104, 105.

3.11 Introduction to Computer Architecture 3.11
Introduction to computer architecture, microprocessors, operating systems, and computer systems. 3.0 CSE 104, 105.

3.11 Introduction to Computer Architecture 3.11
Introduction to computer architecture, microprocessors, operating systems, and computer systems. 3.0 CSE 104, 105.

3.11 Introduction to Computer Architecture 3.11
Introduction to computer architecture, microprocessors, operating systems, and computer systems. 3.0 CSE 104, 105.

3.11 Introduction to Computer Architecture 3.11
Introduction to computer architecture, microprocessors, operating systems, and computer systems. 3.0 CSE 104, 105.

3.11 Introduction to Computer Architecture 3.11
Introduction to computer architecture, microprocessors, operating systems, and computer systems. 3.0 CSE 104, 105.

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Introduction to computer architecture, microprocessors, operating systems, and computer systems. 3.0 CSE 104, 105.

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Introduction to computer architecture, microprocessors, operating systems, and computer systems. 3.0 CSE 104, 105.

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Introduction to computer architecture, microprocessors, operating systems, and computer systems. 3.0 CSE 104, 105.

3.11 Introduction to Computer Architecture 3.11
Introduction to computer architecture, microprocessors, operating systems, and computer systems. 3.0 CSE 104, 105.
### Undergraduate Program

The undergraduate curriculum in industrial engineering requires a strong foundation of courses in engineering science, mathematics, design, social sciences, and humanities. Advanced courses include specialty courses in manufacturing operations and robotics, human factors (ergonomics), management, economics and information systems, production, quality control, and operations research.

### Industrial Engineering Curriculum

**Freshman Year**

<table>
<thead>
<tr>
<th>First Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>411 Principles of Chemistry I</td>
</tr>
<tr>
<td>Microeconomics (102 or 103)</td>
</tr>
<tr>
<td>22M35 Engineering Calculus I</td>
</tr>
<tr>
<td>573 Engineering I</td>
</tr>
<tr>
<td>Humanities elective (see below)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>416 Principles of Chemistry Laboratory I</td>
</tr>
<tr>
<td>22M30 Engineering Calculus II</td>
</tr>
<tr>
<td>22M10 Matrix Algebra for Engineers</td>
</tr>
<tr>
<td>2817 Introductory Physics I</td>
</tr>
<tr>
<td>576 Engineering II</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

**Sophomore Year**

<table>
<thead>
<tr>
<th>First Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>22M41 Differential Equations for Engineers</td>
</tr>
<tr>
<td>2818 Introductory Physics II</td>
</tr>
<tr>
<td>527 Fluids</td>
</tr>
<tr>
<td>529 Thermodynamics I</td>
</tr>
<tr>
<td>514 Engineering Economy</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Semester</th>
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</thead>
<tbody>
<tr>
<td>22520 Probability and Statistics for the Engineering and Physical Sciences</td>
</tr>
<tr>
<td>321 General Psychology (social science elective)</td>
</tr>
<tr>
<td>578 Electrical Physics</td>
</tr>
<tr>
<td>5715 Materials Science</td>
</tr>
<tr>
<td>Economics elective (see below)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

**Junior Year**

<table>
<thead>
<tr>
<th>First Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>5631 Manufacturing Processes</td>
</tr>
<tr>
<td>5645 Human Factors Engineering</td>
</tr>
<tr>
<td>5717 Computers in Engineering</td>
</tr>
<tr>
<td>5721 Principles of Design I</td>
</tr>
<tr>
<td>Mathematics-statistics elective (see below)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>5601 Professional Seminar: Industrial Engineering</td>
</tr>
<tr>
<td>56131 Manufacturing Systems</td>
</tr>
<tr>
<td>56140 Design of Work Methods</td>
</tr>
<tr>
<td>5722 Principles of Design II</td>
</tr>
<tr>
<td>56171 Operations Research</td>
</tr>
<tr>
<td>Technical elective (see below)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

**Senior Year**

<table>
<thead>
<tr>
<th>First Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>56155 Psychology in Management (social science elective)</td>
</tr>
<tr>
<td>56155 Professional Seminar: Industrial Engineering</td>
</tr>
<tr>
<td>56159 Information Systems Design</td>
</tr>
<tr>
<td>56165 Production Systems</td>
</tr>
<tr>
<td>Technical elective (see below)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Semester</th>
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</thead>
<tbody>
<tr>
<td>56165 Professional Seminar: Industrial Engineering</td>
</tr>
<tr>
<td>56010 Operations Systems Design</td>
</tr>
<tr>
<td>56140 Quality Control and Engineering Statistics</td>
</tr>
<tr>
<td>Humanities elective (100 level)</td>
</tr>
<tr>
<td>Technical electives (see below)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

### Economics Electives

Students may select from the following:

<table>
<thead>
<tr>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>610100 Price, Employment, and Production Theory</td>
</tr>
<tr>
<td>61510 Microeconomics</td>
</tr>
<tr>
<td>61110 Labor Economics</td>
</tr>
<tr>
<td>61613 Managerial Economics</td>
</tr>
</tbody>
</table>

### Humanities and Social Science Electives

Those 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:

<table>
<thead>
<tr>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>22M44 Vector Calculus for Engineers</td>
</tr>
<tr>
<td>22M72 Elementary Numerical Analysis</td>
</tr>
<tr>
<td>Advanced statistics course (with advisor’s approval)</td>
</tr>
</tbody>
</table>

### Engineering Science Electives

Students may select one of these:

<table>
<thead>
<tr>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>57010 Dynamics</td>
</tr>
<tr>
<td>57121 Linear Systems Analysis</td>
</tr>
</tbody>
</table>

### Technical Electives

Students may select 12 semester hours from the list below, plus 3 semester hours with consent of advisor, or 9 semester hours from the list below plus 3 semester hours from the engineering science core elective and 3 semester hours with consent of advisor.

<table>
<thead>
<tr>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>56130 Individual Investigation</td>
</tr>
<tr>
<td>56132 Introduction to Industrial Robotics</td>
</tr>
<tr>
<td>56138 Artificial Intelligence in Manufacturing</td>
</tr>
<tr>
<td>56143 Advanced Human Factors Engineering</td>
</tr>
<tr>
<td>56145 Advanced Managerial Psychology</td>
</tr>
<tr>
<td>56150 Microcomputer Applications</td>
</tr>
<tr>
<td>56153 Engineering Administration I</td>
</tr>
<tr>
<td>56155 Quantitative Investment Analysis</td>
</tr>
<tr>
<td>56156 Engineering Economic Decisions</td>
</tr>
<tr>
<td>56157 Quality Engineering I</td>
</tr>
<tr>
<td>56164 Reliability Theory and Practice</td>
</tr>
<tr>
<td>56175 Regression Analysis</td>
</tr>
<tr>
<td>56177 Systems Simulation</td>
</tr>
<tr>
<td>56195 Contemporary Topics in Industrial Engineering</td>
</tr>
</tbody>
</table>

### 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 linchpin of these products or services, it is essential that engineers must identify and improve quality throughout all phases of the product’s or service’s creation and use. Quality has an economic and environmental factor that require action, as well as during the design, development, and manufacture of products and services.

The background requirements for quality engineering are similar to those of industrial engineering. Consequently, a specialization in quality engineering can be obtained through the selection of elective courses in the industrial engineering program. For the quality engineering specialization, 12 semester hours are required from the following list.

<table>
<thead>
<tr>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>56130 Engineering Administration I</td>
</tr>
<tr>
<td>56132 Quality Engineering I</td>
</tr>
<tr>
<td>56145 Reliability Theory and Practice</td>
</tr>
<tr>
<td>56176 Regression Analysis</td>
</tr>
</tbody>
</table>
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 five broad background, career objectives, and academic performance. 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, and operations research and applied statistics.

Manufacturing courses, devoted by the 25 semester hours, are divided into selecting appropriate manufacturing materials, quality control, manufacturing processes, and emerging technologies in manufacturing and applications of artifical intelligence in manufacturing are covered.

Human factors studies concentrate on applying the psychologic, physiological and sociologic sciences to problems in manufacturing and service systems. These problems concentrate on working conditions and interactions in human organization, with an emphasis on managing and motivating these people. Courses in the 60 series cover these topics.

Informatio and management engineering studies concentrate on computerized information systems design and development of software. Other topics include emerging administration, and economic systems. This area is covered by courses in the 20 series.

The quality and production control area involves facilities design, quality assurance, reliability, and production control. This area of concentration is covered by courses in the 10 series.

Studies in operations research and applied statistics concentrate on statistical, mathematical, and systems 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 75 series cover these topics.

Most graduate students lead to focus on one of these specialty areas, while others distribute their studies over more than one area.

Students in the graduate program participate in research in the areas of their academic concentration. Ongoing manufacturing research concentrates on flexible manufacturing systems, design, optimum control of production and design. Manufacturing research includes computer control, pattern recognition of parts. Current research is in human factors engineering and computer simulation of the effects of visual and auditory information on human performance. Cognitive research is directed to the use of digital simulation to solve human behavior problems. Industrial inspection, computer-aided human performance testing, and techniques of ergonomic data collection and analysis.

Some current research in information and management engineering manages consultation and computerized information management, governmental restructuring, marketing, microeconomic and economic role analyses. Quality control and production control research is currently focused on computer-aided systems and scheduling, materials handling systems, location and allocation of automated systems, on line expert systems in process control, and inventory/reorder accuracy assurance procedures.

Ongoing research in operations research and applied statistics is directed toward optimization, expert systems in scheduling and dispatching, the development and software of micro computer-based systems 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. It requires a minimum of 36 semester hours of 200 level or higher, including at least 7 semester hours of course work in the 750 level or 3 or the 400 level with the designation "advanced" or "contemporary topics" in the title.

Each student develops a tentative plan of study through consultation with his or her advisor. The final plan of study is reviewed by the student's examining committee and approved by the industrial engineering program coordinator and the Graduate College dean.

During the first semester of study, students are required to take a comprehensive exam on the 200 level course work.

Entrance students in all programs need a background in computer programming, probability, statistics, and mathematics. Equivalencies to these requirements are determined for students who are deficient in these areas.

Students from business or social science programs with a non-quantitative background in mathematics may also be considered for regular or conditional admission. Students with conditional status include regular

Doctoral Philosophy

Typically, a Ph.D. program in industrial engineering requires at least 24 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 requirements for research techniques. Admission to degree candidacy requires a minimum grade-point average of 3.0 on all graduate work taken at the University of Iowa and the demonstration of a capacity for individual achievement.

Upon completing the work specified for admission to candidacy, students are admitted to the comprehensive examination, which includes both written and oral parts. Part of this examination includes the presentation of a dissertation proposal, so that the advisory committee can evaluate the student's academic preparation in light of the proposed research. Students satisfactorily completing this examination, students are accepted as candidates for the Ph.D. and usually have only to complete and defend their dissertations.

Post-graduate (Ph.D.) study is discouraged.

Admission

Students with an M.S. objective may be admitted on an A.I.E.E.-approved baccalaureate curriculum in any engineering discipline or the mathematical or physical sciences with a minimum grade-point average of 2.75 and an acceptable score on the Graduate Record Examination General Test (Typically at least 600 verbal, 600 quantitative). Applicants from non-U.S. institutions must meet equivalent criteria for regular admission. Students may be considered for conditional admission with a lower grade-point average and lower GRE Quantitative scores.

Students from business or social science programs with a non-quantitative background in mathematics may also be considered for regular or conditional admission. Students with conditional status include regular
Human Factors/Ergonomics
56.104 Design of Work Methods 3 h
Principles of analysis and design required to investigate and improve human-system interactions. Students will complete laboratory experiments and mini-projects. Prerequisites: 75.20 or 76.201 and 110.112 or 110.113.

56.123 Artificial Intelligence in Manufacturing 3 h
Practical use of intelligent software to recognize and reason about patterns in the behavior of machines. Students use intelligent software to recognize and reason about patterns in the behavior of machines. Prerequisite: 76.104 or consent of instructor.

Human Factors/Ergonomics
56.104 Design of Work Methods 3 h
Principles of analysis and design required to investigate and improve human-system interactions. Students will complete laboratory experiments and mini-projects. Prerequisites: 75.20 or 110.112 or 110.113.

56.123 Artificial Intelligence in Manufacturing 3 h
Practical use of intelligent software to recognize and reason about patterns in the behavior of machines. Students use intelligent software to recognize and reason about patterns in the behavior of machines. Prerequisite: 76.104 or consent of instructor.

Graduate Seminars.
Advanced Topics, Research Engineering
56.131 Graduate Seminar 1 Industrial Engineering 3 h
Studies on recent developments in industrial engineering presented by guest lecturers, faculty, and students. Graduate standing required.

56.135 Industrial and Systems Engineering
56.104 Design of Work Methods 3 h
Principles of analysis and design required to investigate and improve human-system interactions. Students will complete laboratory experiments and mini-projects. Prerequisites: 75.20 or 110.112 or 110.113.

56.123 Artificial Intelligence in Manufacturing 3 h
Practical use of intelligent software to recognize and reason about patterns in the behavior of machines. Students use intelligent software to recognize and reason about patterns in the behavior of machines. Prerequisite: 76.104 or consent of instructor.
Chen, Fred

Mechanical Engineering

Mentor professors: Christoph Beckersmann, Sun J. Kim, J. Finko, Y. Yao
Undergraduate degree offered: B.S.E. in Mechanical Engineering
Graduate Degrees offered: M.S., Ph.D. in Mechanical Engineering

Mechanical engineering is broad, concerned with energy, including its transmission from one form to another, its transformation, and its utilization. Mechanical engineers conceive, plan, design, and direct the manufacture, distribution, and operation of a wide variety of devices, machines, and systems—including complex machine manufac-turing plants—for energy conversion, environmental control, materials processing, transportation, materials handling, and other purposes. A description of the field includes thermofluids 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, materials processing, heating, ventilating, air-conditioning and refrigerating plants, 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, trucks, buses, and 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, energy-generation utilities, automotive, material fabrication, food processing, metal-processing industries, petroleum refining, electronic and computer industries, electrical utilities, heavy construction vehicle manufacturers, hospital 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. 380 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 units: mathematics and basic sciences, engineering science, 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 mathematical and basic sciences are the engineering science: 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, moral, and political decision-making. Therefore, mechanical engineers must possess appreciation of social and humanities areas 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 steps are introduced in an orderly fashion 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
4.12 Principles of Chemistry I 3 s.h.
10.131 Statics 4 s.h.
223M-35 Engineering Calculus I 4 s.h.
221N-35 Introductory Physics I 4 s.h.
Humanities or social science elective 3 s.h.
Total 17 s.h.

Second Semester
4.12 Principles of Chemistry Lab I 2 s.h.
223N-35 Engineering Calculus II 4 s.h.
230N-40 Marine Animal for Engineers 1 s.h.
221N-40 Introductory Physics I 4 s.h.
57.02 Engineering I 3 s.h.
Total 15 s.h.

Sophomore Year

First Semester
221M-43 Vector Calculus for Engineers 3 s.h.
221N-40 Introductory Physics II 4 s.h.
57.15 Statics 2 s.h.
57.17 Thermodynamics I 3 s.h.
57.15 Materials Science 3 s.h.
Total 15 s.h.

Second Semester
223N-45 Differential Equations for Engineers 3 s.h.
57.02 Electrical Circuits 3 s.h.
57.15 Mechanics of Deformable Bodies 3 s.h.
Humanities or social science elective 4 s.h.
Total 16 s.h.

Junior Year

First Semester
225N-59 Probability and Statistics for 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.
57.22 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.
Total 17 s.h.

Second Semester
25.42 Modern Physics 3 s.h.
58.60 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 or social science elective 3 s.h.
Total 15 s.h.

Senior Year

First Semester
58.85A Mechanical Systems Design 4 s.h.
58.95E Professional Seminar—Mechanical Engineering 0 s.h.
Technical electives 3 s.h.
Humanities or social science elective 3 s.h.
Total 16 s.h.

Second Semester
58.80 Experimental Engineering 4 s.h.
58.60 Mechanical Engineering Project 3 s.h.
Technical electives 3 s.h.
Humanities or social science elective 3 s.h.
Total 16 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' options may result from an extension developed in the last course. Students should consult with upper-division advisor for selection of elective courses. Guidelines for selecting technical electives are as follows.
A minimum of two electives from mechanical engineering courses must be taken.

Engineering courses at the 100-level, as well as chemistry, physics, or

chemistry courses at a more advanced level than those required in

courses, may be taken as technical electives.

One elective course may be chosen from engineering courses that are listed as another engineering curriculum.

One course from the College of Business Administration may be elected, with the

permission of the dean of the College of Business Administration, numbered below 100.

(Co-requirements may be taken as

social science electives.)

A maximum of 3 semester hours of individual investigation may be used as

elective credit. Individual investigations are not routinely taught, but they

may be allowed in special circumstances.

Students are encouraged to take courses in several areas to gain a broad background in mechanical engineering. Some technical elective courses are:

Control Systems Engineering
58 131 Feedback Control Systems 3 s.h.
58 137 Control System Design 3 s.h.
58 143 Control Theory 3 s.h.
58 153 Computer-Based Control Systems 3 s.h.

Mechanical Systems Engineering
58 110 Computer-Aided Engineering 3 s.h.
58 120 Analytical Fluid Mechanics 3 s.h.
58 121 Advanced Machine Dynamics 3 s.h.
58 153 Fundamentals of Vibration 3 s.h.
58 155 Intermediate Dynamics 3 s.h.
58 120 Theories of Failure in Design 3 s.h.
58 177 Composite Materials 3 s.h.

Thermal Systems Engineering
58 140 Thermodynamics 3 s.h.
58 146 Intermediate Heat Transfer 3 s.h.
58 148 Combustion and Propulsion Engineering 3 s.h.

Thermal-Fluid Engineering
58 150 Intermediate Mechanics of Fluids 3 s.h.
58 182 Experimental Methods in Fluid Mechanics and Heat Transfer 3 s.h.
58 162 Elements of Gas Flow 3 s.h.
58 167 Aerosol Dynamics 3 s.h.

General
58 169 Individual Investigations 3 s.h.
58 111 Numerical Calculations 3 s.h.
58 113 Mathematical Methods in Engineering 3 s.h.
58 148 Finite Element Techniques in Engineering 1 3 s.h.
58 149 Contemporary Topics in Mechanical Engineering 1 3 s.h.

For more information on the undergraduate program in mechanical engineering, see the Undergraduate Handbook, available in the department office, 2025 Engineering Building.

Graduate Programs
The goal of the graduate program is in the Department of Mechanical Engineering is to ensure that students in the disciplines of mechanical engineering in more depth and breadth than is possible at the baccalaureate level. The program prepares the graduate to use computer-aided methods at advanced levels in professional careers in engineering design, research, testing, and teaching. Each student's plan of study is based on his or her background and career objectives as well as on academic performance. Departmental faculty members have teaching and research expertise in energy conversion, fluid and thermal sciences, solid mechanics, fluid mechanics, and related areas.

Students may develop programs emphasizing fluid mechanics, thermodynamics, heat transfer, fatigue and fracture mechanics, and mechanical systems. MS. students wishing a more general program may combine emphasis in more than one area through elective course work and research projects.

Research
Fluid Mechanics
The graduate program in fluid mechanics provides the student with a rigorous and broad foundation in the fundamental, analytical, and experimental aspects of the subject. It is especially suitable for those seeking careers in industry or teaching research is academic and experimental.

A dissertation, which forms the basis for the student's thesis, is required in the acquisition and processing of experimental data.

Thermal-Fluid Engineering
Thermal-Fluid Engineering is oriented to the development of research projects. The major purposes are to explore new experimental techniques and to apply these techniques to the solution of problems in the field of fluid mechanics.

The research projects are offered by the Department of Mechanical Engineering. Students are strongly encouraged to select applied mathematics and experimental methods 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 flow, fluid separation and control, biomedicine, ship hydrodynamics, viscous flow around ships, propulsion flow and propulsion system, and turbulence effects on fluid mechanics theory, body hydrodynamics, internal flow, underwater acoustics, low Reynolds number flow, quantitative flow visualization and image processing, 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, the application of which is in the industrial, teaching, and research.

The program provides fundamentals of thermodynamics, heat transfer, and combustion. It includes advanced analytical, experimental, and computational methods of the solution of engineering problems. 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 their studies with courses from other areas, such as

mathematics and 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, experimental, and computational methods of applied heat and mass transfer with gas and surface-effective effects of combustion of fuel transfer, shock generation of particle-laden gas, heat spot detection, and the passage of energetic materials, transition to detonation, in granular materials, natural convection, combustion, gasdynamic, as well as turbulent flow, diffusional flames, spray atomization and combustion, liquid metal combustion, boundary-layer combustion, transport, heat and mass transfer, process engineering, and fluid and solidification, process media, chemical and process control of thermal systems, and flow visualization of complex connection 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 testing. The program emphasizes fundamental engineering principles, techniques, and experimentally used to analyze and design mechanical systems. Areas of concentration include fluid dynamics, control design, structural optimization, control systems, and the development of mechanical systems. All students are encouraged to take appropriate courses offered by the
Master of Science

The M.S. program requires a minimum of 30 graduate hours of course work and research. Students may choose either a thesis or non-thesis option, and no more than 9 semester hours of course work in research and writing may be counted toward the 30-semester-hour requirement. Each student determines a plan of study in consultation with an advisor and submits the plan to the department.

To earn the M.S. degree, the student must complete a minimum grade-point average of 3.00 on a 4.00 scale in all graduate-level courses used to satisfy the degree requirements, and must be successful in the final examination. This examination is administered by the student's advisory 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. degree may be completed within two calendar years. However, if circumstances (such as work duties or other constraints) require, the student may take up to two additional years to complete the degree.

Doctor of Philosophy

Typically, Ph.D. programs in mechanical engineering require approximately 90 semester hours of coursework, including research; teaching; and research and teaching activities in the department. The student must pass the comprehensive examination after passing the qualifying examination and when the course work is completed. In any case, the dissertation must be accepted by the student's thesis committee at least six months before the required final date for the dissertation. The dissertation must be presented in open public seminars and published online in the Digital Repository of the institution.

Admission

Admission to the Ph.D. degree program is based on the applicant's academic record, written statement of purpose, and letters of recommendation. The student must have completed at least 30 semester hours of coursework and research work beyond the bachelor's degree. Ph.D. students with a minimum grade-point average of 3.00 on a 4.00 scale in all graduate-level courses used to satisfy the degree requirements may be considered for admission to the Ph.D. program.

Doctoral students are admitted to the Ph.D. program on a competitive basis. The admission committee may require additional information to evaluate the student's qualifications for admission.

Doctor of Philosophy in Mechanical Engineering

The Ph.D. program in Mechanical Engineering is designed to prepare students for careers in research and development, with a focus on advanced engineering and scientific research. The program is offered through the Department of Mechanical Engineering and the College of Engineering.

The Ph.D. program is designed to provide students with the knowledge and skills necessary to conduct independent research in a specialized area of mechanical engineering. The program is structured to support the development of critical thinking, problem-solving, and research skills, and to prepare students for careers in academia, industry, or government.

Financial Aid

Financial aid is available to M.S. and Ph.D. students, primarily through teaching and research assistantships from the Department of Mechanical Engineering. These assistantships provide a stipend for teaching or research assistance, and may include tuition remission and health insurance.

The department offers a variety of assistantships, including teaching assistantships, research assistantships, and graduate fellowships. These opportunities are open to both full-time and part-time students, and are awarded on a competitive basis based on academic performance and other criteria.

Requirements and Elective Coursework

The requirements for the Ph.D. program are listed on the graduate program website and are subject to change. The Ph.D. program requires a minimum of 90 semester hours of coursework and research work beyond the bachelor's degree. Students may select electives from a wide range of topics, including mechanical engineering, materials science, and applied mathematics.

The Ph.D. program is designed to support the development of critical thinking, problem-solving, and research skills, and to prepare students for careers in academia, industry, or government. The program is structured to provide students with the knowledge and skills necessary to conduct independent research in a specialized area of mechanical engineering. The program is offered through the Department of Mechanical Engineering and the College of Engineering.
Mechanical Systems
Simulation studies in the mechanical systems simulation office normally carried out in the Center for Computer-Aided Design and High-Speed Computing Facility Laboratory. This combined laboratory is another outstanding computer facility consisting of an advanced IBM mainframe computer, equipment facilities, multimat laboratory, various types of microcomputers, a variety of high-speed, high-volume data-acquisition systems and a variety of high-speed data-acquisition systems.

Thermal Sciences
Facilities for research in the thermal sciences and systems control of a special laboratory consists of various room air conditioning systems and equipment for property measurements, a low-temperature cryogenic system, a low-temperature storage system, and various optical measurement systems. Laser-based diagnostic systems (e.g., laser-induced fluorescence, phase imaging, and laser Doppler anemometry) are available for routine flow, heat transfer, and combustion studies. Flow visualization and imaging by CCD (Charge Coupled Device camera) and electron emission microscopy are available.

Fatigue and Fracture
Experimental facilities for the fracture and fatigue 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, a large segment for characterization of material properties, nonlinear fracture mechanics test equipment.

Courses
Special
S188 Cooperative Education Terminal Assignment/Mechanical Engineering
Mechanical engineering student participating in the Cooperative Education Program is expected to take part in a structured work experience that allows the student to gain job-related experience.

S544 Engineering 1
Course content: general engineering fundamentals, mathematical concepts, and practical applications. Emphasis on problem-solving techniques, design of experiments, and the use of computer-aided design and simulation software.

S603 Packaging Engineering 1
Course content: introduction to packaging materials and processes, design principles, and industry-specific applications. Focus on sustainability and environmental impact.

S651 Introduction to Vehicular Engineering
Course content: fundamentals of vehicular engineering, including aerodynamics, propulsion systems, and vehicle dynamics. Focus on design and analysis of modern automotive vehicles.

General
S205 Lubrication
Course content: theory and practice of lubrication, including fluid dynamics, tribology, and practical applications.

S207 Fluid Mechanics 1
Course content: fundamentals of fluid mechanics, including fluid properties, fluid flow, and heat transfer. Focus on applications in engineering design.

S410 Computer-Aided Engineering
Course content: introduction to computer-aided engineering, including computer-aided design and simulation software. Focus on design and analysis of mechanical systems.

S411 Numerical Calculations
Course content: development of algorithms for solving engineering problems, numerical differentiation and integration, solution of algebraic and differential equations, and error analysis in high-precision computations.
56.181 Graduate Seminar Mechanical Engineering
Preparation and description of research problems and concepts in mechanical engineering for advanced study, faculty, and students. Graduate standing required.

56.195 Contemporary Topics in Mechanical Engineering
Preparation and description of current issues and mechanical systems not covered in other courses. Topic and offerings determined by academic interest. Junior standing required.

56.280 Individual Investigation in Mechanical Engineering
Individual research in any aspect of mechanical engineering. Includes lab research, laboratory study, and senior design project. Analysis and presentation of results. Graduate standing and consent of advisor required.

