## University Calendar

### Fall Semester

<table>
<thead>
<tr>
<th>1992</th>
<th>1993</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class begins</td>
<td>August 24</td>
</tr>
<tr>
<td>Thanksgiving recess</td>
<td>September 7</td>
</tr>
<tr>
<td>University holidays</td>
<td>November 25-29</td>
</tr>
<tr>
<td>University holidays</td>
<td>November 26-27</td>
</tr>
<tr>
<td>Class end</td>
<td>December 11</td>
</tr>
<tr>
<td>Examination week</td>
<td>December 14-18</td>
</tr>
<tr>
<td>Commencement ceremonies</td>
<td>December 21-19</td>
</tr>
<tr>
<td>University holidays</td>
<td>December 24-23</td>
</tr>
</tbody>
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### Spring Semester

<table>
<thead>
<tr>
<th>1993</th>
<th>1994</th>
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</thead>
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<tr>
<td>University holidays</td>
<td>January 1</td>
</tr>
<tr>
<td>Martin Luther King Commencement</td>
<td>January 18</td>
</tr>
<tr>
<td>Class begins</td>
<td>January 19</td>
</tr>
<tr>
<td>Foundation day</td>
<td>February 10</td>
</tr>
<tr>
<td>Spring vacation</td>
<td>March 22-26</td>
</tr>
<tr