56.289 Research in Mechanical Engineering
Ph.D. Dissertation
Examination of a research investigation of an approved topic for partial fulfillment of the requirements for the Ph.D. degree in mechanical engineering. Consent of advisor required.
Laser research in the Department of Physics and Astronomy

Acting Dean: Leslie Clark
Dean for advanced studies: Rudolph M. Schulz
Associate deans: James F. Whitehead, Charles H. Moore
Graduate examiner: Casso Coo
The University of Iowa has been a leading center of advanced study for three-quarters of a century. Presently, more than one-half of its enrollment is in the Graduate College. This unusually high ratio reflects the breadth of the University's graduate programs and recognizes the strength of a graduate faculty with a long tradition of research and many national resources. 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 of the standards 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 as 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 centers the Master of Arts (M.A.), Master of Science (M.S.), Master of Industrial Administration (M.B.A.), 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 Public Administration (M.P.A.), Doctor of Philosophy (Ph.D.), and Doctor of Musical Arts (D.M.A.) degrees.

The college currently offers degrees in the following fields: Academic Affairs—M.A., Master of Science (M.S.), 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 Public Administration (M.P.A.), Doctor of Philosophy (Ph.D.), and Doctor of Musical Arts (D.M.A.) degrees.

Applied Sciences—M.S., M.B.A., M.P.A., M.S.W.

Art History—M.A., M.F.A., M.S.

Art—M.A., M.F.A., M.S.

Astronomy—M.S.

Biology—M.S., Ph.D.

Biomedical Engineering—M.S., Ph.D.

Business Administration—M.B.A., M.S.

Chemical Engineering—M.S., Ph.D.

Chemical Physics—M.S., Ph.D.

Chemistry—M.S., Ph.D.

Civil Environmental Engineering—M.S., Ph.D.

Classics—M.A., Ph.D.

Communication Studies—M.A., Ph.D.

Comparative Law—M.L.L., Ph.D.

Comparative Literature—M.A., M.F.A., Ph.D.

Computer Science—M.S., Ph.D.

Criminal Justice and Corrections—M.A., M.S.

Dance—M.F.A.

Dentistry—M.D.

Dental Public Health—M.S.

Economics—M.A., M.P.H., Ph.D.

Education—M.A., M.A.T.*†, Ed.D., Ph.D.

Electrical and Computer Engineering—M.S., Ph.D.

Endocrinology—M.S.

English—M.A., M.F.A., Ph.D.

French—M.A., Ph.D.

Geometries—Ph.D.

Geography—M.A., Ph.D.

Geology—M.S., Ph.D.

Germans—M.A., M.S.

Greek—M.A., M.S.

History—M.A., Ph.D.

Home Economics—M.A., M.S., Ph.D.

Hospital and Health Administration—M.A., M.P.H., M.S.

Human Nutrition—Ph.D.

Industrial and Management Engineering—M.S., Ph.D.

Journalism—M.A.

Latin—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.

Medical Physics—M.S., Ph.D.

Molecular Biology—Ph.D.

Music—M.A., M.F.A., M.S., D.M.A., Ph.D.

Neuroscience—Ph.D.

Nursing—M.A., Ph.D.

Operative Dentistry—M.S.

Oral and Maxillofacial Surgery—M.S.

Orthodontics—M.S.

Psychology—M.S.

Pediatric Dentistry—M.S.

Periontology—M.S.

Pharmacology—M.S., Ph.D.

Pharmacy—M.S., Ph.D.

Philosophy—M.A., Ph.D.

Physiological Education—M.A., Ph.D.

Physical Therapy—M.A., M.P.T., Ph.D.

Physics—M.S., Ph.D.

Physiological and Biophysics—M.S., Ph.D.

Political Science—M.A., M.P.H.

Preventive Medicine and Environmental Health—M.S., Ph.D.

Public Health—M.S.

Psychology—M.A., M.S.

Public Affairs—M.A.

Quality Management and Productivity—M.S.

Radiation Biology—M.S., Ph.D.

Religion—M.A., Ph.D.

Roman—M.A.

Science Education—M.S., Ph.D.

Sociology—M.S., Ph.D.

Speech Pathology and Audiology—M.A., M.S., Ph.D.

Statistics—M.S., Ph.D.

Stomatology—M.S.

Theater Arts—M.F.A.

Urban and Regional Planning—M.A., M.S.

*Degree offered with or without thesis

**Nonthesis degree

*Student entry approved

**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 be admitted to a degree program and enrolled in a departmental program in the Graduate College. For details, see section X2E, "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 in this program is on a student's transcript certifying completion of an approved curriculum in aging studies. For further information about the "Aging Studies Program" in the College of Liberal Arts see section of the Catalog.

**Applied Mathematical Sciences**

The program in Applied Mathematical Sciences is a broad-based interdisciplinary program leading to the Ph.D. degree. Students combine study of theoretical and applied aspects of a mathematical science (mathematics, statistics, or computer science) with expertise in a second area (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.

**Center for International and Comparative Studies**

The Center for International and Comparative Studies (CICS) coordinates and supports interdisciplinary studies at The University of Iowa. Founded as a special committee in 1981, CICS was recognized as an academic center by Iowa State Board of Regents in April 1984. In 1985 and again in 1988, CICS was awarded grants from the U.S. Department of Education to establish a Title VI National Resource Center on International Studies, one of only nine such centers in the United
States. The grants support a variety of research and instructional activities that focus on language and communication, international health, and international development. Funding from other sources supports additional research and instructional activity in global studies and other area studies, the arts, and human rights.

As a national resource center, OCS serves the state, the region, and the nation by making available the human and bibliographic resources of the University through a variety of programs, publications, and research activities. Within the University, the center extends financial support to existing international programs while encouraging new research and new teaching activities. It emphasizes international studies in three major areas: research support and development for University faculty and students, instructional programs at the undergraduate and graduate levels, and public programs and outreach activities. The center is administered by a half-time faculty director, a full-time assistant director, and an executive committee of the faculty chairs of the nine OCS constituent programs (see "Interdisciplinary Programs," below). OCS officers and classrooms are located in the International Center. The center is funded administratively by the Office of the Vice President for Academic Affairs.

Interdisciplinary Programs

Nine interdisciplinary programs are represented in OCS. Five promote instruction and research with a geographic focus: Latin American Studies Program (LASP), the Program in Asian Civilizations (PACE), the Global Studies Program (GGP), the Latin American Studies Program (LASP), and the Soviet and East European Studies Program (SEESP). Three additional programs are also involved with graduate and undergraduate instruction in the College of Liberal Arts (for further details): the Institute for Women in International Development (IWIN), the center also houses or works closely with four affiliated programs: the Artists, Artisans, and Traditional Technologies in Development Project, the Development Support Communications Program, the Committee on Socioeconomic Justice and Human Rights, and the Foreign Language Assessment Project.

Faculty members and students active in center programs represent all colleges of the University and every department in the College of Liberal Arts.

International Research

Each year, the center announces research and curriculum development grants to faculty and staff. Language and Area Studies Fellowships to graduate students, and Research and International Studies Scholarships to undergraduate students. It supports research projects in Africa, Asia, Latin America, and the United States that involve faculty and staff exchanges, technical assistance, development consultancies, and internships. In conjunction with University Libraries, the center also publishes faculty research in the Asia International Papers and the Asia International Bibliographic Guide. A number of visiting foreign scholars and research fellows are affiliated with the center each year, working there for a month to a year. They offer workshops, seminars, and lectures and work on their own research.

Instructional Programs

The center supports instruction through courses, seminars, and a news magazine. Curriculum development grants awarded to faculty each year; and degree programs offered by the center's constituent programs in conjunction with academic units. Courses are taught by center faculty, postdoctoral research associates, visiting foreign faculty, and fellows in the Center's Visiting Professionals Program. Students earn certificates in African studies, global studies, and Latin American studies; minors in global studies and Latin American studies; majors in global studies; and master's degrees in development studies and communications, administered by the School of Journalism.

Public Programs and Outreach

More than 100 public lectures, seminars, films, and conferences are sponsored by the center and its constituent programs each year, and OCS cooperates with the Iowa City Foreign Relations Council as well as with other community organizations in providing speakers, training workshops, and other outreach resources. The center also publishes a newsletter four times a year. Those public programs and outreach activities are free and open to the University community and the public.

Genetics

The PhD. program in genetics is an interdisciplinary program involving members of the Departments of Biochemistry, Biology, Botany, 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 national candidates who desire careers in research or teaching in a medical setting. See "Human Nutrition" in the College of Medicine section of the Catalog.

University Center for Film and Critical Studies in Paris

Program coordinators: Charles F. Atkinson, J. Eddy Lee

The University of Iowa is one of 21 colleges and universities associated with the Council on International Exchange of Scholars (CEIES) and sponsors a Film Studies Program in a Contemporary Criticism and Culture Program. These are two unique academic opportunities offered at the Centre Universitaire Americaine du Cinemat et de la Critique, 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 psychology. Students discuss themes such as the evolution of the early cinema, the silent films of Griffith, Lang, Disney, and Kurosawa, the classic Hollywood film, French cinema during and after the Revolution, and Japanese and European avant-garde cinema. Educational Exchange (CEE), and sponsors a Film Studies Program in a Contemporary Criticism and Culture Program. These are two unique academic opportunities offered at the Centre Universitaire Americaine du Cinemat et de la Critique, Paris.

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and cultural development of groups of ordinary people, seen in their urban or regional context.

Students may concentrate in one of those programs entirely or develop an individual program matching elements from both study centers' components.

Participating students are registered in one of the following programs: Anthropology, Urban and Regional Planning, Political Science, and Geography.

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. For further details see the College of Law section of the Catalog.

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 the Catalog for further information. Established joint programs are in Business Administration/Library and Information Science/Economics/Urban and Regional Planning; Hospital and Health Administration/Urban and Regional Planning; Social Work/Urban and Regional Planning; Psychiatry/Environmental Medicine and Environmental Health/Urban and Regional Planning.

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 Scientific 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 Biology, Biochemistry, Medicine, Microbiology, Pathology, and Physiology. 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.

Physician Assistant/Preventive Medicine and Environmental Health Joint Program

Students who already have a baccalaureate degree may jointly pursue a Master of Science degree with a major in preventive medicine and environmental health in the Graduate College and a Bachelor of Science degree in the Physician Assistant Program in the College of Medicine. See "Physician Assistant Program" and "Preventive Medicine and Environmental Health" in the College of Medicine section of the Catalog.

Quality Management and Productivity

The interdepartmental Program in Quality Management and Productivity leads to the M.S. degree. Co-sponsored by the Departments of Statistics and Actuarial Science, Industrial and Management 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 Business Administration section of the Catalog.

Transportation Studies

The Program in Transportation Studies is an interdisciplinary, multidisciplinary program that deals with the planning, analysis, and operation of transportation systems. Students select a track in the program in conjunction with work toward a graduate degree in civil engineering, environmental engineering, geography, or public administration. Upon completion of the Graduate degree, the student's degree program in Transportation Studies is completed. Further details are in "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 widely varied positions in government and the private sector. The program has a strong policy orientation that enables its graduates to influence urban-planning decisions in the various areas of the city, including the roles of government in the private sector. The program has a strong policy orientation that enables its graduates to influence urban-planning decisions in the various areas of the city, including the roles of government in the private sector. The program offers courses in public administration, urban design and planning, public finance, environmental planning, and urban economics. Students may also take courses in related fields such as urban planning, environmental studies, land use, housing, and several other areas. A number of joint appointments lower-division faculty are classified as "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. The Office of the Vice President for Research is the primary support agency for research activities. The following are the primary sources of assistance:

Teaching and Research Assistantships

Assistantships are available in most departments, typically $2500-$4000 per academic year. Eligibility requirements and application procedures are set forth in "Section V: Graduate Assistantships: In Arts and Sciences" in the Catalog. The following are the primary sources of assistance:

Iowa Arts Fellowships

For first-year graduate students entering M.F.A. programs, typical stipends are $10,000 for the academic year with all tuition paid; for as many as two years (the second year being contingent on demonstration of continued excellence in graduate work and completion of the M.F.A. degree, no tuition or fees paid). The University of Iowa Foundation Fellowships

One-year awards for doctoral students new to graduate study at The University of Iowa; 12-month stipend of $12,000, with all tuition paid; no departmental service obligations. The University of Iowa Foundation Fellowships

For first-year graduate students entering doctoral programs, typical stipends are $14,956 for one year on a year-round basis with all tuition paid, for as many as four years (after three years, past research participation assures that the recipient will be involved in teaching, research, and departmental activities; in the fourth year, the recipient will be a research assistant). The recipient will be expected to complete a major research project by the end of the fourth year. The recipient will be expected to complete a major research project by the end of the fourth year. The recipient will be expected to complete a major research project by the end of the fourth year. The recipient will be expected to complete a major research project by the end of the fourth year. The recipient will be expected to complete a major research project by the end of the fourth year. The recipient will be expected to complete a major research project by the end of the fourth year. 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Other Sources
University and National Direct student loans are available through the University's Office of Student Financial Aid.

Many departments offer additional support through traineeships, part-time employment in research, or part-time teaching appointments. The Office of the Vice President for Research maintains a library of information on public and private agencies that provide funds for research and graduate study. Much material has been collected concerning awards for overseas study.

Graduate Student Senate
The Graduate Student Senate is the University graduate student body representative organization. Representatives are elected annually from each University department that has a graduate degree program. The senate's primary purpose is to serve the interests of the graduate student body in matters affecting its welfare. The senate advises the dean of the Graduate College on matters pertaining to the college.

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 working 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 other than those 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 in various cities of the world and in many countries throughout the world. Inquiries should be addressed to the TOEFL Educational Testing Service, Princeton, New Jersey (609). Students transferring from unfinished degree programs of other universities and who have not transferred, or who have transferred a grade lower than the minimum established by the Graduate College, are required to take the TOEFL examination and receive a passing grade prior to consideration for admission.

The Graduate College will advise the departments of the students having passed the TOEFL examination. 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.

B. Equity Admission
A graduate and 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.

C. Candidacy
Admission to the Graduate College is not the equivalent of acceptance as a candidate for an advanced degree in which the coursework must be earned through work successfully completed at the University of Iowa. '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, if professional objective for which the student 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.

G. 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 preprofessional) 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.

3. Special—Students with a valid bachelor's degree and who are not planning to become candidates for a graduate degree or certificate. Registration as a special student is available for only one semester or summer session. Before registration for any subsequent semester, including another summer session, a special student must file an application for admission and be approved by a department or program to register or conditional status. A student registering as a nondegree 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 averages. For nondegree students, a minimum grade point average of 2.0 is required for admission to conditional status. A minimum of 2.00 is required for admission to regular status. The graduate point average is
I. Admission of Faculty Members to Graduate Study

Persons who hold faculty rank of assistant professor, associate professor, or professor 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 for permission to enter a departmental program for work leading to a master's degree, certificate, or professional improvement except in the department of his or her appointment or a closely related department. Such petitions must be made to the dean of the college of the department in which the study is to be pursued, and the Graduate Council.

J. Readmission

Students who are admitted to and enrolled in the Graduate College, but fail to register for a period of 30 semesters or more, must apply for readmission. The 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 reapplication.

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 verbal and undergraduate courses, two hours of undergraduate credit may be substituted for one semester hour of graduate credit, with registration limited to a total of 18 semester hours. This equivalency applies to the core and to only a portion of the academic load. Graduate credit is not given for courses numbered under 400. The maximum for the eight-week summer session is 12 semester hours, or two semester hours if two or more semester hours of undergraduate work is included.

The maximum semester-hour registration for work scheduled outside of the regular eight-week summer session will be arranged on a case-by-case basis by the college. Nine semester hours in the regular semester constitute full-time registration. ( Fellowships 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 appointments are permitted to register for the maximum: 3 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 15-semester-hour schedule, a graduate student may register for courses printed in the Schedule of Courses as carrying fewer than 15 semester hours of credit.

C. Changes in Announced Credit

Graduate students who register for courses in an academic year may change their credit load in any course at any time by petitioning the dean of the Graduate College. Credit is not awarded for work taken in an academic year after the semester of registration or the academic year in which the credit is subject to the consent of the advisor and the approval of the dean of the Graduate College.

D. Reduced Schedules for Teaching and Research Assistants and Other Appointees

1. Half-time appointments may register for no more than 12 semester hours during a semester or 18 semester hours during the eight-week summer session.

2. Five-eighths-time appointments may register for no more than 10 semester hours during a semester or five semester hours during the eight-week summer session.

3. Two-thirds and three-quarter-time appointments may register for no more than nine semester hours during a semester or five semester hours during the eight-week summer session.

4. Four-eighths-time appointments may register for no 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 no more than six semester hours during a semester or one semester hour 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 one semester hour of credit for each of the remaining weeks of courses (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 approval of the instructor concerned and the Graduate College Dean.

G. Extramural Registration

After admission to a departmental program in the Graduate College, registration for work done off campus may be accepted for residence credit under the following circumstances:

1. Traveling Scholar Program of the University of Iowa (see "Section III").

2. Research at approved locations under the direction of members of the graduate faculty of the University of Iowa.

3. Field work as part of a regularly scheduled course or research program.

4. Courses taught on campus by members of the graduate faculty (see "Section X D") and assistant professors on campus required on campus for the master's course of degree.

5. Residence graduate credit from another Iowa Regents university (see "Section X D").

6. As many as nine semester hours of graduate credit at the Quad-Cities Graduate Center from faculty other than faculty of the Iowa Regents' universities, permitted only if the student has the student's major department for the specified academic degree.

Extramural registration is not counted 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 GI") and pays established fees. (See "Section
I. 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. No correspondence credit earned after a student has received a bachelor's degree but before enrolling in the Graduate College may be counted toward an advanced degree with approval of the Graduate College upon recommendation of the major department.

A graduate student may not enroll 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

Course numbers 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 courses numbered below 100 in exchange for readings, special projects, or independent study having course numbers of 100 or above.

K. Auditing of Courses

Upon the recommendation of the instructor and of the Department Head or College dean, a college may grant permission to graduate students to audit graduate courses. Credit is not allowed for credit. Auditing is permitted only for a student who has completed all graduate work.

L. Dropping of Courses

All graduate students who drop courses after the deadline date established by the dean of the Graduate College for each semester and posted by the registrar shall receive a grade of W. After the deadline, the student must withdraw by the 10th week of the semester. Registration for courses dropped after the deadline date is not permitted except on the recommendation of the Student Health director or the Student Counseling Service. If a student withdraws after the deadline date, the student must obtain permission from the dean of the Graduate College before being permitted to register.

Section III. Traveling Scholar Program

A. Purpose

The program, under the auspices of the Committee on Institutional Cooperation representing 11 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.

2. After agreement by the student's adviser and the faculty member at the host institution, graduate dean at both institutions will be fully informed by the adviser and the student to approve or disapprove.

3. A CIC Traveling Scholar will be registered at the home university, and fees will be collected and kept by that institution.

4. Credit for the work taken will be recorded at the home university.

C. Conditions

CIC Traveling Scholars will normally be limited to two semesters or three quarters on another campus. Each university retains its full right to accept or reject any student who wishes to study under its auspices.

Section IV. Academic Standing, Probation, and Dismissal

A. Nondoctoral Students

A student, except one on conditional status, shall be placed on probation if he or she has not met the cumulative grade-point average on all work done in residence. If, after completing eight semester hours of graduate work, his or her cumulative grade-point average on all work done in residence is below 2.50, he or she shall be placed on probation; otherwise, the student shall be permitted to continue 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 all work done in residence is 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 placed on probation. Otherwise, the student shall be permitted to continue standing.

C. Restriction on Students on Probation

A student on probation shall not be permitted to take comprehensive or final examinations, nor to register for any degree or certificate, nor may the student receive any graduate degree or certificate.

D. Departmental Regulations and Dissemination of Information

In addition to the above University-wide regulations, departments may establish further requirements which then determine the individual student's standing with regard to probation and dismissal. To this end, each individual department or program shall compile a written list of standards and procedures for work in that area. These documents shall be on file in each departmental office and the office of the Graduate College dean. Copies are to be available for students in the departmental offices, and departments shall make every reasonable effort to inform students. Subsequent changes in standards or procedures shall be communicated by the departmental office and the Graduate College dean. Whenever departments revise standards for a given program, the new regulations will not apply retroactively to the disadvantage of those already in the program. In addition to notifying students that they are subject to the rules of the Graduate College as set forth in the Manual of Rules and Regulations, any standards established by the department more stringent than the general graduate college regulations shall be stated. Information shall be permitted, and required courses and departmental registration policies, departmental grade-point average requirements for changing from one degree program to another, number of courses and credits to be completed, and all other departmental policies shall be explained to the incoming students.

E. Academic Progress, Departmental Probation, and Dismissal Procedures

If a student is failing to meet departmental standards, the department shall warn the student of this fact in writing. The student shall be given a reasonable time to meet the standards prior to departmental dismissal. Any conditions such as conditional admission or probation are completed, the department shall give the time of its imposition written explanation of the status and its time limits.
A student who will not be permitted to register for fall classes to meet standards shall be notified of this fact in writing with reasons for the action provided. Such dismissal may be followed by enrollment in conditional admission, conditional probation, pre-admission status, departmental or course requirements or other requirements, or failure of a regularly scheduled examination or formal evaluation. If a student judge the dismissal decision improper, the student has a right to review. Each department shall establish procedures for handling such reviews. The procedures are to be approved by the Graduate College dean, and shall afford a fair and expedient review. A description of these procedures shall be contained in the departmental regulations described above. (See "Section 11.3")

F. Graduate College Review of Departmental Dismissal

Questions involving judgment of performance will not be reviewed beyond the department level. If, however, the student feels there has been unfairness or some procedural/irregularity concerning dismissal, the student may request a review by the Graduate College. This review may be conducted by the Graduate College dean alone, or the dean may appoint a 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 students from other institutions will be exempt from the student's permanent record by the registrar and a report of this action will be sent to the student's home or his or her major department. Credit for these courses toward the student's 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 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 "Section 11.2," and "X:122," for minimum semester hours required on campus for the master's and doctor's degrees.)

C. Redoubling in Credit

For courses or seminars in independent study, thesis, and research, an audit or pass may report less credit than the number of semester hours for which an 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 adoption of standing rules as the Graduate Council may authorize from time to time to meet group or individual situations. The value of such credit is satisfying requirements for a degree will be determined by the major department with the approval of the dean.

E. Withdrawal of Registration and Proprietary 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 first half of seven to twelve weeks receive two-thirds credit.
3. Students who leave within the period of 13 to 20 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 taking. The term "credit in thesis and research registration" is to be reported to the registrar by individual instructors on the above report card. No less or no more credit may be assigned.

Section VI. Marking System

A. Marks Carrying Graduate Credit

There are A-, A, A+, B-, B, B+, C-, C, and S—satisfactory. The letter grades D, D-, D+, and D+ are to be used on transcripts only (See "Section X.12." Updates in this section may be found on the Graduate College's website.)

B. Marks Carrying No Graduate Credit

These are D-, 0, D, F, I—incomplete, W—withdrawn, U—unsatisfactory. R—registered, and U—unsatisfactory.

C. Audit

It is assigned when a student registered for zero credit attends as an auditor throughout the course, and 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 incompete that mark within the first session of registration after the closing date of the session or which it is given, or else the grade becomes F, except that students with F from the spring semester are exempt from completing the course during the succeeding summer session.

Specific deadliness for the submission of student work to the faculty and for the faculty's report on the grade 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 require the Graduate College dean for permission to use grade of S and U and described above for courses which, in some departments or in some circumstances, are judged to be more appropriate for such grading. In general, these grades may be granted for no more than one semester, and may not 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 department.

F. Grades of S and U

S and U may be used for courses taken by students not enrolled in a department or interdepartmental degree program provided that the instructor of the course and the student's departmental advisor approve the registration. Arrangements for satisfactory/unsatisfactory grading in these courses are accomplished by filing a written request for this type of grading 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 grade. Students may receive marks S and U for courses described in this section; however, in certain requirements, departments, and special projects of the type of offering may require the permission of the Graduate
Council to allow students majoring in one area to register in courses in another area within the same department or program on a satisfactory/unsatisfactory basis. In these instances, satisfactory/unsatisfactory cards will be used as described in the preceding paragraph.

G. Computed Grade-Point Average
This is based only upon graduate work graded A = 3.33, B+ = 3.00, B = 2.67, C = 2.33, C+ = 2.00, D = 1.67, D+ = 1.33, E = 0.00. A grade of A- has a value of 2.63 in computing a student's grade-point average, the cumulative average is truncated as so 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 CMT score above a point to be designated by the Graduate College dean; (d) satisfactory rate of progress in completing the program for the degree.
2. Preference will be given to candidates for the degree of Ph.D.
3. Recommendations for graduate scholarships may be made to the Graduate College by the department's executive, director, or dean. A graduate scholarship shall be awarded without 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 departmental students with outstanding academic records. Fellowships may be awarded on a full-time or half-time basis. 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 in proportion, and a limited academic schedule is permitted (see "Section III-B"). 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 application 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 a letter summarizing the student's qualifications.

D. Graduate 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, scholarship-senior graduate students who show exceptional promise as teachers are selected for graduate 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 promoted or tendered an appointment until after approval for admission to the Graduate College has been given by the director of admissions.

F. Dismissal of Assistants
A uniform policy for dismissal 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 "Scholarships and Loans" section of the Catalog.

I. Other Forms of Support
Many departments offer financial assistance in the form of scholarships, 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 assignments are made by the director of the Graduate College.

Section VIII. Advanced Programs Leading to the Degree in the Graduate College
The subject areas in which the Graduate College offers degree programs are listed under "Advanced Degree Programs" at the beginning of the "Graduate College" 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 advisor. 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, except as noted in the following paragraphs. The session in which the degree is to be conferred but which are away from the University campus during that session may meet the 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 000/001 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 defense) for a graduate degree while enrolled in the Independent Study Session 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 Business Administration degree, Master of Comparative Law degree, Master of Arts in Teaching degree, and such other
master's degrees as approved by the graduate faculty.

B. Plan of Study
The student must file a plan of study approved by the adviser and the Graduate College within the semester 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 II.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 36 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 require sufficient interaction between the students and the graduate faculty, as 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 10 years in the program in which the degree is to be conferred are not counted toward the residence requirement. This rule may be waived by the dean in cases affected by military service.

F. Limits on Professional Courses
Work taken by a student in the Colleges of Dentistry, Law, or Medicine toward 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 baccalaureate 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 10 years or more ago in a professional degree in law, medicine, or dentistry will be counted as part of the residence requirement for non-doctoral 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 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 24 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 performance.

I. 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 Grad 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.")

J. 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 comprehensive examination prescribed by a department and approved by the Graduate Council.

K. Final Examination
The requirements for all master's degrees include a final comprehensive examination of the major department, which may be written or oral. 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 examination 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 regularly scheduled examination period in the following session. The examination may be repeated only once.

Upon recommendation of the 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. At the time of approval of the 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, dance, music, 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, instrumental performance, choreography, poetry, fiction, and translation. Control over the program, the thesis may consist of a novel, a painting, a play, a musical composition, a dance performance, or any other approved artistic accomplishment.

The program leading to the Master of Fine Arts degree 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 the same academic requirements, with a minimum combined total of 60 semester hours of graduate credit.


B. Specialist in Education Degree
This degree is granted upon completion of a prescribed two-year postbaccalaureate program of work.

Degree candidates 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 specialists 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; "I. Final Examinations;" 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, both covering all work for the degree.

The requirement of 60 semester hours may be interpreted to mean that a student can safely finish the college of work 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 in the comprehensive examination 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 45 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 placement are sequenced, 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;" "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 competence in original research or other creative work, and superior comprehension in the discipline. The Doctor of Musical Arts degree indicates marked excellence in performance and pedagogy.

B. Prerequisites

The candidate must present evidence of having completed a satisfactory amount of undergraduate work in the subject prepared for investigation. In the case of deficiency, must register for prerequisite courses.

C. Residence Requirement

The doctorate is granted provisionally on the basis of achievement rather than as 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 is registered for at least a one-third-time assistantship certified by the department as contributing to the student's doctoral program. (For purposes of research 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 plan of study at the doctoral level is the responsibility of the student working together with his or her advisor. A formal plan of study must accompany the departmental request to the Graduate College for permission to conduct the comprehensive examination. The plan will provide a listing of all graduate courses taken which apply toward the degree and a listing of courses in progress or to be completed after the comprehensive examination.

E. Ad Hoc Interdisciplinary Programs

A student may propose a project for an interdisciplinary course of study, including the plan of the comprehensive examination, under the sponsorship of at least three faculty members and the department must 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 or 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 during the ten 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 in the College 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 directed related to the student's major field of study in the Graduate College, and the plan of study must be approved by the student's advisor and the major department. Work completed while registered for a professional degree in law, medicine, or dentistry may be credited towards the new academic year which must be spent in one academic year which must be spent in one academic year which must be spent in the Graduate College.

H. Joint Program for Master's and Doctoral Degrees

Those students who expect to continue their undergraduate education beyond the bachelor's degree may file a joint program for the master's and doctor's degree. The master's degree may be completed with the comprehensive examination for the doctorate for the candidate, the examining committee will file separate examinations for the master's degree and for the comprehensive examination. Upon recommendation of the department and approval of the Graduate College, these students who are well qualified by previous training may submit a plan of study that would justify the doctorate to the doctoral college without earning the master's degree as an intervening part.

I. Requirements in Foreign Languages

There is no general Graduate College requirement in foreign languages. These departments which do require competence in 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 X.D."

Departmental executive officers are responsible for reporting completion of
requirements to the registrar for entry on the student's record.

Specifications of departmental requirements in foreign languages are listed in the Graduate College office and may be changed upon the initiative of the departments.

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 passed not later than the session prior to the session of graduation. This examination, administered only on campuses, 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 with which competence has been certified.

The comprehensive examination is not a delayed qualifying examination. It is intended to evaluate the candidate's mastery of the subject at 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 committee meeting of the dissertation and reported as satisfactory, with reservations, unsatisfactory, or not taken. Candidate's file in the Graduate College office will be kept for a term of four years from the date of examination. Those who receive "satisfactory" votes will make the committee report an examination.

In the event of a report of two or more votes of "unsatisfactory with reservations," the candidate's file in the Graduate College office will be kept for a term of four years from the date of examination. Those who receive "unsatisfactory" votes will make the committee report a dissertation.

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 admitted to candidacy until the student has submitted an application which has been approved by the departmental 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 requirements by registering for 900-900 P.I.D. Postcomprehensive Registration and paying a special minimum fee for any semester in which the department (i.e., department head 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 before the expiration date on which the degree is to be conferred. Two copies of the approved dissertation must be deposited at the office of the Graduate College at least ten days prior to the graduation date. The final deposit can be made only after the end of the semester (summer excluded) following the session in which the final examination is passed; failure to meet this deadline will require resubmission of the dissertation. 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 300 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 Dissertations Abstract Information. One copy of the dissertation is bound and indexed at the University press.

If the dissertation is in some nonprint form (e.g., visual, audio, performance in music) the literature 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 twelve 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—nothing more than 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. 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 of 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 candidate's file in the Graduate College. In case of a report of unsatisfactory in the final examination, the candidate may present himself or herself for reexamination until the next session. The examination may be repeated only once, at the option of the major department.

O. Examination 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 place one or more members of the graduate faculty in a recognized scholar of the profession or in the field of academic discipline. A member of the graduate faculty not on the academic department is required in those cases where a related field outside the major department is
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

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<tr>
<th>Code</th>
<th>Course Description</th>
<th>Type</th>
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<td>086.300</td>
<td>Preliminary Examination</td>
<td>4 a.h.</td>
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<tr>
<td>099.305</td>
<td>Master's Final Examination</td>
<td>6 a.h.</td>
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Exhibit preparation at the Museum of Natural History
Program Objectives

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 is in incomprenant. Component of the University of Iowa (regretfully places equal emphasis on developing fundamental lawyer's skills and an appreciation of the roles of law and lawyers in society. These objectives can be achieved best by an educational program that cultivates active student participation in the learning process and creates regular opportunities for individuals and small groups to continue challenging teachers who are genuinely interested in each student's professional development.

Professional skills development proceeds from an emphasis in the first year on careful reading, close analysis, legal research, organization, and clear, precise writing. Fact gathering, interviewing, counseling, drafting, transaction planning, negotiation, and litigation are among the skills emphasized in the second and third years. Iowa wires in as its commitment to the development of professional skills with full-time faculty in a small group, individualized instruction toward many law school real-world heavy case graduate assistants or adjutant instructors to teach these lawyer's skills.

The University of Iowa College of Law centers upon its graduates the degree or Juris Doctor. By the time the student reaches the degree, students must satisfy the residency requirement, receive credit for 90 semester hours of course work, and complete all required courses, achieve a cumulative weighted average of 3.0, and satisfy the college's free-under research and writing requirements.

Program of Study

Full-Time Policy

The faculty believes these students receive a better legal education when they devote all of their time to educational pursuits. For this reason, although they are expected to pursue their law training on a full-time basis. This policy coincides with the accreditation standards of the American Bar Association and the accreditation of American Bar Association.

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 devote full time to the work should contact the dean's office before registering for classes.

Options for Full-Time Study

The college offers two starting dates to entering students: late May (at the beginning of the summer session) or late August (at the beginning of the fall semester). Most students enter law school in the fall and expect to graduate in May of their third year of study. These students must attend summer school at any point during their careers.

A class of up to 45 students is allowed to enter law school in May of the year for which they applied. Students in the summer entering class 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 six months earlier than they would otherwise be possible. Thus, the accelerated student who began law school in May 1988 may graduate in August 1990.

Students who begin in the accelerated program, however, are not required to enroll 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 in classes designated as first-year courses. No student can be required to enroll for different courses. A student must receive credit for summer semester hours without permission of the dean. No student may take more than 18 semester hours per semester or 13 semester hours in the summer session without permission of the dean.

Summer Session

The summer session consists of two periods of 12 and 7 weeks, during which students are expected to take 12 credits. Students have the option to take a full course during each period or to take two shorter credits during the second period.

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 legal skills into substantive courses taught by regular, full-time faculty. The program's benefits include giving early attention to development of each student's skills in legal analysis, argumentation, research, and writing. In the fall semester (or summer session for accelerated students), the entering class is divided into sections of approximately 30 students. In the spring (or fall for accelerated students), each section contains approximately 30 students.

The subject matter of the small-section courses varies from year to year but has included various subjects, and every course is a first-year curriculum.

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 feedback to both in class and in individual conferences.

First-year students receive one additional credit hour for the small-section program in the first semester and two additional credit hours for their second semester small section. A mandatory curve is applied to the grade distribution in all first-year courses.

Upperclass Program

In the second and third years, students have the opportunity to gain exposure to a broad array of substantive areas of law to concentrate course work or writing and research opportunities in particular areas of interest (e.g. through specialized courses and seminars), and to expand their training in oral and written advocacy skills, in interviewing and counseling, in negotiation, and in litigation. Very few requirements exist in the second and third years. All students must take 710 Appellate Advocacy in the second year. Before graduating, all must take 91220 Circuit Court Advocacy.

Professional Responsibility

Each student must earn five writing credits in order to graduate. Students earn one of the credits automatically by satisfactory completion of 5110 Appellate Advocacy I. They earn the remaining four credits through any combination of courses and activities that carry writing credit, including: mock trial, moot court, drafting courses, independent research, papers, and Law Review. Journal of Corporate Law. 63-489 Legal Clinic, 91422 Chain of Custody Law, 91402 Court, and Appellate advocacy activities.

Legal Clinic

Students who have completed one-half of the law toward their J.D. degrees are eligible to participate in the College of Law Legal Clinic. This provides opportunities for students to apply their theoretical knowledge to real cases under the supervision of faculty members and other attorneys. Clinic students participate fully in interviewing, fact investigation, pretrial discovery, negotiations, and courtroom practice.

Students in the clinical program represents distressed farmers in bankruptcy process, serves as documentation assistance in labor and civil rights, and other clients in a wide range of civil and criminal cases. Students in the clerkship program acts as law clerks to trial court judges. They attend court proceedings, conduct research, and draft legal memoranda and court orders.

Finally, students in the externship program are assigned to trial court judges. They attend court proceedings, conduct research, and draft legal memoranda and court orders.
Students may earn up to a total of 15 semester hours of credit toward a special program, although students taking courses in other schools or colleges of the University may receive no more than 20 semester hours of credit for such courses prior to matriculation.

In addition to those programs carrying academic credit, the College of Law participates each summer in the County Attorney Internship Program, through which students work as paid employees for county attorneys throughout the state.

Joint Law and Graduate Degree Program

The College of Law has developed a number of joint degree programs with other departments of the University of Iowa College of Law under which students simultaneously pursue degrees in both colleges. Under this program, if a student takes a course that is relevant to both degrees, the course can, within limitations, be counted toward the semester hour requirements of both programs, thereby reducing the time required to obtain the two degrees separately. It is hoped that joint degree students contribute to each discipline the insights and experience gained in the other.

Joint degree programs have been initiated with the graduate Departments of Accounting, American Studies, Anthropology, Business Administration, Computer Science, Communication Studies, Economics, Education, Educational Administration, English, Finance, Journalism, Law, Mass Communication, History, Hospital and Health Administration, Industrial Relations and Human Resource Library and Information Science, Music, Philosophy, Political Science, Psychology, Social Work, Spanish, and Urban and Regional Planning. Further information about joint degree programs is available from the academic dean of the College of Law.

International Legal Studies

In keeping with its educational mission of encouraging the acquisition of broad social awareness and technical professionalism comparable with the College of Law, the University of Iowa College of Law offers a strong program of study in the rapidly expanding field of international, comparative, and foreign law.

It does so essentially for three reasons. First, in the era of accelerating global interdependence may find itself or itself confronted by problems that require knowledge not understanding of international law and foreign legal systems. Second, in professionals and community leaders, lawyers often are called upon to influence, both directly and indirectly, the theory and conduct of United States foreign policy. And third, the study of international and comparative law, allowing unique insight into the nature of law and legal process, helps to establish the necessary theoretical foundations upon which superior lawyering skills depend.

Master of Comparative Law Degree Program

The College of Law offers a one-year Master of Comparative Law (M.C.L.) degree to graduate law students from law schools outside the Anglo-American legal tradition. Candidates take a seminar that gives them a general orientation to the American legal system; they also write at least one substantial research paper. The balance of their course work is taken from the regular course offerings of the College of Law.

In recent years, graduates of this program have included law students from the Federal Republic of Germany, France, Italy, Lebanon, the Republic of China, Pakistan, the People's Republic of China, the Republic of South Korea, and Thailand.

Major in International and Comparative Law

Students may elect to earn an M.C.L. degree with a declared major in international and comparative law. Fulfillment of the requirements for this program, which are not more than those for the ordinary J.D. degree, is recognized by special academic distinction on the J.D. diploma.

The J.D. with major in international and comparative law ordinarily takes four years to complete. Students must successfully complete 120 semester hours of academic credit. Thirty must be concentrated in international and comparative law, with 9 of the 30 taken after successful completion of the 90 semester hours of academic credit required for the ordinary J.D. degree.

The prerequisite of 30 semester hours of concentrated work in international and comparative law must be satisfied by fulfillment of the following three requirements:

Successful completion of 22 semester hours of academic credit in international and comparative law, earned through required and elective course work in international and comparative law, as approved by the faculty of the College of Law and as approved by the Dean of the College of Law.

Successful completion of at least 4 semester hours of independent study, research and writing in international and comparative law, culminating in the completion of at least one paper of publishable quality; this requirement may be satisfied only after the successful completion of 90 semester hours of credit toward the ordinary J.D. degree.

Successful completion of at least 4 semester hours of independent study, research and writing in international and comparative law; this requirement may be satisfied only after the successful completion of 90 semester hours of credit toward the ordinary J.D. degree.

Students electing to earn a J.D. degree with declared major in international and comparative law are strongly encouraged to seek advice early in their law school careers from the chair of the program.

Student Life

There are currently 15 student organizations at the College, 3 student-produced scholarly journals, and 3 co-curricular programs, each managed by students that offer specific skills training.

The University Environment

The law school is an integral part of the University, yet in some ways it retains a separate entity. It is located on the west side of the Iowa River, a five-minute walk from the main campus. The law building houses the school's administrative offices, moot court, library, bookstores, conference rooms and classrooms. Names and faces quickly become familiar around the law school, helping entering students to become comfortable with their surroundings soon after school begins.

Law School Placement

The College of Law Placement Office provides career planning and job search assistance to students throughout their professional careers. The law school's placement office sponsors a comprehensive series of informational programs on career options and job search advice. It also maintains a registry of judicial resources and provides opportunities for individual advising by professional staff. Job search assistance is also available to alumni.

A law degree from Iowa is a highly respected credential in the job market, Iowa graduates hold prominent positions on the bench, in business, government, and in education throughout the country. The special rigor that characterizes Iowa's distinctive blend of legal education attracts a wide variety and growing number of recruiters to campus each year. During the most recent academic year, representatives of more than 300 employers visited Iowa City to conduct on-campus interviews. The law school's placement office also searches for prospective employers through written inquiries and off-campus interviews.

Iowa graduates have little trouble finding employment, and more than 90 percent are employed within a few months of graduation. The placement office is a happy to talk to prospective students regarding the college's programs and the success of its graduates.

Facilities

The William L. Boyd Law Building, completed in the spring of 1986, exemplifies...
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Dean: John W. Eckstein
Senior associate dean: Cyril A. Anderson
Associate dean, academic affairs: R. S. Smith
Assistant dean, academic affairs: Elizabeth M. Calde
Associate dean, curricular development: Richard M. Cale
Assistant dean, student affairs: Charles W. Holtz
Assistant dean, Veterans Affairs: John E. Feek
Assistant dean, administrative and finance: William L. Lilligard

Consultants to the dean: Andrew W. Morris, Ph.D.
Paul W. Thompson, M.D.
Consultant to the dean: Richard K. Schwaab
Degrees offered: B.S., M.A., M.D., M.F.T., M.S., Ph.D.
Graduate Programs

The College offers programs leading to graduate degrees through the Doctor of Philosophy in anatomy, biochemistry, microbiology, hospital and health administration, human genetics, 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 and physical therapy.

Medical Scientist Training Program

An interdisciplinary M.D.-Ph.D. program cofounded jointly by the College of Medicine and the Graduate College, the Medical Scientist Training Program provides opportunities for candidates in medicine, 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 science and a commitment to medicine with the full clinical requirements of the medical curriculum. The program entails six to 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 meet detailed requirements 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 instruction of graduate and postgraduate training. Notable among these are the interdisciplinary programs in endocrinology and immunology, in which degrees are not offered, students determine emphasis through appropriate acceptance of a study program. Further information can be obtained from the associate dean for academic affairs.

The following rosters are subdivisions of the College of Medicine.

Center for Health Services Research

The Center for Health Services Research (CHSR) has been the research extension of the Graduate Program in Hospital and Health Administration since 1961. 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 at the University investigate the organization, delivery, evaluation, and financing of health care services.

CHSR interests range from a broad spectrum of current research, including economics, policy, organizational behavior, psychology, operations research, sociology, preventive medicine and environmental health, ethics and community dentistry, nursing, and clinical medicine. Through its research activities, the center promotes links among health organizations throughout the Midwest.

CHSR also sponsors frequent exchanges with professionals and provider associations, policy and planning groups, insurance organizations, health delivery institutions, and other members of the health services research community.

As the driving force behind formation of the Health Services Research Consortium, the center has developed affiliations with the Veterans Affairs Health Services Research and Development Field Programs, the Mercy Consortium for Health Services Research, and the National Institutes for Rural Health Policy.

Clinical Research Center

The Clinical Research Center provides the setting for patient-oriented research in disease processes. Studies of normal physiology and biologic chemistry also are conducted. The center is a discrete unit within the bedside, patient, and nursing staff and is financed by federal grants, enabling faculty members to conduct carefully supervised studies that could not be accomplished elsewhere.

Integration of research and patient care is facilitated by drawing upon the resources of existing beds at the affiliated hospitals.

Mental Health Clinical Research Center (MHCRC)

The MHCRC is directed by the director of the College of Medicine. The MHCRC is concerned with the study of schizophrenia and other psychiatric disorders.

The MHCRC offers the opportunity to work in a variety of settings, such as the MHCRC, the Hospital of the University of Pennsylvania, and the Pennsylvania State University.

Our clinical research efforts in the study of schizophrenia are directed toward the identification of new therapeutic and preventive strategies. The MHCRC offers the opportunity to work in a variety of settings, such as the MHCRC, the Hospital of the University of Pennsylvania, and the Pennsylvania State University.

Cardiovascular Research Center

The Cardiovascular Research Center coordinates research and training programs related to cardiovascular diseases and encompasses the following laboratory areas: cardiovascular disease, programmed cardiovascular disease, and the Regulation of the Circulation in Pathological States, the Spertus Center of Research in Arteriosclerosis, Spertus Center of...
Diabetes and Endocrinology Research Center
The Diabetes and Endocrinology Research Center coordinates research and training programs related to diabetes and associated endocrinologic diseases. It was established in 1973 with support from the National Institute of Diabetes and Digestive and Kidney Diseases.

Cancer Center
The Cancer Center was established in 1980 to coordinate the efforts of the Division of Hematology and Oncology, and the Department of Surgery, to provide comprehensive cancer care.

Alzheimer's Disease Research Center
The Alzheimer's Disease Research Center is supported by a grant from the National Institutes of Health. The center's goals are to improve the diagnosis and treatment of Alzheimer's disease and related disorders. The center's mission is to advance the understanding of the disease and to provide resources for research.

Research Facilities
The Eckstein Medical Research Building, opened for occupancy in 1980, was designed to provide flexible research space that can accommodate a wide range of research activities. The building is equipped with state-of-the-art equipment and is designed to support a wide range of research disciplines.

Educational and Patient Care Facilities
The university's educational facilities are designed to provide high-quality medical care and to support research and teaching in all areas of medicine and health sciences.

Doctor of Medicine
The University of Iowa College of Medicine offers a comprehensive curriculum that includes basic science courses, clinical rotations, and research opportunities. The college is committed to preparing students for successful careers in medicine.

The curriculum is designed to provide students with a strong foundation in the biomedical sciences and to prepare them for lifelong learning. The college offers a variety of opportunities for students to gain practical experience in the clinical setting.

The college also offers a wide range of research opportunities, with faculty members involved in a variety of areas of investigation.

The university is committed to providing an inclusive and diverse learning environment. The college is proud of its diversity and is committed to fostering an environment that is welcoming to all students.

The College of Medicine is accredited by the Liaison Committee on Medical Education (LCME) and is a member of the American Council on Education (ACE) and the American Association of Medical Colleges (AAMC).

The college also participates in a number of national and international organizations, including the Association of American Medical Colleges (AAMC), the American Medical Association (AMA), and the Council of Medical Schools of the Association of American Medical Colleges (CMS-AAMC).
Basic Medical Sciences [First Three Semesters]

The first three semesters present a core of sciences basic to the study of medicine.

First Semester
- BI215 Biochemistry for Medical Students is offered around a series of clinical situations. The language of this discipline is presented in the context of problems the physician will see in the small-group discussions that follow the clinical series. Students start to use various problem-solving approaches.
- BI213 Gross Human Anatomy for Medical Students includes clinically relevant areas of histology and surface anatomy with clinical correlates. A complete description of the human body is undertaken, and the relationship to the living system is stressed.
- BI214 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 69211. This course is offered fall semesters.
- BI215 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.
- BI216 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.
- BI217 Biochemistry I, Biochemistry II provides guidelines for the application of scientific principles to the biological and medical sciences. Emphasis is given to the interpretation of studies pertaining to medical journals.

Second Semester
- BI218 Medical Physiology offers students an understanding of responses that an organism gives to external stimuli and provides a basis for understanding the interactions of human systems. Much of the material in these two courses is presented from a cellular point of view. In small discussion groups, which have been essentially replaced by laboratory exercises, students present their evaluation of the physiologic mechanisms at work in the cellular material. Some demonstrations are used.
- BI219 Medical Microbiology includes immunochemistry and presents a core of information on the classification and nomenclature of infective agents, as well as certain aspects of Lysy response to these agents. Laboratory work plays an important role in this course.
- BI224 Medical Neurosciences is an integrated course dealing with basic principles of neurochemistry and neuroanatomy, with emphasis on the human central nervous system. The laboratory portion primarily focuses on the anatomical study of spinal cord and brain.
- BI221 General Pathology for Medical Students is correlated with microbiology in the semester to increase efficiency of the learning process. Emphasis is placed on pathologic and abnormal function on cell, tissue and organ level, infection, and growth disorders. Clinical problem solving and discussion periods have replaced laboratories in this course.

Third Semester
- BI222 Systemic Pathology for Medical Students applies the principles given in the previous semester to specific diseases in an organ-system approach. Student-centered learning is fostered by discussion groups in case analysis.
- BI223 Preventive Medicine encompasses fundamentals to help prepare students in some of the socioeconomic, economic and public health aspects of medical practice.
- BI225 Pharmacology for Health Sciences: Medical Bridges the clinical and basic sciences and provides students with principles that must be understood in order to describe properly the actions of drugs in patients.
- BI231 Biomedical Ethics covers ethical vocabulary, the processes of moral reasoning, and illustrative problems increasingly present in modern medical work. Several elective courses are available to students during the third semester. The career seminar course of review topics include areas not specifically covered in the previous courses. These topics and areas relate to medical practice and the political and ethical aspects of the physician. Typical examples are Perspectives in Aging, Human Nutrition, and Spanish for Health Professionals.

Introduction to Clinical Medicine [Fourth Semester]
A major interdisciplinary course, 50.111 Introduction to Clinical Medicine, is 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 year of studies is designed to introduce the patient as a person and giving guidance in interviewing, counseling, and history taking. Following this is an intensive review of major problems in medicine that often are the basis for patients and basic scientists. The first group of topics of importance is areas of human systems and in the limbs and organs of some key systems.

Throughout the 16 weeks of the course, students spend several hours each week meeting with the clinic's staff to learn and practice the clinician's role in history taking and physical examination, habits of care, concern, and compassion needed by all physicians are emphasized in this seminar. Toward the end of the semester, each student is evaluated individually. Several issues to discuss the level of skill, achievement. If further work is needed, guidance and assistance are provided.

Clinical Clerkships [Third Year]

The third year includes the required clinical clerkship 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 in surgery, pediatrics, psychiatry, and obstetrics and gynecology, and two weeks each in anesthesia, dermatology, nephrology, cardiology, head and neck surgery, orthopedics, urology, and family practice. Students spend most of the time in Iowa City except during the family practice clerkship, which exposes students to primary care in a physician's private practice setting in Iowa City.

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 is from first-hand the patient's problems are 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, during which students have time to pursue a comprehensive curriculum to the different medical disciplines and the level of clinical sophistication achieved during the clerkship year qualifies 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 series in clinical pharmacology and therapeutics.

Financial Aid

The College of Medicine provides financial assistance in the form of demonstrated financial need. Most aid is in the form of loans. The Health Professional Student Loan and the Grad PLUS loan has not been federally funded or sponsored by the college. The National Education Association, the American Medical Association, Howard Brown Medical Student Loan, and the Smith Loan are College of Medicine programs. The Dr. George Sturman Medical Student Loan has been funded by the Iowa Medical Foundation through the Iowa Medical Foundation of the Iowa Medical Society.
A limited number of grants are awarded under certain situations, small, short-term emergency loans may be obtained through the Financial Aid office. Students desiring to obtain full or partial scholarships should apply early. The deadline for applications is January 15. To be considered for admission, incoming students must have complete applications in this office by the deadline.

To be admitted, applicants must have completed the following courses:

- English: a complete high school English course.
- Mathematics: college algebra or equivalent.
- Biology: a college-level biology course.
- Chemistry: a college-level chemistry course.
- Physics: a college-level physics course.

Applicants are required to submit SAT I scores and ACT scores. The minimum acceptable scores are as follows:

- SAT I: 500 in each of the three sections.
- ACT: 18 in each of the four sections.

Applicants are encouraged to submit their applications early to ensure timely consideration. The deadline for receipt of applications is January 15. Admissions decisions will be mailed by the end of March. Applicants who are offered admission are required to respond by April 15.

The University of Medicine and Dentistry of New Jersey is committed to providing a high-quality education to all students, regardless of race, gender, religion, or any other characteristic. The University is committed to maintaining a safe and healthy environment for all students, faculty, and staff. The University has implemented comprehensive policies and procedures to ensure the health and safety of all members of the University community. The University is committed to providing equal access to all programs and activities, and to ensuring that all students have the opportunity to realize their full potential.
Regulations and Procedures
In general, promotion from one grading period to the next is contingent upon the satisfactory completion of the courses of each grading period. It is the prerogative of the provost's committee to permit a student who has not satisfactorily completed courses in a preceding grading period to continue provided that an appropriate tutorial program is designed for that student. Each student must demonstrate proficiency in each required course.

Evaluation of student progress in courses is based on examinations or other tests as determined by each department or course and on clinical skills and competency as deemed appropriate by the department or course. The College of Medicine requires that all students demonstrate proficiency in a variety of cognitive, problem-solving, manual, communicative, and interpersonal skills and abilities that all students adhere to general principles of medical ethics. These critical skills and ethical guidelines are described in detail in the Handbook for New Students, which medical students receive upon matriculation.

Scholastic performance in the first three years is reported by using the letters H, P, F, and I. The selective student segment, only grades P, F, and I are used. The letter P indicates satisfactory achievement at the passing level. The letter I signifies "incomplete," indicating achievement at an exceptionally high level. The letter F indicates work below the passing level. The letter H is used when, for good reasons, the student has not completed the work in a course.

The promotion committee meets at least twice each year, following solicitation of each student's work in each academic semester and at other times as requested by the associate dean for medical student affairs.

The committee reviews the records of all students who have received a grade of F or I during the preceding grading period. The committee reviews the record of any student whose academic status is in doubt. The committee considers the associate dean for medical student affairs's recommendations for any of the eleven skills or abilities detailed above, or not meeting the medical ethics standards. The committee considers other business or decisions necessary to perform its duties as set forth in this regulation.

The promotion committee recommends specific actions to be taken in the case of any identified skills or ability weaknesses, judgment, or ethical behavior or in any way contributing to a student's academic unsatisfactory. These recommendations are forwarded for action to the medical council and executive committee, meeting in joint session to represent the faculty. Possible recommendations include immediately deterring the student from the college, requiring the student to repeat all or any part of the curriculum, and allowing the student to continue either a regular or a decelerated schedule.

Students having unremediated grades of failure are placed on academic probation. A grade of "Incomplete" is not remediated in the time and manner specified in the promotions committee recommendation. A grade of "Incomplete" is not remediated in the time and manner specified in the promotions committee recommendation. A course after the date of written receipt of the decision. All appeals are heard, and decisions rendered, by the medical council and executive committee meeting in joint session. Students may request an opportunity to appeal personally before the joint session to make a statement and to present evidence.

Any unexcused absence from a major section of a basic science course or a clinical clerkship may result at the discretion of the department, in a grade of F.

Withdrawal
Students may withdraw from the College of Medicine upon approval of a written application submitted to the dean of the associate dean for medical student affairs.

Reinstatement
Application for reinstatement by students who have withdrawn voluntarily or who have been medically withdrawn if the college must be received in writing to the office of the dean at least four months prior to the required date of readmission. The faculty is authorized to refuse to permit reenrollment or further registration to any student if it believes that he or she has not lived up to the expected general fitness requirements for entering the medical profession, as described in detail in the Handbook for New Students. Ordinarily, reinstatement is taken by the medical council and the executive committee meeting in joint session and acting as representatives of the faculty.

Informal Procedures
When a dispute arises between a student and a faculty member or department, there is often correction over the best way to resolve the problem. The medical school has a formal procedure, based in "Promotion Policies and Procedures," and an informal procedure, outlined below. In the College of Medicine, disputes or problems or complaints should first be discussed with the faculty member involved. Lacking a satisfactory outcome, students then should turn to the course or clerkship director, departmental chair or chair. If satisfaction still is not obtained, they may discuss the complaint informally with the associate dean for medical student affairs. The informal discussion does not necessarily lead to involvement of the office of the dean in an official capacity. Should these steps not resolve the situation, the student may file a formal complaint through the office of the dean of the College of Medicine.

This informal procedure allows the greatest flexibility for all concerned in resolving conflict and does not involve entries in the student's permanent record, which are part of the formal procedure. The informal procedure is intended for any situation students may encounter, including grading disputes, alleged academic dishonesty, alleged dishonesty during clinical rotation (e.g., falsifying patient data) and perceived instances of harassment or mistreatment. Complaints of sexual harassment are handled confidentially and in accordance with University Policy and Procedures.
When students are in the process of establishing a complaint with a faculty member or department, others should try to avoid jumping to conclusions based on rumors and bits of information. In the interest of the student's confidentiality, full details of incidents are almost never released to the medical student body. Students are encouraged to make full use of counseling services available from the dean's office or through Student Health Service. These cover the full range of academic, personal, financial, or mental difficulties and usually are helpful informally without going into the student's record, unless it involves an official action (e.g., taking a year off or scheduling an exam) or academic matter.

Division of Associated Medical Sciences
The division offers a B.S. degree in radiological science. The M.P.T. and M.A. degrees offered by the Physical Therapy Program, the P.D.O. offered in cooperation with the Department of Exercise Science in the Division of Physical Education, and the M.S. Physician Assistant Track in Preventive Medicine and Environmental Health 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 based on their performance in one of its programs. Admission policies and procedures vary from program to program. The Physician Assistant and Nuclear Medicine Technology programs have an early admission process.

Students should consult the individual program descriptions and/or program office 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 standards for academic probation and dismissal.

To be considered for admission, applicants must have earned a cumulative grade-point average of at least 2.00 in college work in the subject areas of medical technology, 2.00 in nuclear medicine technology, 2.00 and physician assistant, 2.50. Admission committees give special attention to grades as the science, 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. Admission should be considered for further information.

Financial Aid
Students in the Division of Associated Medical Sciences and graduate 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 minimum grade-point average of 2.00 in all college work attempted at the university. Credit given for work at other universities 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 system 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 50 semester hours in residence, or an overall total of 90 semester hours in residence.

Nondisclosure 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. Applicants must check the requirements of the specific program or degree objective. Specific requirements for the major are listed at 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 other college.

Second Baccalaureate Degree
Students who already possess a baccalaureate degree and who want to earn an additional baccalaureate 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 in the foreign language requirement. Holders of other degrees must meet college and program requirements. Students with B.A. or B.S. degrees must satisfy the 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.

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. Students who enter the combined degree program usually are able to meet the baccalaureate degree requirements of both colleges in about five academic years. The exact length in time necessary to complete the program is determined by the student's areas of study enrolled in each college. Students who enter the combined degree program must be assigned two faculty advisors, one from each 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 prerequisites 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 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. Sixteen, a minimum of 15 semester hours must be taken in the minor.

Application for Degree
Students who want to be considered for graduation must file an application for degree with the Office of the Registrar before the deadline for the session in which the degree is to be conferred. Students who have to meet a minor listed on their transcript must indicate this on the degree application forms 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. Recursence occurs when students take a course at another institution that has been satisfactorily completed at another institution and are then required to take a course at the University that has been satisfactorily completed at the same institution. Duplication and recurrence are assessed by the registrar at the time of graduation. Credits earned by the student who meets the minimum requirements for the degree are not counted toward the number of hours needed for graduation.

Graduation Honors
Approximately ten percent of the division's graduating students may be recognized for superior academic achievement upon recommendation by the program and with the dean's approval. More honors categories have been established by 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-third 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 advisor and the course instructor 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 (withdrawal) for any course dropped after the first one-third of the course.

Students who have registered for courses offered for variable or arranged credit may change the number of semester hours with the signature of the instructor, 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 no credit) may be made only during the first one-third 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 from a course prior to the end of the first two-thirds of the course, but no credit is given for the course. Later withdrawal results in automatic assignment of an F. Students who withdraw are not reinstated after the deadline for that session.

Grading Procedures
Marking procedures vary from program to program. Students should consult individual program policy statements for information.

Auditing Courses
Students may register as auditors with the approval of the appropriate program director and course instructor. In addition to obtaining these signatures, students must register as registered rather than auditors 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 (withdrawal) is assigned. Courses completed with the mark of R do not count for 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 property aged fees must be paid to the registrar's office before the end of the first one-third 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 failing to finish the course satisfactorily are acceptable to the program director and the course instructor. There must also be evidence that the course would be finished within a reasonable length of time by one of the next academic sessions. Incompletes are removed from the record after 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 changes 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 degree and certificate. Students who fail to maintain satisfactory academic progress or professional standards 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 required to meet regularly with the program director upon evidence that the problem has been corrected. Such action is usually taken at the end of a semester or session. Entering students may be admitted on probation if they fail to meet the minimum stated standards for advancement. Continuous unsatisfactory scholarship or unsatisfactory behavior may result in dismissal from the program. Students dismissed from a program must reapply for admission through the regular established program administration process, following all procedures prescribed by the committee of the division, at least four months prior to the next regular intake of students.

Students placed on probation or dismissed from a program are notified in writing of
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 student's grade, including assignment of the grade of F in the course. A report of the actions 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 fully warrant: disciplinary probation, assessment of additional hours for the degree, suspension from the progress for a period of time, or recommendation of expulsion from the university.

Appeals Procedure

Students who appeal to a decision should submit an appeal in writing to the dean under the seal of the receipt of the decision in writing.

Unclassified Students

Persons who do not wish to be admitted to the College of Medicine but who wish to register for certain courses will be admitted only if the course is an essential component of a program of studies and upon the student's compliance with all the regular requirements for admission to such a course, or at the discretion of the academic dean, in accordance with the recommendation of the professor in charge of the course.

Nondepartmental Courses

5614 Medicine Elective Fourth Year

5615 Medicine Elective Third Year

5620 Nutrition

5634 Medicine in the Humanities

ANATOMY

Anatomy Department

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-relation functions.

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 participates in the Medical Science Training Program, the Cellular and Molecular Biology Training Program, and the newly established Neuroscience Program.
Graduate Programs

Master of Science

Admission to the M.S. program is limited to individuals who hold a baccalaureate degree in a health professional degree and who demonstrate a strong academic background that meets the requirements of the curriculum and who meet the minimum GPA required for admission. For those who qualify, a minimum of 3.5 GPA on the last 60 semester hours is required. Applicants must be in good standing with all previous institutions attended. In addition, recommendations from at least three academic or professional references are required for admission. All applicants must complete the Graduate Record Exam (GRE) or the Miller Analogies Test (MAT). Interviews are recommended but not required. For more information, please contact the Graduate Program Coordinator.

Doctor of Philosophy

Students in the Ph.D. program work directly with the faculty to develop an individualized plan of study that includes required courses, research projects, and a dissertation. The Ph.D. program is designed to prepare students for careers in academia, research, or industry. Students are required to complete a minimum of 90 semester hours, including at least 30 hours of coursework and 60 hours of dissertation. The program is typically completed in four to five years, and students are required to pass a comprehensive examination before enrolling in the dissertation phase.

Facilities

The department occupies over 35,000 square feet in the Brown Science Building in the life sciences campus. These quarters house modern teaching facilities and well-equipped research laboratories. The state-of-the-art instrumentation is available, including facilities and equipment for electron microscopy, microspectrophotometry, x-ray crystallography, and automated gas chromatography. 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

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<tr>
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<tr>
<td>1801</td>
<td>Principles of Human Anatomy</td>
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<td>1802</td>
<td>Human Physiology</td>
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<td>1803</td>
<td>Developmental Laboratory in Human Anatomy</td>
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Financial Aid

Financial aid is awarded on a competitive basis to students admitted to the Ph.D. program. Application for aid should be made concurrently with the admissions application.

Admission

Applicants for admission to the Ph.D. program are expected to have a strong understanding of the fundamental sciences and to have completed one year of basic biology and chemistry. In addition, students must have demonstrated an ability to think independently and critically. It is also recommended that applicants have good knowledge of the principles of molecular biology and genetics. The admission committee evaluates the applicant's academic record, letters of recommendation, and personal statement. The university's Graduate Record Examination (GRE) is required for admission. However, applicants may be admitted to the program based on a combination of their academic record and the GRE score. For more information, please contact the Graduate Program Coordinator.
118.13 Intensive Care
Endocrinology and metabolism of diabetes & pertaining to intensive care, arterial vascularity, evaluation of parenteral nutrition, homeostasis of cardiovascular system, fluid balance and end-organ problems, adrenocortical techniques, recovery on parenteral surgery patients and complications. A minimum of 4 hours per week. A maximum of 40 hours per week.
Prerequisite: 4 hours beginning of 1st semester.
118.14 Scientific Foundations and Practice in Anesthesiology
Basic medical principles, clinical anesthesia, research in anesthesia, anesthesia research concepts and the role of the anesthesiologist in patient care. 4 hours beginning of 1st semester.
118.15 Special Studies in Anesthesiology
Research in a selected area of anesthesiology, individually arranged. 4 hours.
118.16 Special Study of Anesthesiology
4 hours.

DIVISION OF ASSOCIATED MEDICAL SCIENCES

Head: Rex Montgomery

The Division of Associated Medical Sciences provides coordination of professional programs for training medical technologists (with tracks in cytogenetics, perfusion, and biotechnology), nuclear medicine technologists, physical therapists, and physician assistants. Parallel undergraduate programs prepare students for entry into these professional areas. Students usually enroll initially in the College of Liberal Arts and are assigned a faculty advisor from the division.

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, and psychology are required by some programs and are highly recommended for others. Students should plan their programs carefully so that conflicts is specifically required courses do not occur. It is imperative that students consult with the appropriate program advisor to assure the proper sequencing of courses.

The following is a typical curriculum for undergraduate students, with options being exercised after consultation with program advisors. Programs are abbreviated as follows: MT—Medical Technology (MT-CC=cytogenetics track, MT-IP=perfusion track, MT-PI=biotechnology track); NMT—Nuclear Medicine Technology; PT—Physical Therapy. Freshman Year

First Semester
101.1-102.1 Anatomy
Foreign civilization and culture 4 hours.
Physical education skills 2 hours.
115.15 Microbiology for the Biological Sciences

Second Semester
102.2 Anatomic Histology
Histologic and histopathologic studies of tissues using light and electron microscopy. 3 hours.
Physical education skills 3 hours.
114.1 Principles of Chemistry II
3 hours.
117.3 Principles of Animal Biology (MT, all tracks) 5 hours.
118.4 Principles of Chemistry Lab I 2 hours.
Sophomore Year

First Semester
Humanities 3 hours.
Social sciences 3 hours.
112.1 Organic Chemistry I (MT, all tracks) 3 hours.
20.11 College Physics (MT, all tracks) 5 hours.
117.3 Principles of Animal Biology (MT, all tracks) 5 hours.
118.15 General Microbiology (MT, all tracks) 5 hours.
Physical education skills 4 hours.
Total 15-16 hours.

First Semester
Historical perspectives (MT) 3 hours.
Humanities 3 hours.
8W-112 Writing for the Sciences (MT-ET) 3 hours.
Social sciences 3 hours.
20.12 College Physics (MT, all tracks) 5 hours.
117.3 Principles of Animal Biology (MT, all tracks) 5 hours.
118.15 General Microbiology (MT, all tracks) 5 hours.
Total 15-16 hours.

First Semester
Foreign language 4 hours.
29.11 College Physics (PT) 4 hours.
28.11 Human Genetics 3 hours.
37.10 Comparative Vertebrate Anatomy 4 hours.
37.11 Cell, Tissue, and Organ Biology 5 hours.
Computer science (MT, all tracks) 4 hours.
38.11 Principles of Human Anatomy 3 hours.
38.15 Introduction to Clinical Physiology 3 hours.
72.10 Human Physiology (MT, all tracks) 4 hours.
Total 15-16 hours.

Second Semester
Foreign language 4 hours.
29.12 College Physics (PT) 4 hours.
Senior Year

General education, elective, or advanced courses in the departments of Biochemistry, Microbiology, Chemistry, Biology, or others, as specified for specific degree requirements.

MEDICAL TECHNOLOGY

Director: Maxine Schaffels
Assistant director: Richard Yake
Medical director: Jared A. Gorkin
Associate professor: Janet A. Gorkin
Lecturers: Ruthanne Schaffels, Merriah Schwartz

Associate: Larry Ristenpart, James O'Connor
Assistant in training: Kathleen Kelly, Lucy Ilitch

Adjunct lecturer: John Abel, Jean Lasley, Jay Sloan
Adjunct associate: Thomas Persico

Adjunct associate in training: Ray Bales, Mike Brown, Debra Cooper, Julia Hudson, Patricia Knapp, Al Heifetz, Melissa Rosen, Ron More, Beverly Powell, Darrell Peterson, Lisa Popkin, Kyly Ryeum, Glenn Schmeister, Dinda St笫hala, Barbara Stewart, Jan Vaughn

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 governmental laboratories; clinics, physical, forensic, and industrial, pharmaceutical, biological, and medical 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 Iowa City Veterans Affairs Medical Center. Successful completion of the program qualifies students to take all medical technology board exams and for accreditation by the National Credentialing Agency for Clinical Laboratory Scientists. Assuming that students have completed the required courses indicated above in the freshmen and sophomore years, the remaining curriculum may be as follows.

Junior Year

First Semester

Foreign language 4.5 s.h.
37.128 Fundamental Genetics (PT), (MT-CC) 3.5 s.h.
225.101 Biostatistics (NMT, PT) 3 s.h.
225.102 Introduction to Statistical Methods (NMT, PT) 2.5 s.h.
Total 15 s.h.

Second Semester

68.012 Design and Analysis of Experiments in Biomedical Sciences (MT-RT) 3 s.h.
27.150 Intermediate Physiology (all tracks) 4 s.h.
68.119 Instrumentation in Clinical Laboratory Science (all tracks) 3 s.h.
68.136 Independent Study in Immunology 1 s.h.
Electives 0.5 s.h.
Total 17 s.h.

Highly recommended elective courses include parasitology, quantitative analysis, and statistics.

Senior Year

The clinical program consists of a minimum of 12 months of clinical and practical instruction. The first summer session and seminar 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 rotate through the clinical laboratory facilities of The University of Iowa Hospitals and Clinics, the Iowa City Veterans Affairs Medical Center, and other hospitals. They attend additional lectures and may begin a specialized track if they wish.

The program is made up of the following course:

68.119 Instrumentation in Clinical Laboratory Science 3 s.h.
68.120 Clinical Microscopy for Medical Technologists 1 s.h.
68.121 Immunology for Medical Technologists 1 s.h.
68.122 Clinical Chemistry for Medical Technologists 5 s.h.
68.123 Immunohematology for Medical Technologists 3 s.h.
97.124 Clinical Hematology for Medical Technologists 5 s.h.
68.125 Microbiology for Medical Technologists 6 s.h.
68.126 Clinical Chemistry for Medical Technologists 5 s.h.
68.127 Clinical Immunohematology for Medical Technologists 2 s.h.
68.128 Clinical Microbiology for Medical Technologists 5 s.h.
68.129 Hematology for Medical Technologists 3 s.h.
68.131 Clinical Laboratory Science Seminar 2 s.h.
68.132 Parasitology for Medical Technologists 1 s.h.

Alternate tracks include the following courses.

Bacteriology

68.135 Independent Study in Clinical Laboratory Science
68.147 Selected Bacteriological Research Techniques

Cytogenetics

68.150 Medical Cytogenetics 3 s.h.
68.151 Medical Cytogenetics Laboratory 2 s.h.
68.152 Medical Cytogenetics Seminar 1 s.h.
68.155 Clinical Medical Cytogenetics

Highly recommended sister courses include 37.112 and 37.118.

Perfusion

68.140 Respiratory and Renal Physiology 3 s.h.
68.151 Introduction to Medical Electronics and Biophysical Monitoring 3 s.h.

68.152 Cardiovascular Anatomy, Physiology, and Pathology 5 s.h.
68.153 Physiology I 5 s.h.
68.154 Physiology II 5 s.h.
68.160 Clinical Perfusion 5 s.h.

Techniques and Methods

68.165 Pharmacology for Perfusionists 2 s.h.
68.167 Perfusion Seminar 2 s.h.
68.158 Perfusion Research 4 s.h.

Cytotechnology and Histology

Additional tracks in cytotechnology and histology are being offered, for current status or information, consult the director of the Medical Technology Program.

Admission

The medical technology/clinical laboratory science professional program is limited to 32 students, who begin the program in late May. Applications close October 31. Fifteen students continue during the fall and spring semesters and complete the program in May. The other fifteen have the opportunity to complete an abbreviated preclinical course 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, perfusion, or biotechnology) must observe the same admission process and complete the first two semesters of the program year. The amount of additional time required varies from track to track.

To apply for admission to the professional program, students must be able to complete all of the following prerequisites and limited 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 physiology.

Admission is on a competitive basis. Minimum cumulative grade-point averages at 2.60 overall and 2.60 in science generally are required. Applicants who enter the program on undergraduate students must meet the general admission requirements of the University's College of Liberal Arts and should consult with the director of the Medical Technology Program as early as possible to plan preclinical studies to meet all requirements.

Expenses

Medical technology students in the professional-year curriculum are responsible for their textbooks, University toll, and student fees. Laboratory costs and equipment such as microscopes are provided by the program.

**NUCLEAR MEDICINE TECHNOLOGY**

Director: Howard H. Solomon
Medical director: Peter T. Kuchner
Technical director: John A. Nicklas
Professor: Frank H. Chang, Steve J. Collins, Peter T. Kuchner, Richard E. Pazzolo
Associate professor: Richard Holmes, Karen Rizzo, James E. Sittard
Assistant professor: Mark T. Mahony
Assistant: Daniel Katz, G. Leonard Yate
Clinical associate professor: Joyce A. Ponce
(College of Pharmacy)
Visiting instructor: Karen Hsu-Brown
Adjunct professors: Kevin W. Karan
Degree offered: B.S. in Nuclear Medicine Technology

Nuclear medicine technology is a medical specialty that uses the past two decades and is still expanding and growing in complexity. This continued expansion of the specialty has led to an increasing demand for highly skilled and motivated nuclear medicine technicians.

Nuclear medicine technologists generally work at hospitals and clinics. At the heart of nuclear medicine technology is the use of sophisticated detection and computing systems to track 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 physicists, health physicists, radiopharmacist, and radiologist 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 of the Council on Medical Education of the American Medical Association. Fulfillment of the requirements established by the AHA Accreditation Board involves three years of preclinical work in the College of Liberal Arts and the College of Medicine, and a minimum of two 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 degree 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 NTP program can compete a degree in their chosen area.

**Junior Year**

The following are recommended courses:

601 Principles of Human Anatomy 3 s.h.
721-720 Human Physiology 4 s.h.
281-7 Introduction to Competing with FURBAN 3 s.h.
281-7 Survey of Computing 3 s.h.
225-26 Elementary Statistics and Inference 3 s.h.
225-103 Biostatistics 3 s.h.
601-161 Introduction to Biostatistics 3 s.h.
71-120 Drugs: Their Nature, Action, and Use 2 s.h.

Advanced courses in chemistry, biology, or physics used as appropriate major, preparatory courses, and minor 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, radionuclide imaging, nuclear medicine laboratory procedures, radiation protection, patient care, medical terminology, anatomic and physiologic bases of nuclear medicine procedures, physics and instrumentation, administration and management.

*Admission*

Prerequisites for full admission to the Nuclear Medicine Technology Program include the following:

A minimum of 60 semester hours in all core work, with a minimum cumulative grade-point average of 2.50.

Fulfillment of the College of Liberal Arts General Education Requirements in English, physical education, humanities, biology, computer science, foreign civilization and culture, and social sciences (psychology and education are recommended).

A minimum of 20 semester hours in three science courses, including a complete introductory course with laboratory in chemistry, physics, and zoology.

A minimum of 3 semester hours in mathematics, including at least one course.

Fulfillment of these basic admission requirements does not ensure acceptance into the Nuclear Medicine Technology Program. Promotion from the third year to the final clinical year is conditional upon satisfactory completion of a minimum of 94 semester hours of study in the recommended area.

A new class begins in late August each year. Application materials must be received by March 1. Persons interested are encouraged to consult with the program office to plan an appropriate preprofessional program.
The two-year Master of Physical Therapy Program consists of the following courses.

First Semester
- 4010 Human Anatomy 4.0 h.
- 4020 Introduction to Human Physiology 3.0 h.
- 4141 Principles of Physical Therapy 4.0 h.
- 4210 Kinesiology and Pathomechanics 4.0 h.

Second Semester
- 4131 Therapeutic Physical Agents I 4.0 h.
- 4135 Musculoskeletal Therapeutics 2.0 h.
- 4131 Clinical Education I 1.0 h.
- 4132 Orthopedics and Manual Physical Therapy 4.0 h.

Third Semester
- 4122 Psychosocial Aspects of Patient Care 1.0 h.
- 4175 Principles of Neurology 1.0 h.
- 4123 Clinical Education II 1.0 h.
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Physical therapy research laboratories are available. These laboratories are well-equipped with electronic biomedical systems and computers for measurement and analysis of cardiorespiratory responses (heart rate, blood pressure, energy cost, and ventilation), muscular-skeletal function (muscle strength and endurance, gait, posture, and dexterity evaluations), and neuroanatomical and neuromotor activity (electromyography, spinal reflexes, CNS control mechanisms). Use of extramural laboratories also may be arranged.

Collaborative studies are encouraged with other departments, such as nursing, internal medicine, pediatrics, orthopedic surgery, physiology, anatomy, and pharmacology, and with personnel in the physical therapy clinics.

Students successfully completing the M.A. program in physical therapy will:
1. Be able to engage in teaching at the undergraduate and postgraduate levels, and on the professional level of physical therapy, and to show promise of teaching at the advanced master's level.
2. 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 practice.
3. Have knowledge of the physical therapy theoretical and research literature related to a selected area of physical therapy.
4. Be skilled in the application of basic concepts related to anatomy, physiology, neuroanatomy, and neurophysiology.

The following are required courses:

101.212 Biomedical Instrumentation 3 sh.
101.362 Design and Analysis of Experiments in the Biomedical Sciences 3 sh.

One of the following four specialty courses:
110.213 Biomechanical Principles of Therapeutics 3 sh.
110.269 Health Promotion and Cardiopulmonary Therapeutics 3 sh.
110.270 Occupational Biomechanics 3 sh.
110.271 Analyzing Sensor-Motor Systems in Health and Disease 3 sh.

The following are recommended courses:
71.220 Introduction to Instructional Design and Technology 3 sh.
69.302 Psychopharmacology 4 sh.
101.326 Independent Study 1-3 sh.
101.316 Electromyography in Musculoskeletal and Biomechanics 3 sh.
101.327 Research in Therapeutics 3 sh.
101.325 Advanced Anatomy and Kinesiology 2 sh.
27.141 Exercise Physiology 3 sh.
71.120 Physiological Action, Function, and Use 2 sh.
79.262 Facilitating Learning in Health Science Education 3 sh.
101.280, 282, or 284 Practicum (teaching research and/or clinical) 3 sh.*

Admission

To be considered for admission, applicants must be graduates of an approved educational program in physical therapy and must have earned a grade-point average of 2.75 or higher on a 4.00 scale on all undergraduate work. Two years of clinical experience also are highly desirable. Admission to the master's degree program is based on the grade-point average for previous college academic work; scores on the Graduate Record Examinations (GRE) General Test, recommendation from three sources, and a personal interview. Applicants also must meet the requirements established by the Graduate College.

Applicants must complete the Graduate College application. The application is reviewed after applicants have been accepted by the Graduate College and all aspects of the written application for the Physical Therapy Educational Programs are submitted. Deadlines for completed written applications are October 15 (notification by December 15), March 15 (notification by May 15), and May 15 (notification by July 15).

Doctor of Philosophy in Physical Therapy (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 Arts & Sciences" section of the Catalog.

Students successfully completing the Ph.D. program in physical education with the specialty in therapeutics will:
1. 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.
2. 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 practice.
3. Have comprehensive knowledge of theoretical and research literatures in areas of specialization, and
4. Be skilled in the application of basic and advanced concepts in the areas of cardiorespiratory, muscular-skeletal, and neuromotor physical therapy.

Admission

Students are admitted to the study program leading to the Ph.D. degree on the basis of their grade-point average on work completed for the master's degree. Students must be in good standing on their GRE General Test. To be considered for admission, students must have earned a grade-point average of 3.0 or higher on all graduate work undertaken. In addition, their 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 applicant meets Graduate College standards. 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

110.212 Physical Therapy Management and Administration
Lectures and discussions related to principles of management and administration. 2 sh.

110.252 Psychosocial Aspects of Patient Care
Lectures and discussions related to the psychosocial aspects of patient care, including the role of the health care provider. 3 sh.

110.377 Therapeutic Physical Agents I
Lectures and discussions related to the therapeutic use of physical agents in the management of disabilities as they relate to patient-physical therapist interactions. 3 sh.

110.378 Therapeutic Physical Agents II
Lectures and discussions related to the therapeutic use of physical agents in the management of disabilities as they relate to patient-physical therapist interactions. 3 sh.

110.478 Functional Anatomy and Physiology of the Nervous System
Lectures and laboratory discussions related to the functional anatomy and physiology of the nervous system, including the role of the health care provider. 3 sh.

110.478 Functional Anatomy and Physiology of the Nervous System
Lectures and laboratory discussions related to the functional anatomy and physiology of the nervous system, including the role of the health care provider. 3 sh.

110.491 Therapeutics
Lectures and discussions related to the therapeutic use of physical agents in the management of disabilities as they relate to patient-physical therapist interactions. 3 sh.

110.491 Therapeutics
Lectures and discussions related to the therapeutic use of physical agents in the management of disabilities as they relate to patient-physical therapist interactions. 3 sh.

110.492 Neurological Therapeutics
Lectures and discussions related to the therapeutic use of physical agents in the management of disabilities as they relate to patient-physical therapist interactions. 3 sh.

110.492 Neurological Therapeutics
Lectures and discussions related to the therapeutic use of physical agents in the management of disabilities as they relate to patient-physical therapist interactions. 3 sh.

110.493 Clinical Education I
Lectures and discussions related to the clinical education faculty's role of the physical therapy profession. 3 sh.

110.493 Clinical Education I
Lectures and discussions related to the clinical education faculty's role of the physical therapy profession. 3 sh.

110.494 Clinical Education II
Lectures and discussions related to the clinical education faculty's role of the physical therapy profession. 3 sh.
major disciplines of clinical medicine, students also are introduced to the science and art of obtaining a medical history and performing a thorough physical examination. This course is taken in the first year of medical school.

The third clinical phase consists of a 34- to 35-week core primary-care curriculum, including six weeks each of family medicine, general internal medicine, dermatology/dermatology, pediatrics, psychiatry (two in six weeks), and surgery. Students select either a primary-care or specialty track, followed by four or five weeks in each. The primary-care track includes all additional six weeks of family medicine, and electives might include gynecology, emergency medicine, cardiology, dermatology, and orthopedics. The specialty track might include any of the elective rotations or other rotations in more specialized areas such as transplant surgery, gynecology/obstetrics, and pediatrics.

These clinical rotations are designed to provide students with instruction and expand their experience in the care of patients in a manner that facilitates effective integration of the knowledge, skills, and attitudes derived from the basic science and preclinical phases of the program. Clinical training is provided by The University of Iowa Hospitals and Clinics, the Veterans Affairs Medical Centers in Des Moines and Iowa City, Brownwood Medical Center in Fort Dodge, and numerous hospitals throughout the state. Students gain additional exposure to patient care through placement with selected preceptors involved in clinical care in office-based practices.

The didactic and clinical phases of the program provide a comprehensive health care delivery and the use of physician assistants as members of the health care team. The program is integrated with the teaching of the College of Medicine, permitting interdisciplinary activities between medical and health care professional students.

Professional Curriculum

First Year

First Phase

113 125 Pharmacology for Health Sciences, Physician Assistant Students 6 s.h.
56 125 Case and Workshop for Physician Assistant Students 1 s.h.
66 111 Gross Anatomy, Analysis for Physician Assistant Students 6 s.h.
61 112 Health Sciences, Microbiology 4 s.h.
62 203 Introduction to Human Pathology 4 s.h.
69 140 Clinical Pathology for Physician Assistant Students 2 s.h.
72 144 Human Physiology for Physician Assistant Students 4 s.h.
99 146 Biochemistry for Physician Assistant Students 3 s.h.
117 125 Seminar for Physician Assistant Students 1 s.h.
117 122 Introduction to the Medical and Physical Sciences for Physician Assistant Students 1 s.h.
117 126 Preventive Medicine for Physician Assistant Students 1 s.h.

Second Phase

50 121 Introduction to Clinical Medicine for Physician Assistant Students 20 s.h.

Second Year

Phase III

The following are required clinical rotations.

70 155 Pediatrics for Physician Assistant Students 6 s.h.
75 155 General Surgery for Physician Assistant Students 6 s.h.
78 155 Internal Medicine for Physician Assistant Students 6 s.h.
115 155 Family Practice I for Physician Assistant Students 6 s.h.
66 150 Obstetrics and Gynecology for Physician Assistant Students 6 s.h.
73 150 Psychiatry for Physician Assistant Students 4 s.h.

Elective clinical rotations are selected from the following:

70 150 Pediatrics Elective for Physician Assistant Students 4 s.h.
75 100 Emergency Room Elective for Physician Assistant Students 4 s.h.
76 152 Orthopedics Elective for Physician Assistant Students 2 s.h.
115 155 Family Practice Elective for Physician Assistant Students 6 s.h.
175 155 Family Practice II for Physician Assistant Students 6 s.h.
78 150 Internal Medicine Elective for Physician Assistant Students 4 s.h.
62 150 Dermatology Elective for Physician Assistant Students 4 s.h.
64 150 Neurology Elective for Physician Assistant Students 4 s.h.
67 150 Ophthalmology Elective for Physician Assistant Students 4 s.h.
74 150 Radiology Elective for Physician Assistant Students 4 s.h.
75 150 Surgery Elective for Physician Assistant Students 4 s.h.
75 110 Surgery Elective (Transplant/Orthopedics) for Physician Assistant Students 4 s.h.
75 112 Surgery Elective (Burn Unit) for Physician Assistant Students 6 s.h.
76 105 Rehabilitation Elective for Physician Assistant Students 2 s.h.
78 110 Internal Medicine Elective (Cardiology) for Physician Assistant Students 4 s.h.
78 130 Internal Medicine Elective (ECG) for Physician Assistant Students 4 s.h.
78 150 Internal Medicine Elective (Urology) for Physician Assistant Students 4 s.h.
78 150 Internal Medicine Elective (Gastroenterology) for Physician Assistant Students 4 s.h.
78 553 Internal Medicine Elective (Neurology) for Physician Assistant Students 4 s.h.
76 517 Cardiology Elective for Physician Assistant Students 4 s.h.
76 517 Cardiology Elective for Physician Assistant Students 4 s.h.
66 100 Obstetrics and Gynecology Elective for Physician Assistant Students 2 s.h.
72 150 Psychiatric Elective for Physician Assistant Students 4 s.h.

Admission

To be eligible for admission to the physician assistant professional program, applicants must have completed at least 60 semester hours of college level study, including:

College of Liberal Arts General Education Requirements in rhetoric, physical education, arts, scientific perspectives, humanities, quantitative or formal reasoning, foreign civilizations and cultures, social sciences, and foreign language.

Complete introductory courses in inorganic and organic chemistry; and

A complete laboratory course and at least one advanced course in zoology or animal behavior.

It is strongly recommended, although not required, that applicants' backgrounds include analytical geometry, beginning calculus, and physics.

Applicants must have achieved at least a 2.50 grade-point average on the last 60 semester hours of college course work undertaken. 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 average of 3.0 or better. Applicants are encouraged to apply early. The committee reserves interview opportunity for the most qualified applicants.

Students are advised to pursue a course of study that is applicable to a bachelor's degree, most commonly in the areas of biology, chemistry, or biochemistry. In this way, students who are not admitted to the physician assistant professional program can pursue the necessary preprofessional course work.
Assistant Program application and submit at least three letters of recommendation.

Expenses
In addition to general University student expenses, students in the Physician Assistant Program are responsible for the purchase of the required uniforms and diagnostic equipment, approximately $600. Microscopes are not required.

Graduate Program

Master of Science in Preventive Medicine and Environmental Health

Clinicians are now entering an era in medicine in which knowledge and skills in preventive medicine, epidemiology, research, data management, and health care administration are of great value. In recent years the scope of the physician assistant profession has broadened dramatically. Clinical opportunities have become available in specialty and sub-specialty areas of medicine with an increasing utilization of physician assistants in clinical research, medical education, and health care administration.

With these trends in mind, a combined graduate level program was developed at The University of Iowa in cooperation with the Department of Preventive Medicine and Environmental Health.

The combined program is designed to provide a broad foundation in preventive medicine. The integrated curriculum is three years in length and consists of 36 academic hours in which preventative medicine, epidemiology, environmental health, biostatistics, and preventive medicine, and 56 semester hours of courses constituting the standard core baccalaureate curriculum of the Physician Assistant Program. Electives may be selected from a wide range of course offerings in both the preventive medicine department and other departments in the college.

Following completion of the program, students earn a B.S. degree in the Physician Assistant Program from the college of Medicine, a M.S. degree in preventive medicine and environmental health from the Graduate College.

Admission

To be considered for admission, applicants must have completed a baccalaureate degree with a minimum grade-point average of 3.0. Suggested prerequisite courses include biology, biochemistry, histology, and microbiology. Satisfactory completion of the Graduate Record Examination (GRE) General Test also is required. The Office of Admissions evaluates applicants materials to ensure that the minimum Graduate College standards are met. The application, including test scores and copies of the transcript, is then forwarded to the department for review.

Applicants must complete both the Physician Assistant Program application and an application for admission to the Graduate College. Deadline for completed applications is January 15.

Courses

117.00 Physician Assistant Clinical Seminar Year
117.002 Seminar for Physician Assistant Students Year
117.003 Introduction to the Medical History
117.004 Physical Diagnosis
117.005 Preventive Medicine and Public Health Core
117.006 Practice Management

BIOCHEMISTRY

Head: Alan G. Goodridge
Program Director: Thomas W. Conley
Program Director: Alan G. Goodridge, B.S.
Program Director: Steve V. Fogel, Peter S. Butterfield,
Arthur A. Sabatier, James D. Steiger, E. Scott

Program Director: C. V. R. Bapthra, C. V. R. Bapthra,
M. S. H. A. B. M. S. H.

Program Director: C. V. R. Bapthra, C. V. R. Bapthra,
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Program Director: C. V. R. Bapthra, C. V. R. Bapthra,
M. S. H. A. B. M. S. H.

Program Director: C. V. R. Bapthra, C. V. R. Bapthra,
are seen at the nearby Veterans Affairs Medical Center. 

Various resources are available for fourth-year medical students, including further training in primary care, dermatologic research, and special studies.

Courses

631 Clinical Dermatology 3.0 am

Basic dermatology for the third-year medical student. Lecture sections include clinical dermatology, histopathology, microbiology, and emergency management.

620 Dermatology Electives 4.0 am

Fourth-year medical student electives cover a variety of advanced clinical experiences, dermatologic surgery, and various assignments.

624 Research in Dermatology 2.0 am

Research in dermatology is conducted through dermatology research laboratories, clinical dermatology research, and laboratory projects, individual study.

635 Dermatology Electives for Physician Assistants 2.0 am

6999 Special Studies of Campus 2.0 am

Dietetic Internship

Director: Rose Ann Spigay
Internship Advisor: Suzanne Davis Krueger
Assistant Internship Director: Maryn O'Curry

The University of Iowa Hospitals and Clinics offers a Dietetic Internship Program that qualifies graduates to take the American Dietetic Association (ADA) registration examination. The program is fully accredited by the ADA. Clinical experiences and food service management systems of The University of Iowa Hospitals and Clinics Dietetic 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 2.0 hr.
50:205-206 Clinical Dietetics 2.0 hr.
50:215-216 Projects in Dietetics 2.0 hr.
50:200-210 Hospital Dietary Administration 4.0 hr.
69:104 Principles of Human Nutrition 5.0 hr.

The following are recommended electives:
50:207-208 Dietetics Research 2.0 hr.
50:216 Analysis of Food Service Systems 2.0 hr.

Students generally complete the program with 13 semester hours of graduate credit.

The University of Iowa Hospitals and Clinics awards a certificate to graduates of the program. Credit earned in the program may be applied toward an advanced degree. Approximately half of the graduates of the program go on to complete advanced degree programs, most typically the master's degree in preventive medicine, hospital administration, and other fields.

American Dietetic Association and University of Iowa Graduate College requirements for admission to the program include the bachelor's degree with a strong background in food and nutrition, food service management, and basic sciences. Students must enter the program in the fall semester. The postbaccalaureate deadline for application is February 18.

The University of Iowa Hospitals and Clinics pays an internship stipend that partially covers tuition, fees, and living expenses.

For descriptions of programs courses, see “Nondegree” courses in the College of Medicine introductory section of the Catalog.

FAMILY PRACTICE

Henderson, Charles D.
Professional: Charles D.; Ochs, I. M. (Internal Medicine); George W. (Pediatrics)
Professor emeritus: Stephen R. Walen
Associate professor: Elizabeth A. Buliga, Craig L. Onyege, David M. Keiser
Assistant professor: David Kresse, Ralph Kressner, Lawrence Smetak, George C. Smetak
Clinical professor: Robert D. Howard
Clinical associate professor: Gerald D. Laveau


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 100-elective senior rotations give students opportunities to gain exposure to various Iowa communities through work in affiliated hospitals or connected facilities in the department's model office on the University campus, and in preceptorships with selected family physicians throughout the state. There is also ample opportunity for independent study during the third year, and an international health care elective offers exposure to primary health care systems of other countries.

Residency

The department directs a three-year residency program whose graduates are eligible for certification by the American Board of Family Practice. This residency training prepares physicians to provide continuing and comprehensive care to the total family unit, using concepts which integrate the patient, allied health professionals, and the physician into an effective and efficient 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, 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 patient 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 to participate in all the activities of the private medical school. Rotations are specifically designed to provide breadth of experience. In the second and third years, residents spend increased time at the Family Practice Center and at The University of Iowa Hospitals and Clinics.

Facilities

The department office, located in the University Building on the health center campus, is in the center of department activities. It contains faculty offices and the Family Practice Model Office. Patient families are assigned to a resident with faculty supervision and are seen by appointment. Responsibility for the patient family remains with that resident or the period he or she is in the training program. The program principles of practice management, educational administrative decision making, patient record and bookkeeping procedures, and chart auditing methodologies required to manage a primary care practice.

115:105 Human Structures in Medicine 1.0 hr.

Weekly review of small groups of students for histological, anatomic, and structural development of the human body.

115:190 Principles of Family Medicine 2.0 hr.

Involves discipline-oriented practice, with emphasis on self-learning, problem-oriented learning by group, renewed emphasis on patient care, and emphasis on patient care delivery and assessment affecting practice of family medicine. Instructors and discussion forum, live forms of clinical experience are offered, student-completed an individual project on a subject relevant to family medicine.

115:252 Evaluation of Human Disease I 1.0 hr.

115:253 Practical Clinical Virology 1.0 hr.

Clinical virology, and additional studies of viral infections and vaccinology and practice safety of various systems.

115:254 Principles of Family Medicine I 2.0 hr.

Involves discipline-oriented practice, with emphasis on self-learning, problem-oriented learning by group, renewed emphasis on patient care, and emphasis on patient care delivery and assessment affecting practice of family medicine. Instructors and discussion forum, live forms of clinical experience are offered, student-completed an individual project on a subject relevant to family medicine.

115:491 Family Practice Clerkship, Broadlawns Hospital, Des Moines Family Medicine Center 4.0 hr.

Clinical experience to family medicine, mental health, and social services, and supervised care. Emphasis on interdisciplinary.
The 50-semester-hour curriculum includes the following required courses:

- 80-100 Executive Seminar Series 6 s.h.
- 80-101 Introduction to Health Care Organization 3 s.h.
- 80-201 Health Care Management 3 s.h.
- 80-355 Issues in Health Management and Policy 3 s.h.
- 80-212 Intermediate Micro-Economic Theory 3 s.h.
- 80-213 Health Economics 2 s.h.
- 80-216 Financial Management of Health Institutions 3 s.h.
- 80-219 Managerial Decision Support Systems 3 s.h.
- 80-255 Legal Aspects of Health and Medical Care 3 s.h.
- 80-192 Financial Accounting—M.B.A. 3 s.h.
- 80-194 Managerial Finance—M.B.A. 3 s.h.
- 80-196 Marketing Management—M.B.A. 3 s.h.
- 6N-197 Quantitative Methods—M.B.A. 3 s.h.
- 6N-271 Statistical Methods—M.B.A. 3 s.h.
- Electives* 16 s.h.

*At least 9 of these 18 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.

Aging and Long-Term Care Specialization

The specialization in aging and long-term care was developed in conjunction with the University of Iowa Age Studies Program to respond to the need to recruit the growing number of long-term care facilities and home care service providers. The specialization positions graduates to fill the growing need for high-quality long-term care executives skilled in these areas.

The aging and long-term care specialization requires 60 hours of graduate work, including all required courses plus:

- Electives in hospital and health administration or aging studies* 12 s.h.
- 80-254 Administrative Residency in Aging and Long-Term Care** 4 s.h.

** A total of 720 contact hours are required by the state of Iowa for licensure as a nursing home administrator. Residence hours may be completed throughout the program of study. The residency requirement may be satisfied during the intervening summer periods and at the conclusion of the didactic work.

H.H.A.-M.B.A. Degree 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.

Five-Year Program

The University of Iowa was the first institution in the nation to offer the five-year program in hospital and health administration. This option, which was launched with a grant from the Kellogg Foundation, enables qualified students to complete their bachelor's degree and master's degrees in five years rather than the usual six.

To be eligible for admission to this program, 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. Joint programs usually require three years of full-time study, and students must satisfy the requirements of each program to earn both degrees. In addition to the M.A.-M.B.A. dual degree program, joint programs 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.

Fellowships and Residencies

Most students choose to complement their academic training with an administrative fellowship or residency. Such experiences afford a valuable source 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

- 80-235 The Politics of Health Policy
- 80-253 Planning for Health Policy
- 80-253 Seminar on Health Systems Management
- 80-255 Seminar in Contemporary Health Issues I

Research Methodology and Statistics

- 80-261 Health Services Research I
- 80-262 Health Services Research II
- 80-263 Independent Research Project

Advanced Statistical Techniques

Doctoral students also are required to complete at least four courses in statistics (a minimum of 12 semester hours) from:

- General Measurement/Statistics Sequence
- 70-143 Intermediate Statistical Methods
- 70-144 Correlation and Regression
- 80-265 Application of Multivariate Statistical Methods

- Electives

Econometrics Sequence

- 62-221 Econometrics
- 80-205 Application of Multivariate Statistical Methods

- Electives

Sociology Sequence

- 34-214 Elementary Statistics and Data Analysis
- 34-214 Intermediate Statistics and Data Analysis
- 80-205 Application of Multivariate Statistical Methods

- Electives

Minor

Students must complete at least 12 semester hours in a discipline such as sociology, political science, social psychology, management science, or economics.
Alumni Association
An active alumni association supports the program in a number of ways, including curriculum consultation, continuing education, research, and fund development. The association also functions as an network for persons entering the profession. Alumni serve as visiting faculty, consultants, and as preceptors for residencies and fellowships.

Each fall the program sponsors the Executive Symposium, a two-day conference for several hundred 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 today. Recent symposiums have addressed the changing role of the physician, new developments in health care, the balance between business ethics and the healing mission, prospects for a new era in American health care, and leadership in health care.

Admission
Applicants to the master's program are required to hold a baccalaureate degree (except for early admission program applicants). Applicants to the P.H. program generally are expected to hold a master's degree in a health-related field, although other degrees will be considered.

A 3.0 grade-point average (on a 4.00 scale) is required. Combined Graduate Record Examination (GRE) General Test verbal and quantitative scores above 1100 or Graduate Management Admission Test (GMAT) scores above 550 are preferred. Courses in business administration are not required. Applicants are strongly encouraged to submit a statement in writing of interest in the program. Generally, admissions are made for the fall semester. Campus visits are encouraged and personal interviews are required prior to admission.

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 meritorious students to in-state tuition rates.

In addition to these student financial aid programs, there exist opportunities 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 Hospitals and Health Administration since 1951, is the University’s wide local point for a broad-based program of health services research.

With the coordination and support of the CHSR, faculty and staff work with colleges and departments throughout the University to investigate the organization, delivery, efficiency, and financing of health care services. CHSR researchers explore 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, public health and community services, and clinical medicine.

Through its research activities, the center promotes links among health organizations throughout the Midwest. CHSR also fosters frequent exchanges with professional and provider associations, policy and planning analysts, insurance institutions, health delivery institutions, and other members of the health services research community.

As the driving force behind the formation of the Health Services Research Consortium, the center has developed affiliations with the Veteran’s Affairs Health Services Research and Development Field Program, the Mercy Consortium for Health Services Research, and the National Institute for Rural Health Policy.

Master’s and doctoral students from the program are encouraged to become involved in the center’s projects and activities.

Courses
20100 Executive Seminar Series 3.0 b. A. Students and residents from academic health systems, health maintenance organizations, and governmental agencies, health maintenance organizations, health care providers, and other key participants from the health care industry.
20111 Introduction to Health Care Management 3.0 b. A. Basic organizational arrangements of health services in the United States, types of organizations, political and organizational trends and public policy.
20201 Hospital Organization and Management 3.0 b. A. Principles of health care administration, concepts of leadership, basic organization design, health care organization, care coordination, and systems analysis.
20202 Hospital Operations and Management 3.0 b. A. Interactions between hospital operations and management, health care systems and management, and hospital management in the health care delivery system.
Human Nutrition • Medicine

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HUMAN NUTRITION

Editors: Edward E. Tegeler

Preface: Mark L. Armstrong (Internal Medicine), Robert S. Bar (Internal Medicine), Edward E. Bell (Pediatrics), Michael J. Brady (Pharmacology), C. Patricia Burea (Internal Medicine), George C. Cane (Physiology), Kevin P. Corder (Physiology and Biophysics), Robert A. Cronkhite (Pathology), Franklin R. Etchison (Pathology), Donald E. Glueck (Pharmacology), John E. Goodenough (Biochemistry), Samuel J. Pollock (Pharmacology), Alan G. Goodwin (Biochemistry), James W. Granger (Pathology), Lawrence A. H. Hines (Pharmacology), Roger E. Hines (Pharmacology), Arthur M. Hines (Pharmacology), William J. Howard (Pharmacology), James B. Kasper (Pharmacology), Peter A. Kruh (Pharmacology), Howard P. Kruh (Internal Medicine), Walter A. Specter (Biochemistry).

Preface (Pharmacology), Lorna A. Ingall (Pharmaceutical, Factory)

John B. Stokes (Internal Medicine), Robert B. Wallace (Pharmacology, and Environmental Health), Michael C. Wallace (Environmental Health), Edward E. Tegeler (Pediatrics), and Alice B. Tegeler (Internal Medicine).

Preface (Pharmacology), Lorna A. Ingall (Pharmaceutical Factory)

Admission

The Ph.D. Program in Human Nutrition attracts students with a wide range of interests and training. Prerequisites for admission include preparation for the biology, mathematics, through calculus, organic chemistry, and physics. A minimum undergraduate grade point average of 3.00 (on a scale where A = 4.00) with a 2.5 average in science and mathematics courses. An excellent score on the verbal, quantitative, and analytical sections of the Graduate Record Examination (GRE) is required.

Individuals interested in further details of the program may write to the director. Further information is available about the comprehensive graduate programs in the program of the applicant's academic record.

Facilities

Students admitted to the program who articulates their program of research activities carried out in a number of research laboratories, pharmacology, physiology, biophysics, and medical and biological health, and surgery.

Financial Aid

Financial support is available to all students in the program.

Courses

60.005 Nutrition Seminar 1 h.

60.006 Nutrition Seminar 1 h.

60.007 Nutrition Research Project 1 h.

60.008 Projects in Nutrition 1 h.

60.009 Projects in Nutrition 1 h.

60.010 Nutrition Research 1 h.

60.011 Nutrition Methods 1 h.

60.012 Principles of Epidemiology 1 h.

60.013 Introduction to Human Pathology 1 h.

70.014 Radiobiology in Biological Research 1 h.

140.025 Cell Biology 1 h.

140.026 Cell Biology 1 h.

140.025 Molecular Biology 1 h.

61.015 Survey of Immunology 1 h.

HUMAN NUTRITION

Preface (Pharmacology), Lorna A. Ingall (Pharmaceutical Factory)

John B. Stokes (Internal Medicine), Robert B. Wallace (Pharmacology, and Environmental Health), Michael C. Wallace (Environmental Health), Edward E. Tegeler (Pediatrics), and Alice B. Tegeler (Internal Medicine).

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140.025 Cell Biology 1 h.

140.026 Cell Biology 1 h.

140.025 Molecular Biology 1 h.

61.015 Survey of Immunology 1 h.
MEDICAL SCIENTIST TRAINING PROGRAM

Director: Robert E. Finkel (Physiology and Pharmacology)
Associate director: William Johnson
Associate director for clinical studies: Robert A. Schrier (Internal Medicine)

The Iowa Medical Scientist Training Program is a combined M.D./Ph.D. degree program that prepares trainees for careers in academic medicine, with emphasis on preclinical and clinical research. To accomplish this, the program provides a unique educational and research environment for the doctorate degree. It is not possible at the outset to predict the amount of time this segment of the program will require, nor to complete the Ph.D. research and thesis defense in three to four years. Immediately after completing graduate study, trainees receive the M.D. degree in the final year of clinical clerkship. They then return to the clinical environment with a wealth of information and experience in laboratory science that can be applied to problems of human disease, and as the first year progresses, they review and develop the clinical skills they began in the second year of the program. After completing this second year, trainees receive the M.D. and Ph.D. degrees.

Financial Aid
Trainees admitted to the first year of the program receive stipends 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 institutional sources continues up to six years for those who have provided the trainee's achievement and progress remain satisfactory. Support for trainees admitted to advanced standing in the program is provided 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 required 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 academic research, usually demonstrated through productive research experience as undergraduates. Applications are encouraged from students who request admission to the first two years of the program. Considerations also is given to applications for admission to advanced standing from students currently enrolled in the College of Medicine or Graduate College at the University of Iowa.

Application Procedures
The University of Iowa College of Medicine participates in the Association of American Medical Colleges Application Service (AMCAS). Program applicants should submit AMCAS to forward their credentials to the College of Medicine (CAM) 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, 6-572 Rowe Science Building, The University of Iowa, Iowa City, Iowa 52242. Applications to the Medical Scientist Training Program are reviewed by the program selection committee after AMCAS applications are received.

Courses
58311 NSIP: Nephropathy Research
58312 NSIP Clinical Conference

MEDICAL TECHNOLOGY

See "Diagnosis of Associated Medical Sciences."

MICROBIOLOGY

Aron Berg, M.D., M.P.H.
Professor, Laboratory Medicine
Research interests: Immunology, molecular biology, cell biology

Bengt Brandell, M.D., Ph.D.
Professor, Laboratory Medicine
Research interests: Microbiology, immunology

Catherine C. Cohn, M.D.
Assistant Professor, Internal Medicine
Research interests: Infectious diseases

David A. Corbin, M.D.
Professor, Laboratory Medicine
Research interests: Molecular biology, immunology

James D. Davis, M.D., Ph.D.
Professor, Laboratory Medicine
Research interests: Microbiology, virology

Undergraduate Program
See "Microbiology" in the College of Liberal Arts section of the Catalog.

Graduate Programs
The objectives of the graduate programs in microbiology are to help students become highly qualified in research and in teaching of microbiology.
Seven areas are included in the program: microanatomy, histopathology, molecular genetics, immunology, microbiology, pharmacology and virology. Several of these specialized areas involve interdisciplinary training within and outside the Graduate School, and students receive broad exposure to all aspects of these areas during their course of study.

Students working for the Ph.D. degree may obtain an M.S. degree during their graduate work or pursue research 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 a chair of their advisory committee. This committee advises students in planning their research and, from time to time, reviews students' progress in research.

The department cooperates with other departments in the various colleges on campus, allowing 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, and electron microscopy are taught in an interdisciplinary basis.

Master of Science

Candidates for the M.S. degree are required to complete a minimum of 30 credit hours including course work and thesis research. All students registering for at least 9 credit hours are expected to assist in teaching and laboratory service as required by the examining committee. The committee must make a recommendation to the student on the basis of an oral or written examination. The degree cannot be granted on the basis of thesis research alone.

Doctor of Philosophy

The minimum course requirements for the Ph.D. are one course in each of four subdisciplines (of the seven subdisciplines available in the program) or 15 semester hours of course work in two different areas. Students may substitute a 3-credit hour course previously taken at The University of Iowa or elsewhere for the course requirements upon obtaining approval from the Ph.D. committee. Students must also pass a comprehensive examination and write a thesis based on their own research. The thesis must be evaluated satisfactorily in an oral examination.

Facilities

The department has a large science building with the Departments of Anatomy, Biochemistry, Pharmacology, and Physiology and Biophysics. Laboratory space and modern equipment are available for teaching and research.
Graduate Program

The Molecular Biology Ph.D. Program provides experimental training in the concepts and methodologies fundamental to the investigation of biological mechanisms at the molecular level. More than 30 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. degree 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 may 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 expose a comprehensive exposure to the concepts and methodologies of this field. Because of the diversity of biological research problems that can be pursued by employing molecular biological techniques, the student should select options for specialization in particular areas of interest.

Four courses are required of all students:

- 19,241 Biophysical Chemistry I
- 140,210 Molecular Biology I
- 140,212 Molecular Biology II
- 86,245 Molecular Genetics of Animal Virology and the Eucaryotic Cell

In addition to these core courses, students are required to complete at least 8 semester hours in lower or more advanced 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 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 the University of Iowa fellowships and graduate research assistantships.

Facilities

Training is conducted primarily in laboratories and teaching facilities of the Departments of Biochemistry, Biology, Microbiology, and Physiology. Facilities are open to graduate students, and the Department of Internal Medicine, Pathology, and Pediatrics, whose focus is clinical, faculty laboratories and research facilities have been established to students provide access to the latest state-of-the-art research equipment, including an on-campus computer and an automated DNA sequence analysis apparatus.

Admission

Individuals seeking admission to the program are encouraged to submit applications for the following information:

- 5,152 Science Building
  The University of Iowa, Iowa City, Iowa
- 52847
ORTHOEDIC SURGERY

Neuralgias—In conjunction with the Department of Neurology, provides expert care for patients with peripheral nerve entrapment, athletic injuries, and related problems.

Neurosciences—In conjunction with the Department of Neurosurgery, provides expert care for patients with brain tumors, spinal cord injuries, and other neurological problems.

Facilities

The department maintains a large number of specialized facilities and equipment, including state-of-the-art imaging and diagnostic equipment. The department also has its own research laboratory, equipped with the latest technology for research in orthopedic surgery.

Programs

Clinical Program

Trauma

The trauma service provides comprehensive care for patients with orthopedic injuries, including fractures, dislocations, and other musculoskeletal injuries. The trauma service is supported by a dedicated team of surgeons, nurses, and allied health professionals.

Orthopaedic Surgery

The department of orthopedic surgery provides comprehensive care for patients with orthopedic conditions, including arthritis, fractures, and joint replacements. The department is dedicated to providing the latest surgical and nonsurgical treatments for orthopedic conditions.

Academic Orthopaedics

This program includes the training described above under the clinical program and as additional one or two years of research. This research may be 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 orthopaedic laboratories or in a basic science department.

Laboratories

The orthopaedic laboratories deal with problems in the major subject areas:

Biochemistry—The biochemistry of muscle function, connective tissue, and joint fluid.

Neurosciences—In conjunction with the Department of Neurology, provides expert care for patients with peripheral nerve entrapment, athletic injuries, and related problems.

Neurosciences—In conjunction with the Department of Neurosurgery, provides expert care for patients with brain tumors, spinal cord injuries, and other neurological problems.

International Symposium on Orthopaedic Trauma

The department hosts an annual international symposium on orthopaedic trauma, which attracts participants from around the world.

Clinical Orthopaedic Surgery

The department of orthopaedic surgery provides comprehensive care for patients with orthopedic conditions, including arthritis, fractures, and joint replacements. The department is dedicated to providing the latest surgical and nonsurgical treatments for orthopedic conditions.

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Clinical Orthopaedic Surgery

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Residency Program
The residency program in otorhinolaryngology is in accord with the requirements of the American Board of Otorhinolaryngology. It consists of a four-year course of basic and clinical science. The basic science lectures and laboratory studies are conducted during the first two and one-half months of residence.

After passing an oral and written examination, students enter the clinical phase of their training, which includes supervised clinical and operative work, clinical conferences, and seminars pertinent to the practice of otorhinolaryngology and its related fields.

Courses
603 Clinical Otorhinolaryngology 2 s.h.
604 Head and Neck Oncology 2 s.h.
606 Basic Pathology of Facial Plastic and Reconstructive Surgery 4 s.h.
608 Otolaryngology 3 s.h.
609 Basic Otology 3 s.h.
610 Oral Surgery 3 s.h.
611 Internal Medicine 12 s.h.
612 Advanced Anatomy for Head and Neck Surgery 4 s.h.
613 Ocular Trauma of Maxillofacial Surgery 2 s.h.
614 Head and Neck Oncology 2 s.h.
615 Head and Neck Surgery 2 s.h.
616 Ocular Trauma of Maxillofacial Surgery 2 s.h.
617 Interventional Otolaryngology 2 s.h.
618 Ocular Trauma of Maxillofacial Surgery 2 s.h.
619 Ocular Trauma of Maxillofacial Surgery 2 s.h.
620 Special Studies in Otorhinolaryngology 2 s.h.

Programs
Clinical Education in Medical Technology
Medical devices are "medical technologies", the science of "Medical Devices" in the sense of the Catalog of Master of Science
The M.S. program in technology is open to students with various educational backgrounds. The program particularly encourages applications from students with a background in engineering, chemistry, physics, mathematics, and computer science. The program also requires that students major in electrical and computer science.

The M.S. program is flexible, but the student must complete the following courses: 120 credits of coursework in medicine and medical information, the other for medical technologists who want to enhance their skills in medical technology.

M.S. students participate in teaching, research, and clinical training through the instructional programs of the departmental laboratories. The graduate programs of the departmental laboratories and The University of Iowa Hospitals and Clinics, and faculty members' research laboratories. Laboratories

Admission to the M.S. program requires a 3.00 grade-point average in science courses, a Graduate Record Examination (GRE) aptitude test, a personal interview, a brochure describing departmental course requirements and giving examples of the major academic tracks is available upon request.
Residency Program

The department is approved for 21 residency positions in pathology, covering a training span of 5 to 8 years. The programs are designed to utilize the patient population of The University of Iowa Hospitals and Clinics and the Iowa City Veterans Affairs Medical Center. There is a systematic rotation through the various laboratory services, including surgical pathology, autopsy pathology, cytology, clinical chemistry, clinical microbiology, hematology, immunopathology, and transfusion center. There is also opportunity for one or two years of additional fellowship training in most pathology subspecialties. The department also offers a postdoctoral training program in clinical chemistry for biochemists and chemists. This program is approved by the American Board of Clinical Chemistry.

In addition, the department provides five 12-month externships and a variable number of clerkships for premedical students in any of the areas of anatomic and clinical pathology.

Postdoctoral Training

The Department of Pathology offers postdoctoral programs in hematopathology, neuropathology, and surgical pathology for physicians who have completed at least two years of residency training in pathology in approved programs. The minimum requirements for certification as one of five years of diagnostic work and one year of laboratory research are basic hematopathology. The department also provides postdoctoral fellows in immunology, hematology, 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 administers the clinical laboratories of The University of Iowa Hospitals and Clinics. Most of these laboratories are located in the 16-story, 415,000-square-foot new construction laboratories. The Department of Pathology has individual research laboratories and core facility laboratories located in the Medical Research Center, Medical Laboratories, and at the Veterans Affairs Medical Center. The department is well-equipped to carry out the sophisticated technology of modern cellular and molecular pathology. This includes the main laboratory of the Medicine Core Laboratory for research, the hospital core laboratory, the pediatric laboratory, the veterinary laboratory, and the blood component center.

Courses

94900 Cooperative Education Internship 0.5 a.

16901 Introduction to Clinical Laboratory Medicine 2.0 b.

16902 Clinical Microbiology 2.0 b.

16903 Pathology of Bacteria 2.0 b.

16904 Infection 2.0 b.

16905 Medical Parasitology 2.0 b.

16906 Viral Diseases 2.0 b.

16907 Malignant Diseases 2.0 b.

16908 Hematology 2.0 b.

16909 Immunohematology 2.0 b.

16910 Clinical Microbiology and Immunology 2.0 b.

16911 Clinical Immunology 2.0 b.

16912 Clinical Cell Biology 2.0 b.

16913 Molecular Pathology 2.0 b.

16914 Molecular Immunology 2.0 b.

16915 Molecular Microbiology 2.0 b.

16916 Molecular Cell Biology 2.0 b.

16917 Molecular Genetics 2.0 b.

16918 Molecular Neuroscience 2.0 b.

16919 Molecular Genetics 2.0 b.

16920 Molecular Immunology 2.0 b.

16921 Molecular Microbiology 2.0 b.

16922 Molecular Cell Biology 2.0 b.

16923 Molecular Genetics 2.0 b.

16924 Molecular Immunology 2.0 b.

16925 Molecular Microbiology 2.0 b.

16926 Molecular Cell Biology 2.0 b.

16927 Molecular Genetics 2.0 b.

16928 Molecular Immunology 2.0 b.

16929 Molecular Microbiology 2.0 b.

16930 Molecular Cell Biology 2.0 b.

16931 Molecular Genetics 2.0 b.

16932 Molecular Immunology 2.0 b.

16933 Molecular Microbiology 2.0 b.

16934 Molecular Cell Biology 2.0 b.
Program, the Neuroscience Program, the Cell and Molecular Biology Program, the Core Center, Diabetes and Endocrinology, the Cancer Center, and the Cardiovascular Research Center.

The department is pleased to offer the following educational programs to students with little or no science background. The instruction is at a level suitable for 722.120 Drugs, Their Nature, Action, and Use.

Emphasis is placed on the mechanisms of drug action and how these mechanisms affect the human body. Students are encouraged to participate in research projects under the guidance of faculty members.

The department offers research training in all areas of pharmacology and toxicology at the predoctoral and postdoctoral levels to prepare students for career opportunities in teaching, government, and industry.

Prerequisites for graduate study include undergraduate background in chemistry, biology, and mathematics. The level of performance in undergraduate courses must be in the top quartile.

Graduate Programs

Master of Science

In cooperation with clinical departments in the College of Medicine, the Department of Pharmacology offers a Master of Science degree program in clinical pharmacology for applicants who already hold the Doctor of Medicine degree. The objectives of this program are to provide increased emphasis on training in the science of clinical pharmacology for residents in the various clinical specialties.

Condition of the M.S. program requires a minimum of two years. Satisfactory performance in the program is mandatory unless specifically waived by the Department of Pharmacology faculty. Any of these course requirements may be waived at the request of the trainee if his or her advisor and the departmental faculty agree that the trainee has met them satisfactorily at a prior time.

721.205 Pharmacology Research Seminar

721.206 Biochemical Pharmacology

721.210 Special Topics in Pharmacology

721.212 Toxicology

721.230 Clinical Pharmacology and Therapeutics Lecture Series

The trainee must aim to meet 721.120 Pharmacology for Health Sciences: Medical and may take additional courses in pharmacology or in other departments appropriate to his or her program.

Eligibility for the M.S. degree in pharmacology requires satisfactory preparation and defense of a research thesis.

Doctor of Philosophy

Course requirements for the Ph.D. in pharmacology are as follows:

711.109 Biochemistry

711.120 Biostatistics and Molecular Biology II

721.020 Medical Pharmacology

721.031 Pharmacology for Health Sciences

723.167 Biochemistry

723.162 Pharmacology and Toxicology

723.166 Biochemical Pharmacology

723.200 Pharmacology Research Seminar

723.204 Pharmacology Seminar

723.207 Neuropharmacology

The student must complete at least one additional course in his or her area of interest; individual faculty research advisors may require more than one course.

There is no departmental foreign language requirement.

Students are expected to obtain maximum laboratory research experience during their first two years. At prerequisite to the comprehensive examination and in lieu of a preliminary examination, students must submit to the director of graduate studies a manuscript of progress report detailing research accomplished during the first two years of study. After reviewing this report with a committee of the faculty, the students begin or continue their Ph.D. thesis research. The Ph.D. comprehensive examination (written and oral) 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 and postdoctoral students in pharmacology.

Courses

710.085 Clinical Immunology

Pharmacology and psychology approaches to drug therapy

1.0 h.

712.200 Pharmacology Seminar

Advanced and experimental approaches to drug therapy

1.0 h.

712.230 Clinical Pharmacology

721.017 Pharmacology and Toxicology Seminar

721.109 Biochemistry

721.120 Biochemical Pharmacology

721.122 Toxicology

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PHYSICAL THERAPY

See "Division of Associated Medical Sciences."

PHYSICIAN ASSISTANT PROGRAM

See "Division of Associated Medical Sciences."

PHYSIOLOGY AND BIOPHYSICS

Hans Robert E. Fishel

Professor: Financial M. Albright (Internal Medicine), Harold R. Campbell, Robert L. Felker, Carl V. Gauld (Ecology Science), Richard A. Mayer, Michael L. Reicht (Biomedical Science).

Associate: Charles C. Waterman

Professor emeritus: Edgar P. Kill, Jr.

Associate professor: Jeffrey F. Humes, Brian J. Absher

Associate professor emeritus: Charles J. Toog, George D. Vreeland

Assistant: Mary B. Volker, Helga B. Otter, Myra Lipton, Roberto Malamori, Scott M. Bevada, Renee Rosato, Deborah Segoff, Erwin F. Hafsa

Graduate degrees offered: M.S., Ph.D. in Physiology and Biophysics

The Department of Physiology and Biophysics offers graduate study leading to the Doctor of Philosophy Degree. It provides instruction in physiology and biophysics for medical, dental, pharmacy, nursing, and other health professional students; participates in the Medical School Training Program; and conducts M.S., Ph.D. programs conducted under the auspices of the Graduate College and the College of Medicine; and offers a Master of Science degree.

Research Interests

The major research interests of the department are in hormone receptors and signal transduction, molecular endocrinology and regulation of gene expression, synaptic transmission and neuronal differentiation, membrane ion channels and regulation of excitability, and cardiovasculaure and electrophysiology and regulation.

Graduate Program

The graduate program in physiology and biophysics is designed to provide broad general knowledge of fundamental processes at molecular, cellular and molecular levels. As well as an opportunity for intensive study in major areas of physiology and biophysics with emphasis on neuroendocrinology, membrane biology, and neurosience. The program focuses on the development of modern research skills and their application in the context of original dissertation research.

Eligible students are advised by the Director of graduate studies, who provides guidance in the planning of a program of formal coursework and introduction to research interests of the departmental faculty.

The core curriculum includes two courses in physiology, two courses in other major biology or neurobiology, and one semester of medical physiology. The department also offers advanced, specialized courses in mammalian physiology, endocrine physiology, environmental and exercise physiology, and neurophysiology. Students elect to take courses in other departments appropriate to their individual research objectives.

After completing course work and performing satisfactorily on a comprehensive examination based on an original research proposal, students devote full time to original research that culminates in the preparation of a doctoral dissertation and its defense in a final oral examination.

All graduate degrees with supervised experience as classroom instructors and teaching assistants as part of their graduate programs.

Financial Aid

All full-time doctoral students receive financial aid in the form of fellowships and assistant support from the Department of Physiology and Biophysics. Support is reduced annually based on self-support academic progress.

Facilities

The Department of Physiology and Biophysics occupies two floors devoted to research and teaching in the Rowan Science Building and an additional laboratory facility in the Eisenstein Medical Research Building. At the nearby Graduate Student Commonwealth to speed equipment for research facilities at the laboratory. The department has extensive facilities with direct access to University computer and microcomputer and a complete imaging facility. The department also provides free access to computers and equipment for cell culture and molecular biology. Graduate students are provided with study space in the departmental library, which supplements resources available at the Library for the Health Sciences.

Admission

Applicants for graduate admission must complete undergraduate studies in an accredited institution prior to matriculation with an overall science grade-point average of at least 3.0, coupled with a combined verbal and quantitative score higher than 1100 on the Graduate Record Examination (GRE). The appropriate background for graduate study in cellular and molecular biology, and physiology, and in an undergraduate major in one of the biological, chemical, physical, mathematical, or engineering sciences with appropriate college work in chemistry, genetics, physics, and mathematics.

Courses

11900 Histology Physiology

Prerequisite: General biology. Offered fall semester. Course begins with an introduction to the gross morphology of human, veterinary, and some basic concepts of the cellular and molecular basis of human disease. Offered spring semester. Course may be taken in conjunction with other related courses.

11900 Histological Physiology

Prerequisite: Basic science. Offered fall semester. Course may be taken in conjunction with other related courses.

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PREVENTIVE MEDICINE AND ENVIRONMENTAL HEALTH

Head: Robert W. Wallace


Guided research with emphasis on occupational medicine, environmental health, and environmental education. Research areas include the development of preventive medicine, environmental health, and environmental education. Research areas include the development of new methods of preventive medicine and environmental health. Research areas include the development of new methods of preventive medicine and environmental health.
Graduate Programs

The M.S. program in radiation biology emphasizes technical aspects and serves well as a minor field for medical students and will be of major interest to a related field.

The Ph.D. program is open to graduate students with a background in physics, chemistry, biology, biochemistry, microbiology, 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 choose 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 either case a broad base, rather than complete specialization, is the goal.

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 equipment and techniques. It is recommended that candidates for the Ph.D. have had knowledge of scientific French or German and competence in biological statistics or computer programming before taking the first examination. Students must have at least one semester of experience as teaching assistants before serving as research assistants. No registration isrequired 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.

Facilities

The Radiation Research Laboratory is equipped with a variety of x-ray, gamma, and neutron sources, including a 6.9 MeV, 12 MeV, 14 MeV, and 15 MeV electron accelerators. Students and staff also have access to other radiation sources, such as the 60Co gamma source and the linear accelerators in the Department of Radiology, and the Janus Reactor of the Biological, Environmental, and Medical Research Division of the Argonne National Laboratory.

The Radiation Research Laboratory has a variety of radiation detection and counters, including gamma and liquid scintillation counters and a small animal whole-body counter. The laboratory also has ultraviolet, spectrophotometric, various types of equipment for chromatography and electrophoresis, an automatic cell counter and particle ater, tissue culture facilities, and facilities for preparing histological sections of tissues—fixed or frozen—and autoradiographs.

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.

Courses

78.00 Introduction to Radiobiology and Radiology 4.0h
Chemistry and biological effects of ionizing radiation, radiation interactions, medical applications, and radiological physics. Corequisite: 78.10. Consent of instructor required.

77.00 Environmental and Radiological Health Physics 2.0h
Basic concepts of health physics, properties of design and use of radiation products in the civil, industrial, and military fields, personal and industrial radiation hazards, physical and biological effects of low-level radiation environmental. Offered in fall semesters of even years. Prerequisites: A semester course in physics or chemistry, or consent of instructor.

77.00 Special Topics: Advanced Undervisuals 2.0h

77.00 Special Topics: Advanced Undervisuals 2.0h
Radiobiology and radiation protection suitable for individuals interested in these fields. Consent of instructor required.

77.00 Special Topics: Advanced Radiobiology 2.0h
Radiobiology and radiation protection suitable for individuals interested in these fields. Consent of instructor required.

77.00 Special Topics: Advanced Research 2.0h
Research reports by students and faculty. Consent of instructor. Offered in spring semesters.

77.00 Special Topics: Advanced Research 2.0h
Research reports by students and faculty. Consent of instructor. Offered in spring semesters.

77.00 Special Topics: Advanced Medical Physics 2.0h
Characteristics of x-ray machines, nuclear instrumentation, and radiological physics. Offered only satisfactorily-unsatisfactory. Offered spring semesters.

77.00 Special Topics: Advanced Physics of Radiology 2.0h
Characteristics of x-ray machines, nuclear instrumentation, and radiological physics. Offered only satisfactorily-unsatisfactory. Offered spring semesters.

77.00 Special Topics: Advanced Medical Physics 2.0h
Characteristics of x-ray machines, nuclear instrumentation, and radiological physics. Offered only satisfactorily-unsatisfactory. Offered spring semesters.

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Practicing resuscitation on a mannequin in the nursing technology lab

Dean: Geraldene Felton
Dean emeritus: Myrtie Apley
Assistant dean, undergraduate studies and community affairs: Ginger McCall and
Assistant dean, Clinical practices: Sally Mathis
Director, continuing nursing education: Kathleen Kelly
Director, nursing research development and utilization: Toni Tripp-Reiner
Director, student services: Carol Gruber
Professor: Kathleen Burckwater, Geraldene Felton, Joanne McDonald, Toni Tripp-Reiner, Barbara Thomas
Professor emeritus: Myrtie Apley
Eva Eriksson, Rosemary McIlvain, Hope Solomone
Associate professor: Tooty Law, Melba Cline
M. Patricia O’Malley, Janet Elston, Ria Franti, Michael Francis, Rose Marie Fritsch, Laura Hart, Helen Monahan
Professor emeritus: Janet O’Malley
Professor: Jack Marshall, George McClelland, Sandra Powell, Jean Brake, Elizabeth Sawyer
Associate professor emeritus: Gladys Baca, Carole Vance, Phyllis Hensel, Marjorie Gould, Nancy Jordan, Marjorie Lyford, Anna E. Overland, Elva H. Reynolds
Assistant professor: Mary S., Gloria
Hubbell, Martha Carpentier, Carolyn Crowell, Conrie Deutsey, Jane Desert, Michele Elison, Diane Garzie, Caryn Gluck, Mary Hanks, Berta Herr, Marion Johnson, Kathleen Kelly, Louise Kwak, Gussie Landy, Phyllis Miller, Paula Weibstein, Joyce Robinson, Laverne Ruther, Beverly Saboe, Annette Schindel, Mary Stewart-Dietz, Kay Under
Assistant professor emeritus: Joella Jones, Marle Hock, Mary Rock
Lecturers: Larry Jones ABS, Rejoice Ajar, Sandra Delage, Sandra Bergquist, Teresa Brown, Josie Scaich, Patricia Cline, Pete Scaich Cowes, Kenneth Culp, Linda Eastman, Karen Griffin, Vicki Heng, Jean Hone, Deborah Jones, Lisa Stump Kelley, Joe Kriger, Nordita Markowitz, Jane McDonald, Darrell Miller, Judy Payne, Carla Rieffel, Margaret Hamilton, Julia Smith, Jeanne Tiggie, Elizabeth Walacki, Pamela Wilcox, Janet Williams, Bruce Wilson, Mary Wilbur, June Yang, Karie Zobell
Bachelor’s degrees offered: B.S.N.
Graduate degrees offered: M.A., Ph.D. in Nursing
The College of Nursing is an integral part of The University of Iowa Health Center, providing educational 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 degree 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 colleges and university programs of nursing education. The baccalaureate program is offered 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 (BSN) 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, and in education. It also serves as the base for graduate study in nursing.

In addition to the advantages of combining general education with specialized career preparation, the BSN program offers the advantages of full participation in group living and group recreational activities of a highly diverse college setting. Students also share in activities of other persons, a college or university background enables people not only to be prepared for a career, but to be able to recognize 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 participate in a broad range of health promotion and teaching activities and to coordinate care in any sector of the health care systems.

The nursing major provides a basis for nurses’ skill in wellness and prevention, 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 counselor of health care by organizing and facilitating the delivery of health resources to society. The nurse provides an appropriate service to individuals, families, groups, and communities. The nurse demonstrates ability to conceptualize the total continuing health needs of the patient, including legal and clinical aspects of care. The University of Iowa program’s goal is to produce graduates who are competent, committed, creative, and compassionate.

The 128-hour semester course of study consists of 75 semester hours of liberal arts General Education Requirement courses and supportive prenursing courses, and 52 semester hours of course work in the nursing major. Students can expect to complete the program in four to five 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 those students, a one-year plan of study is available for the completion of required nursing courses upon satisfaction of all required prerequisite courses, challenge examinations, and admission to the College of Nursing.

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 in the College of Liberal Arts. Or they may transfer to an institution that offers a two-year sequence of specific courses approved by the UI College of Nursing. Cooperating state institutions and independent colleges that participate in the transfer plan include Iowa State University and the University of Northern Iowa. The University of Southern Iowa, University of Northern Iowa, Western Oregon State College, Western Washington State College, Western Washington State College, Eastern Washington State College, Eastern Washington State College, and Eastern Washington State College, have programs approved for nursing.

Completion of the transfer sequence at a cooperating institution does not guarantee admission to the College of Nursing. Minimum standards for transfer are the same as for all other College of Nursing applicants. Prospective transfer students who want more information about this plan should consult the cooperating institution of their choice.

Cooperative Education Summer Clinical Internship

High-achieving undergraduates have the opportunity to develop a 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 courses and have completed a nursing grade-point average of 3.00 or higher. Interested students must contact the College of Nursing coordinator of the Cooperative Education Program, Nursing Internship Program, or the Office of Career Development 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 advisor 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 Aging Studies Program coordinator. See "Aging Studies Program" in the "College of Liberal Arts" section of the Catalog.

Honors Program

The University of Iowa College of Nursing Baccalaureate Honors Program provides seminars and independent study experience for honors nursing courses and for research projects. Students must have completed the first clinical nursing course and must maintain a cumulative grade-point average of at least 3.25 and a grade of A in nursing courses. Students interested in the Baccalaureate nursing honors program should inquire of the nursing program office for more information about the program.

Preparation Assessment Test

All students are encouraged to take a preparation assessment test during the final semester of their senior year. The test is designed to assist students in selecting the most appropriate study materials to determine students’ specific strengths and weaknesses, providing a sense of direction for further study and a means for setting
priorities; and 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. See the 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. Students may transfer previous course work completed at a 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 prerequisite courses are completed, students may complete the R.N.-B.S.N. nursing major sequence in two years or three semesters in a sequence that includes three -clinical and two nonclinical nursing courses. Students can choose and designate clinical sites. Registered nurses planning to complete the baccalaureate program should obtain special information and advice from the College of Nursing.

Faculty Advisors

Advisors from the Undergraduate Academic Advising Center advise prenursing students. After admission to the College of Nursing, each student is assigned to a College of Nursing faculty advisor.

Student Organizations

College of Nursing students have their own Association of Nursing Students (ANS) and are eligible for membership in the state and national associations of nursing students. ANS provides opportunities for professional growth and development in nursing. It is a student member of the Collegiate Activities Council at The University of Iowa and Iowa State and is an ANS representative on the Academic Council of the College of Nursing.

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 since 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. Hospital agencies in which students are involved in clinical practice 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.

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 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

Admission Requirements

To apply for admission to the undergraduate program in nursing, each student must be admissible to The University of Iowa and present:

- A minimum of 36 semester hours completed in an accredited college.
- Successful completion of all of the following science courses: organic chemistry, anatomy, and physiology, and
- A minimum grade-point average of 2.00 on a 4.00 scale.

Precalculus Background

Students must satisfy the following requirements, in addition to the biological science course requirements for admission to the college, before beginning clinical nursing course work.

- Rhetoric—8 semester hours (may be satisfied by testing for advanced standing) of 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.

- The following course work:
  - Beginning chemistry 3 hrs.
  - Organic chemistry 3 hrs.
  - Animal biology 4 hrs.
  - Microbiology 4 hrs.
  - Human anatomy 4 hrs.
  - Human physiology 4 hrs.
  - Nutrition 3 hrs.
  - Psychology 3 hrs.
  - Sociology 3 hrs.
  - Anthropology 3 hrs.
  - Human development and behavior 3 hrs.

Standards

To be considered for admission to the College of Nursing, the applicant must have satisfactorily completed all college course work taken.

American College Tests

All applicants for admission to The University of Iowa must complete the American College Tests. For information on the scores, see the American College Testing Program, Box 451, Iowa City, Iowa 52240.

Selection Factors

Eligibility for minimum admission requirements does not guarantee admission to the College of Nursing. Applications are processed as they are received. From applicants who meet minimum requirements, the college's admission committee selects those who appear to be most qualified. The committee may require personal interviews. A physician examination report and complete medical screening requirements must be completed at Student Health Service. The college policy reserves the right to change these policies and procedures at any time. Any exceptions to the above must be requested in writing to the Dean of the College of Nursing at least six weeks in advance of the opening of classes for the first clinical nursing course.

Application Deadlines

Applications must be received at the College of Nursing by January 1 for the fall semester and December 1 for the spring semester.
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 upon general and professional baccalaureate study in which the student is an individual in clinical specialization. In addition to the advanced level of study, the student may choose a didactic or research option. Students must have completed an approved baccalaureate degree program in one of the admission requirements.

The curriculum consists of a core component and areas of specialization and role preparation. It is designed to build upon the general and professional baccalaureate study in which the student is an individual in clinical specialization. The curriculum consists of five components:

1. Advanced Nursing Core
   This core consists of 17 semester hours of course work to conceptual and theoretical foundations for nursing (5 semester hours), leadership in nursing (4 semester hours), methods of nursing research (6 semester hours), and a professional issues seminar (2 semester hours).

2. Nursing Specialization
   The specialization requires 6 semester hours of course work. It is designed 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/family health nursing. Students may develop their area of specialization through their choice of course work and fieldwork experiences. For example, students who select adult health nursing as their area of specialization may choose to work 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.

3. Role Development
   Students may select administration, advanced clinical practice, or education as a role preparation area. A total of 6 semester hours must be earned in two courses, each with a practicum, in these role areas through the College of Nursing. Students who wish to develop skills for careers in this practice, for example, enroll for 6 semester hours of advanced clinical practice in addition to courses required for the nursing specialization component. Students may select particular settings and/or preceptors consistent with their own career goals in fulfilling the practicum requirements of these courses.

4. Supporting Courses
   Requires 6 semester hours; students may choose their supporting coursework in areas related to their nursing specialization or role preparation interests.

5. Thesis/Master's Project
   All master's degree students at the University must take a final examination. The thesis is a systematic inquiry into a nursing problem. The examination may include bibliographic research, case studies, analytical literature review, surveys, or experimental studies that test the requirements of the Graduate College. Students earn a total of 5 semester hours of credit for the thesis.

The master's project should not replicate a previous course assignment but should be an indepth synthesis and analysis of a chosen topic. Students earn a total of 2 semester hours of credit for the master's project.

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

Fall Semester
96:200 Conceptual and Theoretical Foundations for Nursing 5 s.h.
96:204 Leadership in Nursing: Theory and Application 5 s.h.
Supporting course 5 s.h.
Total 10 s.h.

Spring Semester
96:201 Conceptual and Theoretical Foundations for Nursing II 5 s.h.
96:223 Nursing of Children: Health Promotion 4 s.h.
or 96:226 Nursing of Adults: Health Promotion 4 s.h.
or 96:231 Geriatric Nursing I 4 s.h.
or 96:254 Community/Family Health Nursing: Health Promotion 4 s.h.
96:219 Methods of Research in Nursing I 3 s.h.
Supporting course 3 s.h.
Total 12 s.h.

Second Year

Fall Semester
96:211 Methods of Research in Nursing II 3 s.h.
96:223 Nursing of Children: Responses to Illness 4 s.h.
or 96:227 Nursing of Adults: Responses to Illness 4 s.h.
or 96:230 Gerontological Nursing I 4 s.h.
or 96:255 Community/Family Nursing: Clinical Responses to Illness 4 s.h.
96:240 Curriculum Development in Nursing Education 3 s.h.
96:260 Nursing Administration: Process, Roles, and Strategies 3 s.h.
96:268 Advanced Clinical Practice I 3 s.h.
96:299 Thesis 2 s.h.
Total 5 s.h.

Spring Semester
96:291 Professional Seminar I: Issues in Nursing 3 s.h.
96:247 Nursing Education: Process, Rules, and Strategies 3 s.h.
96:281 Nursing Administration: Process, Rules, and Strategies I 3 s.h.
96:282 Advanced Clinical Practice II 3 s.h.
96:206 Supporting course 3 s.h.
96:206 Master's Project I 2 s.h.
96:205 Thesis 3 s.h.
Total 13 s.h.

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 46 semester hours. For more information contact the Office of Student Services.

Admission
Students should apply to the master's program on nursing through direct application to The University of Iowa Graduate College.

Minimum requirements for admission to the Graduate College are a completed application; official transcripts from other institutions attended; Graduate Record Examination (GRE) General Test scores; a minimum score of 300 on the Test of English as a Foreign Language (TOEFL), where applicable; and a 3.0 minimum grade-point average for regular admission or 2.50 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;
Satisfy the legal requirements for the practice of nursing in Iowa;
Have an undergraduate grade-point average of at least 2.75 or a demonstrated ability to do graduate work by regular admission, or have at least a 3.00 undergraduate grade-point average 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.

Applications for admission to the master's degree program are reviewed on a continuing basis. In 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.

96:281 Advanced Clinical Practice I pertains to academic standing, preparation, and clinical skills required for 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 advisor.

Doctor of Philosophy
The Ph.D. in Nursing program prepares candidates to conduct research in nursing, enhances 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 competency 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 service administration. Graduates of the program aspire to careers as researchers, college and university faculty members, consultants, and as leaders in the nursing professions, in health policy making agencies, and in health care delivery systems.

Degree Requirements
Ph.D. students must take the following course work, for a total of 30 semester hours:
96:291 Advanced Clinical Practice I 3 s.h.
96:292 The Social Evolution of Modern American Nursing 3 s.h.
96:341 Nursing Theory Construction I and II 6 s.h.
96:319 Nursing Research Information Systems 3 s.h.
96:320 Economics of Health Care and Nursing 3 s.h.
96:326 Nursing's Role in Health Care Policy 3 s.h.
96:340 Students who choose the aging focus take these advanced nursing seminars and practicums:
96:419 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: Residency in Care of the Elderly 3 s.h.
96:450 Students who choose the nursing administration focus take these advanced nursing seminars and practicums:
96:450 Research Seminar in Nursing Administration 3 s.h.
96:451 Organizational Systems Concepts 3 s.h.
96:452 Research Seminar in Nursing Administration II: Health Care Systems Concepts 3 s.h.
96:455 Innovations in Nursing Management 3 s.h.
96:455 Readiness in Nursing Service Administration 3 s.h.
96:455 Other Ph.D. requirements include the following:
Cognate minor courses 9 s.h.
Cognate research sequence: research methods and statistics 9 s.h.
University without credit 3 s.h.
Written comprehensive examination (oral and written) 12 s.h.

Research seminar Dissertation prospectus Oral defense

Admission Requirements
Students applying to the Ph.D. program must fulfill the following requirements:
Completion of an RN-accredited basic nursing program;
Completion of a master's degree program;
Current R.N. licensure to practice;
CFL 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 local 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 coursework in a manner consistent with the objectives of professional or personal improvement. Such individuals may request admission to the professional improvement 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 transcripts and current written recommendations from three persons familiar with the academic transcripts. GRE General Test scores must be submitted to the University before the end of
Courses

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<tr>
<td>4043 History, Philosophy, and Social Foundations of Nursing</td>
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Primarily for Undergraduates

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<tr>
<td>4042 Leadership, Management, and Research in Nursing Practice</td>
<td>3.6 h.</td>
</tr>
<tr>
<td>4043 History, Philosophy, and Social Foundations of Nursing</td>
<td>3.6 h.</td>
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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. It is also adjacent to Science Building and the Harris Library for convenient access.

To meet the needs of students, the building consists of five floors with varied and specialized facilities, including offices, laboratories, and meeting rooms. The building also includes a computer lab for students. The building is equipped with wireless Internet access and other technological amenities.

Courses

The courses listed above cover a wide range of topics from basic nursing and research methods to advanced clinical practice. These courses are designed to provide a comprehensive education in nursing, preparing students for a variety of professional roles.

Applicants

Applicants to the University of Iowa College of Nursing are required to have completed the following prerequisites prior to enrollment:

- Completion of a minimum of 90 credit hours
- Grade point average of 3.0 or higher
- Completion of the following courses with a grade of C or higher:
  - English Composition
  - Calculus
  - Statistics

The application process is competitive, and applicants are encouraged to submit early to increase their chances of admission.

Clinical Practice

Clinical practice is an integral part of the nursing curriculum. Students are required to complete a minimum of 1,000 hours of clinical experience, including rotations in medicine, surgery, obstetrics, pediatrics, and psychiatry. Clinical placements are arranged in hospitals, clinics, and other healthcare settings across the state.

Research Opportunities

The University of Iowa College of Nursing offers a range of research opportunities for students and faculty. Students can participate in research projects related to nursing and healthcare, and faculty members conduct research in areas such as cancer, mental health, and chronic disease management.

Financial Aid

The College of Nursing provides a range of financial aid options to help students meet the costs of their education. These options include scholarships, grants, and loans.

Admissions

Admissions to the University of Iowa College of Nursing is a competitive process. Applicants are evaluated based on their academic record, personal characteristics, and potential for success in the nursing profession.

Contact Information

For more information about the University of Iowa College of Nursing, please visit their website or contact the admissions office directly.
Nursing

96.152 Human Sexuality
5 s.h.
A wide range of topics relevant to nursing from the reproductive and the sexual and behavioral sciences, as well as contemporary issues that affect the practice of nursing. May be repeated twice. Open only to students in nursing undergraduate junior program.

96.154 Human Structure and Function—A Cellular Approach
3 s.h.
Prepares students to identify tissues, cell types, and functional organelles in specific body functions, and to identify specific diseases that affect these functions. Focuses on the molecular and cellular components of the intermediate environment of human cells, and cellular mechanisms by which the nervous system controls body functions. Offered fall semester of odd years. Prerequisite: 96.121 or consent of instructor.

96.156 Human Structure and Function—A Systemic Approach
4 s.h.
Prepares students to describe structure, function, and interrelationships of organs and functional systems, and the role of communication within human organ systems, and their role in the maintenance of homeostasis. Offered fall semester of even years. Prerequisite: 96.122 or consent of instructor.

96.165 Applied Genetics for Health Care Professionals
3 s.h.
Genetics in health and disease, human genetic principles, the impact of genetic knowledge, and their application in health care policy. Pre- or corequisite: 96.144 or approved senior status or consent of instructor.

96.172 Health and Cultural Diversity
3 s.h.
Overview of the dynamics of health and illness in cross-cultural perspectives. Obtain varying sensations of even years. Prerequisites: 96.133 or 96.132 or consent of instructor. Same as 96.138.

96.174 Transcultural Mental Health
3 s.h.
Survey of cross-cultural perspectives on mental health and mental illness, including cultural body patterns for different developmental stages in various cultures, and as witnessed in bodily shape patterns. Offered fall semester of even years. Prerequisite: 96.121 or consent of instructor. Same as 96.139.

96.180 Financial Management for the Nurse Manager
3 s.h.
Basic of financial management: projecting and monitoring financial statements, and in budgeting and expense analysis. Writing proposals using statistical and financial data.

96.190 Community Health Nursing as a Field of Practice
3 s.h.
The field of practice in community health. Focus on the role of the public health scientist and educator, the social context of health behavior, community advocacy, promotion, and health education in terms of public health, public, and private health policy, and in maintaining community health. Offered fall semester of odd years.

96.195 Management and Supervision in Community Health Nursing
3 s.h.
Management concepts of organization, power, change, conflict, authority, and accountability: organization: communication and interpersonal interactions. Theories applicable to the role of manager in community health nursing, decision-making strategies, incorporation in planning, implementation, and evaluation of programs of care in community health settings. Open only to RN licensure students.

96.195 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 the workplace, legal, and social issues related to the occupational environment.

96.196 Senior Seminar in Oncology Nursing
3 s.h.
Care of the client living with a cancer diagnosis. Nursing process, expanded content of palliative nursing, and care of cancer client. Skills in the acute and chronic phases of illness, and focus on the role of the oncology nurse. Prerequisite: 96.154 or 96.156 or consent of instructor. Offered fall semester of even years.

96.197 Technology and Ethical Application for Nursing
3 s.h.
Current ethical and legal issues in nursing and professional expectations compared to professional nursing practice, examination of issues evaluated in context of nursing ethics. Prerequisite: 96.132 or registered nurse status or consent of instructor.

96.216 Group Leadership in Human Sexuality
6-8 s.h.
Overview of group process, with emphasis on the role of the group leader: methods of group dynamic presentation and discussion, group experience and practice applications. Same as 96.214, 96.215.
College of Pharmacy

Dean: Robert A. Wiley
Dean emeritus: Dale E. Wilmot
Assistant dean for undergraduate affairs: David P. Cowen
Acting director of pharmaceutical services: Douglas R. Rehnagen
Director of medicinal chemistry-natural products: Joseph C. Caranz
Head, pharmaceutical education: Lloyd L. Mathews, Jr.
Head, pharmaceutical biochemistry and continuing education: Bernard Serfott
Head, clinical hospital pharmacy: Donald P. Alexander
Associate professor: Ronald D. Schmalzle, Robert A. Wiley
Professor emeritus: Dale E. Wilmot
Associate professor: Donald P. Sagerfield
Mary J. Berg, Ting-Fong Chi, Michael W. Dubil
Douglas R. Rehnagen, Lloyd L. Mathews, Jr.
Chiyoko K. Roach, Ronald Nordtman, Peter Vang-Pederson, Dale E. Wilmot
Assistant professor: Wilma L. Kerr
Clinical associate professor: Bruce Alexander
Lance A. Perme
Adjunct associate professor: Robert W. Dick
Hick C. Lines
Associate professor: Karen Baker, Harold J. Back, Dee Ann Castell, Maurice S. Davevan, Douglas R. Cernst, Rachel Kryniczki-Wyler, Gary Males, Mary L. Tenas, Jean M.B. Weindl
Clinical assistant: Bernard J. Cooper, Dennis A. Ellert, Mark Ethier, Robert P. McGrath
Adjunct instructors: David B. Rensholt, Carl Reddick, Warren Kuz, Kei L. Muntain, Gary Schlemme, John W. Saar
Degrees offered: B.S.P.H., Pharm.D., M.S., Ph.D.
in Pharmacy
The pharmaceutical sciences are concerned with preparing and dispensing medicinal products and monitoring their activity. Pharmacists, through education and training, can identify, analyze, select, store, dispense, and serve the community as a prime source of information on health care.

Pharmacists are basically specialists in the science of drugs. They must understand drug composition, chemical and physical properties, manufacture and use, and activity in vivo and in vitro as well as in ill patients, and must be familiar with tests for strength, purity, and efficacy of drug products. Pharmacists compose and dispense prescriptions written by health practitioners, who rely on pharmacists for information about the availability, activity, and complications of their prescribed drugs. Pharmacists also communicate knowledge of drugs to patients and to other health professionals.

Nearly everyone is familiar with the community pharmacist and the pharmacy in which one is practised. The size and type of practice may vary—community pharmacies may be large or small, operated by individuals or by corporations. The pharmacist who staffs these pharmacies makes 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 the pharmacist is an integral member of the health care team. Services provided by the pharmacist fall under the rubric of the U.S. Public Health Service, Veterans Administration, 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 hold administrative positions in industry, including manufacturing, research and development, control, marketing, and advertising. Many are employed by chain drugstores or hospital medical service representatives. Pharmacy training is especially valuable to these men and women, who are responsible for acquiring physicians, dentists, lawyers, and health care professionals with drug products. The educational background of pharmacy and the opportunity for employment in every field of community association with pharmacy.

In the United States, more people receive total health care than ever before. This expansion of health care will continue. Young pharmacists will face new challenges, expanded responsibilities, and an even increasing growth in opportunities.

Undergraduate Program

Undergraduate students in pharmacy enroll in the Bachelor of Science program. They receive postgraduate training and education in a number of areas, including pharmacy technology, pharmaceutical, medicinal chemistry, and natural products, pharmaceutical science, economics, and clinical and hospital pharmacy. In addition, the Department of Biotechnology offers a major in biotechnology.

The College of Liberal Arts, Business Administration, Sociology, and Medicine contribute to the education of pharmacy students by providing instruction in the physical sciences, basic medical sciences, business, the humanities, and social sciences.

The Bachelor of Science program in pharmacy consists of four years of preprofessional study, followed by two years of college-level work at an accredited institution. Students entering the college after two years of preprofessional study may complete the professional program in three years if the preprofessional study includes, in addition to the basic preprofessional requirements, at least 8 semester hours of organic chemistry, 5-6 semester hours of biology or zoology, 3-4 semester hours of quantitative analysis, and at least 15 semester hours of general education electives. Only a limited number of students are admitted to the college.

The University of Iowa College of Pharmacy is accredited by the National Council on Pharmaceutical Education. Graduates of the college are qualified to take the board examination for licensure by the state boards of pharmacy.

Graduation from the baccalaureate program in pharmacy requires satisfactory completion of the core curriculum. 24 semester hours of general education electives, and a pharmacy grade-point average and a total cumulative grade-point average of at least 2.0.

Rules and regulations concerning academic progression, passing rates, credit by examination, minimum schedule, second-grade-opt-out option, waiver or substitution of courses, cancellation of registration, drop, change, and correspondence study are provided in the "College of Pharmacy" section in the current Schedule of Courses and the Handbook for Undergraduate Pharmacy Students.

Iowa-Queensland Exchange Program

In 1986 the college inaugurated what is believed to be the first international exchange of undergraduate pharmacy students. Under the program, Iowa students are selected by a faculty committee to spend one year studying at the department of pharmacy of the University of Queensland, Brisbane, Australia. In turn, Queensland students spend one year at Iowa.

Iowa students travel to Brisbane beginning in the spring semester of the second year. In order to qualify, students must rank in the upper half of their class and must show how both they and the college would benefit from their participation in the program. The students and the college share the cost of the program.

Honors Program

The honors program gives students an opportunity to interest as part of a small group with leading professors and scientists from all areas of the University. In their third 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. Those students may elect to prepare a major paper or carry out a research project of limited scope during their fifth year. Satisfactory completion of the project certifies them as having completed the College of Pharmacy Honors Program, a fact that is noted on the permanent record.

Admission Requirements

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 assure admission to the college. The college admissions committee selects the best qualified applicants. Questions concerning satisfaction of degree requirements should be directed to the chair of the undergraduate curriculum committee.

Preprofessional Course Work

Required: 9 semester hours of transfer credit in English composition and rhetoric, and 2 semester hours of modern foreign language.

General chemistry: 8 semester hours.

Mathematics: 3 or 4 semester hours of a satisfactory differential and integral calculus course.

Physics: may be satisfied with one year of high school physics. Students are encouraged to complete 298 Basic Physics.

General education electives: 6 semester hours. In addition to the required courses in the curriculum, each student must complete 21 semester hours of general education courses to meet graduation requirements. These elective courses should be in the behavioral, social, and humanities areas of knowledge. Some courses in the College of Business Administration also may satisfy general education requirements.

Transfer Students

Students who transfer into the college after two years in a community or liberal arts
college may be able to complete the pharmacy program in three years if they have successfully completed courses in organic chemistry, biochemistry, and genetics, and have satisfied general education electives. Students who plan to remain in a community college for two years before transferring to The University of Iowa should consult the dean of the College of Pharmacy concerning course requirements.

The Professional Curriculum

First Year
First Semester
40:12 Pharmacy Math 3 s.h.
41:12 Principles of Animal Anatomy 3 s.h.
42:12 Organic Chemistry I 5 s.h.
48:11 Elementary Quantitative Analysis 4 s.h.

Total 15-17 s.h.

Second Semester
46:14 Pharmacy Orientation 2 s.h.
41:12 Organic Chemistry II 3 s.h.
44:14 Organic Chemistry Laboratory 3 s.h.
61:11 Principles of Human Anatomy 3 s.h.
**General education electives 4 s.h.

Total 15-17 s.h.

*Also offered first semester for students on a 2-3 program only.

*In addition to the required courses in the curriculum, electives must complete 18 semester hours of general education courses. These electives courses should be in the behavioral, social, and humanities areas.

Second Year
First Semester
40:21 Pharmacokinetics I 4 s.h.
49:102 Biochemistry for Pharmacy Students 4 s.h.
41:112 Health Sciences Microbiology 4 s.h.
61:12 Principles of Human Anatomy 3 s.h.
**General education electives 3 s.h.

Total 15-18 s.h.

*May be taken in second semester of first year.

Second Semester
46:21 Pharmacokinetics II 4 s.h.
46:22 Pharmaceutical Socioeconomics: Health Care Systems 4 s.h.
46:23 Medical and Natural Products Chemistry I 5 s.h.
72:140 Introduction to Pathology 4 s.h.

Total 7 s.h.

Third Year
First Semester
46:21 Medical and Natural Products Chemistry II 5 s.h.
68:200 Introduction to Human Pathology 4 s.h.
71:101 Pharmacology for Health Sciences: Pharmacy 5 s.h.
46:35 Pharmaceutical Social Aspects: Practice Management 3 s.h.

Total 12-18 s.h.

Second Semester
46:132 Medical and Natural Products Chemistry II 5 s.h.
71:103 Pharmacology and Toxicology 3 s.h.
46:38 Pharmacokinetics I 3 s.h.
46:119 Therapeutics I 3 s.h.
**General education electives 0-3 s.h.

Total 14-17 s.h.

Fourth Year
First Semester
46:41 Apothecary 2 s.h.
46:43 Pharmacokinetics II 4 s.h.
46:51 Drug Information 3 s.h.
46:111 Therapeutics II 4 s.h.
**General education electives 0-4 s.h.

Total 13-17 s.h.

Second Semester
46:59 Hospital Pharmacy Internship 4 s.h.
46:60 Community Pharmacy Internship 4 s.h.
**Clinical pharmacy clerkships 4 s.h.
**Clinical pharmacy clerkships 4 s.h.

Total 16 s.h.

*Two clinical clerkships are selected from a large number of clerkship offerings.

Professional Electives
46:63 Community Pharmacy Retailing 3 s.h.
46:56 Non-prescription Drugs 2 s.h.
46:101 Pharmacy Practice 3-3 s.h.
46:102 Pharmacy Home Care Seminar 1 s.h.
46:103 Physical Pharmacy 3 s.h.
46:194 Pharmacotherapeutics and Biopharmaceutics 3 s.h.
46:105 Industrial Pharmacy Survey 2-3 s.h.
46:109 Computer Applications in Pharmacy 2 s.h.
46:114 Advanced Clinical Pharmacy 4 s.h.
46:135 Perspectives in MOCNP Research 1 s.h.
46:147 Introduction to Research Methods 3 s.h.
46:154 Communications Skills for Pharmacists 3 s.h.

Professional Clerkships
46:80 Medicine Clerkship 4 s.h.
46:81 Family Practice Clerkship 4 s.h.
46:82 Pediatrics Clerkship 4 s.h.
46:83 Pharmacotherapeutics Clerkship 4 s.h.
46:84 Psychiatry Clerkship 4 s.h.
46:85 Neurology Clerkship 4 s.h.
46:86 Surgery Clerkship 4 s.h.
46:87 Clinical Nuclear Pharmacy Clerkship 4 s.h.
46:88 Dental College Clerkship 4 s.h.
46:89 Elective Clerkship 4 s.h.

Transfer with Advanced Standing

Students transferring from other colleges of pharmacy accredited by the American Council on Pharmaceutical Education may receive credit toward the Bachelor of Science degree in pharmacy for satisfactory completion of course work required in this curriculum. However, at least one academic year (30 semester hours) of residence at The University of Iowa College of Pharmacy is required for the degree.

Students transferring from non-accredited colleges may receive credit for work required in the Bachelor of Science curriculum in pharmacy, but still must expect to be enrolled for at least three years in the College of Pharmacy.

In accordance with University policy, students who have earned more than one-third of the total semester hours required for the B.S. degree in pharmacy, and who receive further credit for courses taken at two-year institutions, students who want to safely required or elective course credit at other institution must first permission of the assistant dean for undergraduate affairs before enrolling in such courses.

A minimum grade of C is required for work applied toward the pharmacy degree.

Graduation

Graduation from the College of Pharmacy with the B.S. degree in pharmacy requires completion of all required courses plus 24 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. Pharmacy grade-point average is computed from the grades awarded in all of the specifically required courses that students take while enrolled in the College of Pharmacy.

Graduate Programs

The college has graduate programs in each of its four academic divisions. Masters of Science and Doctor of Philosophy programs are available in pharmacology, medicinal and natural products chemistry, and pharmaceutical socioeconomics. A Master of Science degree is offered in clinical-hospital 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 deadline, grade-point average for admission, Graduate Record Examination (GRE) Aptitude Test scores, and necessary letters 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.

Doctor of Pharmacy (Pharm.D.)

The Pharm.D. 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 hospitalised and nonhospitalised patients. The program is available to a limited number of highly qualified pharmacy graduates. Prospective students may obtain specific information on the Pharm.D. program by writing to The University of Iowa, College of Pharmacy, Iowa City, Iowa 52242.

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 Rowen Science Building, and the Harriet Library in 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.

The building also houses the Learning Resources Center, which contains extensive computer terminals and instructional materials. The LRC has several computer terminals available to students and provides on-line computer searches for pharmacy students and faculty.

The Pharmaceutical Services Division of the college serves as a teaching and service unit, in addition to undergraduate and graduate pharmacy programs. It provides patients and methods of large-scale pharmaceutical product development and distribution. 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. It serves as a central repository and disseminator of current and specialized information related to drugs and drug therapy. It is only reached by subscribers throughout the world but plays an important role for the student 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 nonhospitalised patients under the supervision of clinical instructors in pharmacy, medicine, and dentistry. The students type of choices among which students are selected 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 Ames; the Iowa City, Mercy, Mercy, and St. Luke's Hospitals in Cedar Rapids; Covenant Medical Center in West Des Moines; the University of Iowa Hospitals and Clinics in Des Moines; and the Mercy Medical Center in Des Moines.

Students are assigned to clinics in Iowa City, Cedar Rapids, and Ames.
Graduate Clinical-Hospital Pharmacy

4611 Advanced Clinical Pharmacy
Apprenticeship in principles and methodologies of clinical pharmacy practice, and their application to patient care. Includes patient care and management, critical care and infection management, patient education, drug therapy and monitoring, and drug therapy for special populations. Requires an understanding of human disease. Content of instruction expected.

4621 Nuclear Pharmacy
Nuclear system and evaluation of radio-pharmaceuticals.

4630 Ethics in Clinical Pharmacy
4 credits. Open only to students with 10 credits of course work in relational ethics. Consent of instructor required.

4632 Pharmacology Seminar
4 credits. Seminar in advanced pharmacology. Consent of instructor required.

4633 Clinical Pharmacy Seminar
4 credits. Seminar in clinical pharmacy. Consent of instructor required.

4634 Clinical Hospital Pharmacy: Research
4 credits. Seminar in clinical hospital pharmacy research. Consent of instructor required.

4635 Clinical Hospital Pharmacy: Seminar
3 credits. Seminar in clinical hospital pharmacy. Consent of instructor required.

4636 Clinical Hospital Pharmacy: Seminar
3 credits. Seminar in clinical hospital pharmacy. Consent of instructor required.

4637 Advanced Therapeutics
3 credits. Application of pharmacokinetics to the clinical setting by assessing pharmacokinetic profiles in normal volunteers and altered patients. Prerequisite: consent of instructor expected. 4611.

4638 Advanced Therapeutics II
3 credits. Advanced therapeutic techniques (i.e., drug transportation, allergy diagnosis, and influence modification of drug pharmacokinetic data) in the clinical setting. Consent of instructor required. 4637.

4639 Clinical Pharmacy: Drug Literature Review and Evaluation
3 credits. Literature review of pharmacy practice, including clinical trials, emphasis on techniques of developing clinical pharmacy practice. Requires an understanding of human disease. Consent of instructor required.

4640 Therapeutic Management
4 credits. Advanced analytical skills necessary for the pharmacotherapeutic management of patients in prolonged illness or other conditions.

4631 Faculty Practice Clerkship
4 credits. Practical experience in the clinical management of patients in prolonged illness or other conditions.

4632 Clinical Hospital Pharmacy: Seminar
3 credits. Seminar in clinical hospital pharmacy. Consent of instructor required.

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The Division of Continuing Education was established by special legislation of the General Assembly and "to extend a larger service to the Commonwealth and to the people of Iowa by carrying out to every part of the State the knowledge, the through, the skills, and the spirit of the research and educational programs of the University ... into direct contact with the citizens of this state." The director's organization and services include the following:

**Audiovisual Center**
Director: William Oglesby
The Audiovisual Center helps faculty and students improve the teaching/learning process through consultation, planning, design, production, and marketing of instructional audiovisual materials.

- The center's media production units are the University's major manufacturers of a broad range of graphic, photographic, and audio materials. The units and their products are:
  - Crataphix Unit: graphs, charts, maps, slides, overlays, posters, illustrations, models, cartoons, and overhead transparencies.
  - Photographic Service: black-and-white and color photography, negatives, two-inch slides, filmstrips, portraits, microphotography, many types of specialized photography, and still photographic laboratory services.
  - Audio Unit: original audiobite recording (studio and location), tape duplication (open reel and cassette), sound editing, mixing, mastering, and transfer.
  - Multi-image Unit: design and production of single- and multiple-screen slides and/or films, use to devote projectors, mutual and programmed control, open-reel and cassette soundtracks.

The Audiovisual Center also markets and distributes audiovisual products originating at the University. Nominal royalties are paid to sponsoring University departments and authors.

- The center charges most University departments for audiovisual only. For requests funded by grants, charges are made for equivalent time on labor.

**Media Services**
The University Media Library provides a special collection of 16 mm instructional films and video cassettes that change for on-campus instruction and curriculum-related activities, and for off-campus rental, broader collection of audiotapes, filmstrips, and slides. The facilities for student or faculty utilization, also are available. Catalogue of these collections are available on request. The library also maintains a reference collection of materials from other sources.

Equipment Services provides the following:
- Rental of audiovisual equipment and projectors for films, slides, filmstrips, and video: projectors and overhead projectors, portable projection systems, audio equipment, record players, videocassette recorders, projectors/papers, portable audiovisual systems, and display devices (exhibit, sound, slides, screens). Repair service is available for audiovisual equipment.

**Center for Conferences and Institutes**
Acting Director: George J. Lopes
The Center for Conferences and Institutes serves as the principal agency of the University for developing, coordinating, and conducting uncommitted continuing education programs for nonresident adults and for administering the University's Continuing Education Unit (CEU) program. The center's primary goal is to enhance the utilization of 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 jobs, promotions, or special interests.

Each year more than 30,000 adults participate in the center's varied programs, which represent a cooperative endeavor between the center and the colleges, departments, and service units of the University. The marketing of appropriate resources, coupled with professional planning and execution of conferences and other short-term programs, helps to ensure the achievement of the educational objectives specified in each program.

The director of conferences and institutes must conduct or coordinate all conferences, institutes, short courses, and other noncredit continuing education programs held in the Iowa Memorial Union for groups other than on-campus students. The University Operations Manual directs faculty and staff who plan University conferences and group functions held on campus or in Iowa City to coordinate all these activities through the conference center office. The director uses conference facilities, dining services, and camping accommodations at the Iowa Memorial Union when available and appropriate.

The conference center also conducts national and international programs for faculty and departments.

**Center for Credit Programs**
Director: W. V. Fittin
The Center for Credit Programs is responsible for the delivery of University of Iowa credit courses to off-campus 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 a total of 42 University departments. Students may enroll at any time, and they have nine months in which to complete work. A catalog of course listings, procedures, and enrollment forms may be available in Guided Correspondence Study, 110 International Center.

**Off-Campus Classes**
The Center for Credit Programs offers University courses off-campus. Classes are scheduled where they may best serve off-campus students, at the request of public school officials, and/or where student populations warrant. The center also offers courses through audioconferencing and interactive television. In addition, it provides a variety of tutorials in cooperation with Iowa Public Television. Rates for all off-campus courses must satisfy the cost of providing the course.

**Saturday and Evening Classes**
The Saturday and Evening Class Program offers University courses at times convenient for nontraditional students. All classes meet at The University of Iowa campus; students in such classes must be available at the Iowa Memorial Union when available and appropriate.

**Bachelor of Liberal Studies Degree**
The Bachelor of Liberal Studies degree is offered by each of the three Iowa Regents universities (The University of Iowa, Iowa
Radio Broadcasting Services

Acting director: Altha McEll

WUSL and KSL-FM expand the resources and activities of the University to the people of eastern Iowa with 18 hours of daily broadcasting. The broadcast schedule consists of educational, cultural, and international programming not generally available elsewhere. As an affiliate of National Public Radio (NPR), WUSL contributes program materials to a national network of more than 300 non-commercial radio stations. The main studios and offices are located in 3330 Engineering Building, and a free copy of the WUSL-SQL Program Guide is available from that address.

Video Center

Director: Daniel G. Lind

The University Video Center provides high-quality video services and facilities, including those necessary to maintain and promote research examples. It also coordinates video equipment purchase and inventory and produces efficient University support of campus video. Toward this end, the center has the personnel and facility resources to ensure units in the purchase of equipment and supplies, and in production and postproduction activities. Additionally, the center provides video system design and maintains guidelines for equipment standardization.

Labor Center

Director: Robert Tillett

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. Steele

The mission of the institute is to help strengthen Iowa city, county, and county governments in Iowa by serving as the primary source of continuing education to the University. Institute services are available to state and local government agencies and to citizens involved in civic affairs.

The Institute fulfills its mission and training staff apply University resources to problems faced by Iowa public officials. The Institute also works in close cooperation with organizations of public officials, such as the League of Iowa Municipalities and the Iowa State Association of Counties.

The Institute provides the following:

- In-service training and continuing education services to public officials, primarily policymakers and key administrators, with a wide variety of information resources and educational programs aimed at helping organizations and leadership development needs;
- Research services, information resources, and publications ranging from Iowa public policy studies to handbooks for elected officials in Iowa government; 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.
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 A. Pomerantz, West Des Moines
- Marcus J. Bournavides, Sioux City
- Betty Jean Ferguson, Waterloo
- John R. Failoa, West Des Moines
- John M. Geng, Cedar Rapids
- Elizabeth S. Hardin, Cedar Rapids
- James R. Tyler, Atlantic
- Wakki Westendorf, Maquoketa
- Mary C. Williams, Davenport
Executive secretary: R. Wayne Richey

Central Administration
President: Hyrum R. Rodgers III
Vice president for academic affairs and dean of faculties: Peter L. Nielsen
Vice president for research: James Morrison
Vice president for finance and university services: Susan M. Phillips
Vice president and director, Opportunity of Iowa: Philip G. Hubbard

Academic Affairs
Vice president and dean of faculties: Peter L. Nielsen

College of Business Administration
Dean: George Daly
Iowa Business Institute of Accounting
Research director: Blake Johnson
Economic Research Institute director: Charles Whitman
Entrepreneurial Management Institute director: Henry Madden

College of Dentistry
Dean: James H. McLean

College of Education
Interim dean: Lowell L. Schoen
Institute for School Effectiveness director: Larry Bartlett

College of Engineering
Dean: Robert G. Martin
Institute of Hydraulics Research director: John F. W. Iliff
Iowa Institute for Biomedical Research director: Martin L. Kim

Graduate College
Acting dean: Rudolph W. Schon

College of Law
Dean: R. William Hinck

College of Liberal Arts
Dean: Gerhard Loewenberg

College of Medicine
Dean: John W. Eckstein

College of Nursing
Dean: Germaine Nelson

College of Pharmacy
Dean: Robert A. Wiley

Division of Continuing Education
Dean: Ernest J. Vaughan
Audiovisual Center director: William Oglesby
Center for Continuing Education and Institutes acting director: George J. Logue
Center for Continuing Education director: Ron V. Patterson
Institute of Public Affairs acting director: Tom J. Shull
Labor Center director: Richard T. Ritz
Robert Patterson Institute acting director: John Mock

Libraries
University Librarian: Sheila Creach

Budget and Planning
Acting associate vice president: Lloyd Davis

Iowa Lakeside Laboratories
Acting director: Robert W. Creeden

Summer Session
Director: Christine Quinn

Student Academic Affairs
Acting associate vice president: T. Anne Cleary

Admissions
Director: Michael Barron

Registrar
Jerald W. Dallam

University Evaluation and Examination Service
Acting director: John E. Moore

Undergraduate Academic Advising Center
Director: Joseph Kauflmann

Student Administrative Services
Associate vice president: Philip E. Jones

Residence Services
Director: George L. Droll

Iowa Memorial Union
Director: Jean Kendall

University Counseling Service
Director: Gerald L. Stone

Special Support Services
Director: Rosalyn Green

Student Financial Aid
Director: Mark S. Warner

Campus Programs and Student Activities
Director: Kevin Taylor

Office of Services for Persons with Disabilities
Director: District Chancellor

Women's Resource and Action Center
Director: Papous Molin

International and Cultural Affairs
Associate vice president: Fredrick Woodard

Office of International Education and Services
Director: Stephen M. Arum

Iowa Center for the Arts
Chair: Frederick Woodard

Hancher Auditorium
Director: Wallace Crippell

Museum of Art
Director: Mary Kajzawski

Research
Vice president: James Morrissey

Division of Sponsored Programs
Director: Margaret E. Hoppe

Institute for Child Behavior and Development
Acting director: Derek Willard

Center for Health Services Research
Acting director: Robert L. Lande
Office of Information Technology
Director: Fred H. Harris

Weeg Computing Center
Director: W. Lee Shope

University Occupational Health Service
Director: Lawrence Proctor

Health Protection Office
Director: William E. Twader

State Archaeologist
William Green

Technology Innovation Center
Director: W. Bruce Wheaton

University House
Director: Jay Selet

University of Iowa Press
Director: Paul Zimmer

Animal Care Unit
Director: Paul S. Cooper

Finance and University Services
Vice president: Susan M. Phillips

Business Office
Business manager: Michael J. Finogna
Treasurer: Douglas K. Thir
Controller and secretary: Douglas M. Young

University Personnel Services
Director: Marvin Lynch

Planning and Administrative Services
Director: Richard E. Gibson

Intercollegiate Athletics for Men
Director: Charles W. Erskine

Intercollegiate Athletics for Women
Director: Christine Grate

Recreational Services
Director: Harry R. Ostrander

University Health Services
Assistant to the president for statewide health services: John W. Colitton

University Hospitals and Clinics
Director: John W. Colitton

Psychiatric Hospital
Director: George Winkler

State Hygienic Laboratory
Director: William J. Hauser

University Hospital School
Director: Mildred Hasty

Student Health Service
Director: Mary L. Knouse

Regional Child Health Specialty Clinics
Director: Richard P. Nelson

General University
Affirmative Action Office
Acting director: Susan L. Maq

Alumni Association
Executive director: D. Richard Emoem

University of Iowa Foundation
President: Ronald D. Wyck

University Relations
Acting Director and Assistant to the president: Ann M. Rhoads
Iowa Administrative Code: Board of Regents

Admission Rules Common to the Three State Universities

681—1.1262(1) 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 SAT or ACT application, 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), as the equivalent, as determined by each university. The Test of English as a Foreign Language (TOEFL) is required of all students whose first language is not English. Applicants may be required to submit additional information or data to support their applications.

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-fourth of their graduating class will be admitted. Applicants who are not in the upper one-fourth 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 succeeding summer session, or
d. Be denied admission.

1.(2) 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 SAT or ACT application, and have their secondary school provide a transcript 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 succeeding summer session, or
d. Be denied admission.

681—1.262(2) 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 any other application fee, and have their secondary school provide an official transcript of record to the admissions officer. 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.(1) Transfer applicants with a minimum of 24 semester hours of graded credit from regionally accredited colleges or universities who have achieved a grade point average of 2.0 or higher will be considered for admission.

1.(2) Applicants who have achieved a grade point average of 2.0 or higher 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.(3) 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 some 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—1.262(3) Transfer credit practices

The regent universities enforce the Joint Statement on Transfer and Award of Academic Credit approved in 1976 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 examined by the universities in determining transfer credit.

The acceptance and use of transfer credit is subject to limitations in accordance with the policies of the institutions to which the credit is transferred.

1.(1) Students from regionally accredited colleges and universities

Credit earned at a regionally accredited college or university is acceptable for transfer except that credit in courses determined by the 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.

Transfer credit from a two-year college will not reduce the minimum number of credit hours required for a baccalaureate degree if that credit is earned after the total number of credit hours accumulated by the student at all institutions attended exceeds two-thirds of the number of credit hours required for that degree.
1.2[1] 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 institution.
Credit earned at the junior and senior classification level at an institution regionally accredited for change to a four-year college may be accepted by a regionally accredited institution.

1.3[1] Students from colleges and universities not regionally accredited
When students are admitted from colleges and universities not regionally accredited, they may validate portions or all of their transfer credit by satisfactory academic study in residence, by examination. Each university will specify the amount of the transfer credit that meets the examination or the validation process at the time of admission.

In determining the acceptability of transfer credit from private colleges in Iowa which do not have regional accreditation, the following committee on educational relations, upon request from the institution, establishes the nature and standards of the academic program, faculty, student records, library, and laboratories.

In determining the acceptability of transfer credit from foreign institutions, the student must be a resident of Iowa which do not have regionally accredited, the acceptance practice, as indicated in the current issue of Transfer Credit Practice of Selected Institutions, and must be used as a guide. If institutions not listed in the bulletin, guidance is requested from the designated reviewing institution of the appropriate state.

1.3[1] Students from foreign colleges and universities
Transfer credit from foreign educational institutions may be granted after a determination of the type of institution involved and after an evaluation of the curriculum, level, and comparability of the study to that offered at the receiving university. Credit may be granted in specific courses or in general to areas of study.

Residence
681-1.4(262) Classification of resident and nonresident for purposes of admission, tuition, and fee purposes
1.4[1] General
a. A person enrolling at one of the three universities shall be classified as a resident or nonresident for admission, tuition, and fee purposes by the registrar or someone designated by the registrar. The decision shall be based on information furnished by the student and other relevant information.

b. In determining resident or nonresident classification, the issue is essentially whether the person is in the state of Iowa. If the person is in the state primarily for educational purposes, he or she will be considered a resident. For example, it may be possible that an individual could qualify as a resident of Iowa for such purposes as voting, or holding an Iowa driver's license, and not meet the residency requirements as established by the board of regents for admission, tuition, and fee purposes.

c. The registrar, or designated person, is authorized to require written documents, affidavits, verifications, or other evidence deemed necessary to determine why a student is in Iowa. The burden of establishing that a student is in Iowa for other than educational purposes is upon the student.

A student may be required to file any or all of the following:
(1) A statement from the student describing employment and expected sources of support.
(2) A statement from the student's employer.
(3) A verification from the student's parents verifying the support and the fact that the student was not the primary support person during the tax years for the past three and will not be listed in future years.

(4) Supporting statements from persons who might be impacted by the family situation.
(5) Iowa state income tax return.

d. Change of classification: a person classified as a nonresident to be resident will not be made retroactive beyond the term in which application for resident classification is made.

e. A student who gives incorrect or misleading information to evade payment of nonresident fees shall be subject to serious disciplinary action and must also pay the appropriate fees for each term previously attended.

1.5[1] Appeals
Faculty and staff members and other residents of a nonresident to be resident will not be made retroactive beyond the term in which application for resident classification is made.

1.6[1] Committees
The decision of the registrar or designated person may be appealed to a university review committee. The finding of the review committee may be appealed to the state board of regents.

1.4(2) Guidelines
The following guidelines are used in determining the resident classification of a student for admission, tuition, and fee purposes.

a. A financially dependent student whose parents move from Iowa after the student is enrolled remains a resident. The student maintains continuous enrollment. A financially dependent student whose parents move from Iowa after the student is enrolled remains a resident. The student maintains continuous enrollment. A financially dependent student whose parents move from Iowa is no longer a resident. The student maintains continuous enrollment. A financially dependent student whose parents move from Iowa is no longer a resident.

b. In deciding whether a person is in the state of Iowa, the person's domicile will be considered. A person who returns to Iowa from another state and continues in any institution of postsecondary education for a full program of study for a full year shall be presumed to have come to Iowa primarily for educational reasons rather than to establish a domicile in Iowa.

c. A student who was a former resident of Iowa will be considered a resident provided absence from the state was for a period of less than 12 months and provided domicile is reestablished. If the absence from the state be for a period exceeding 12 months, a student may be considered a nonresident if evidence can be presented showing that the student has long-term ties to Iowa and reestablishes an Iowa domicile.

A person or the dependents of a person whose domicile is permanently established outside of Iowa, who has been classified as a resident for admission, tuition, and fee purposes may continue to be classified as a resident so long as domicile is maintained, even though circumstances may require extended absences of the person from the state. It is required that a person who claims Iowa domicile while living in another state or country will be required to establish Iowa domicile as evidence that the person is in Iowa.

1.5[1] Fees
A student who returns to Iowa may be required to meet resident classification at the next registration following 12 consecutive months in the state provided the student is not a nonresident student in any academic year prior to the year in which the student returns to Iowa or the student is not a nonresident student in any academic year prior to the year in which the student returns to Iowa. The student is required to establish Iowa domicile as evidence that the student is a resident.

A student who returns to Iowa may be required to meet resident classification at the next registration following 12 consecutive months in the state provided the student is not a nonresident student in any academic year prior to the year in which the student returns to Iowa or the student is not a nonresident student in any academic year prior to the year in which the student returns to Iowa. The student is required to establish Iowa domicile as evidence that the student is a resident.

A student who has been a continuous student and whose parents move to Iowa may be required to meet resident classification at the next registration following 12 consecutive months in the state provided the student is a continuous student and whose parents move to Iowa may be required to meet resident classification at the next registration following 12 consecutive months in the state provided the student is a continuous student.
681—1.5(262) Registration and transcripts—general

A person may not be permitted to register for a course or courses at a state board of regents institution unless any delinquent accounts owed by the person to an institution or to an affiliated organization for which an institution acts as fiscal agent have been paid.

A user board of regents institution may withhold official transcripts of the academic record of a person until any delinquent accounts owed by the person to an institution or any affiliated organization for which an institution acts as fiscal agent have been paid.

Supplemental Specific Rules for The University of Iowa

681—2.1(262) Formal application for admission

All applicants for admission to any college of the University of Iowa must submit a formal application for admission with the required official transcripts and other supporting material as required to the director of admissions. Students may not be registered until they have been accepted and given an admission statement by the director of admissions.

681—2.3(262) College of Business Administration

2(1) Application for admission

Applications for admission to the college of business administration should be submitted to the director of admissions.

Applicants are urged to apply as early as possible, since the college will establish standards to reduce the number of applications received.

Closing dates for applications will be announced in advance of the beginning of the next session.

2(2) Requirements for admission

For admission to the college of business administration, an applicant must have—

a. Completed specific course work prescribed by the faculty of the college.

b. Satisfactory college record or, in the case of eruption, the college.

c. Maintained a satisfactory grade-point average on all courses undertaken, and on all courses undertaken at the University of Iowa, and on all courses undertaken in business and economics.

Applications from students who have minor deficiencies in meeting grade-point requirements specified above will be reviewed by the admissions committee of the college, and upon favorable recommendation of the committee, such students may be granted conditional or provisional admissions.
Applicants who have completed the freshman year at a college or university and have earned a minimum grade point average of 2.00 or higher in their last 60 semester hours of college work, or who have completed the last 12 hours of college work during their last semester, may be eligible for admittance to the College of Dentistry. The applicant must meet the following minimum requirements:

1. Completion of the following pre-professional courses:
   - English composition
   - Calculus
   - Physics
   - Chemistry
   - Biology

2. A minimum grade point average of 3.00 in the last 60 semester hours of college work.

3. Successful completion of the Dental Admission Test (DAT).

4. Recommendation letters from two faculty members at the university where the applicant has completed the pre-professional courses.

5. A personal interview with the admissions committee.

6. Acceptance into the college of dentistry.

To facilitate early selection, applicants for admission to the college of dentistry are urged to submit their applications no later than October to enable the admissions committee to begin their 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 non-refundable and is credited toward the first term payment.

The applicant who fails to make the deposit within the specified time period will be removed from the entering class.

Applicants who do not meet minimum admission requirements will be notified in writing. The applicant will be allowed to appeal the decision by submitting a letter of appeal to the director of admissions.

Applicants accepted for admission are required to submit a complete dental hygiene examination result to the university's dental hygiene program.

All applicants must complete the following courses before enrollment:

1. English composition
2. Calculus
3. Physics
4. Chemistry
5. Biology

Applicants who complete these courses after enrollment may be required to retake them before graduation.

Applications for admission as advanced standing students 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 in advance of the opening date of any session.

2.5(1) Admission of freshmen students

The applicant must submit a formal application as specified by the college of engineering and must have completed the following courses:

1. English composition
2. Calculus
3. Physics
4. Chemistry
5. Biology

The application must be submitted on or before the deadline specified by the college of engineering.

681 — 2.7(262) College of Law

2.7(1) Application for admission

Address all inquiries regarding admission to the Director of Admissions, University of Iowa, Iowa City, Iowa. All applications must be submitted on or before the deadline specified by the college of law.

681 — 2.8(242) College of Medicine

2.8(1) Application for admission

Address all inquiries regarding admission to the Director of Admissions, University of Iowa, Iowa City, Iowa. All applications must be submitted on or before the deadline specified by the college of medicine.

Iowa Administrative Code 497
Applicants are urged to apply as early as possible. Applicants who fail 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 whose judgment appear to be best qualified for the study and practice of medicine.

Prior to entrance an applicant must:

a. Have received the baccalaureate degree; or
b. Have completed three years of a combined baccalaureate-medicine curriculum which qualifies the applicant to receive the baccalaureate degree on completion of the first year in medicine; or
c. Have completed three years of a baccalaureate program which includes the general graduation requirements of the college of liberal arts of the University of Iowa for the combined baccalaureate degree.

Each applicant must place on file in the office of the director of admissions the completed application form and an official transcript from each college attended. The degree of the applicant must be validated 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 admitted under the same circumstances, only under exceptional conditions.

The college curriculum must include at least three years (equivalent to 96 semester hours) including specific science requirements as specified by the faculty of the college.

Students planning to study medicine should bear in mind that other college work is requested 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 3.5 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 to the quality of achievements in science. This grade-point average is based upon the University of Iowa grading system in which a grade of A is equivalent to four points. Other grading 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 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 who have completed the required for admission will be considered.

2.0(2) Admission to advanced standing

If their work preparatory to entering a college of medicine would leave them standing among 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 college.

The committee on admissions to advanced standing will decide in each case whether the examinations in the various subjects will be required.

Applications will be considered only upon receipt of a statement from the dean of the college from which the applicant comes, showing the general amount of time the student has spent in the study of medicine, the college 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.

2.0(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 stay lecture or laboratory courses only upon complying with all the regular requirements for admission to such courses or by action of the faculty upon recommendation of the professor in charge of the course.

601-2.9(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 closing of applications will provide a list of the course work required.

2. Completed the Autters College Tests.

3. Performed satisfactorily on all courses undertaken.

Applicants from students who have minor deficiencies in specific requirements specified above will be reviewed by the admissions committee of the college, but, upon favorable recommendation of the committee, such students may be granted conditional or probationary admission.

Fulfillment of the minimum requirements listed above, however, does not assure admission to the college of nursing. From those applicants who may the minimum requirements, the admissions committee will select the applicant who, in their judgment, appear to be best qualified.

601-2.10(262) College of Pharmacy

1.0(1) General basis for admission

Fulfillment of the specific requirements for admission does not ensure admission to the college of pharmacy. From the student meeting the specific requirements, the admissions committee will select those applicants who, in their judgment, appear to be best qualified. Applicants for admission to the college of pharmacy should have graduated from an approved high school and have an equivalent amount of training.

1.0(2) College work

The college work 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 credits in military and air science and physical education. The 32 semester hours must include Communication skills. Applicants must have demonstrated satisfactory achievement in the communication skills according to the requirements of the college of liberal arts at the University of Iowa. Applicants from other institutions may meet this requirement, and a minimum of 32 semester hours of credit in English composition and 32 semester hours of credit in English composition and
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), two to two semester hours.

Students who present minor deficiencies in meeting the above requirements may be admitted to the college of pharmacy upon the recommendation of the dean of admissions and the college of pharmacy.

2.10(3) Scholarship and application deadline
To be considered for admission to the college of pharmacy, students must have earned a 3.00 or C average on all collegiate work undertaken. The minimum grade-point average of 2.00 is based on the student.

University of Iowa’s marking system is 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
Applications for admission are required to take the American College Testing Program free.

2.10(5) Current requirements
Applications who have completed work in a college of pharmacy accredited by the American Council on Pharmaceutical Education that their college academic average is acceptable as admitted and greater 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(22), 3.3(202) and 3.3(202).

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.
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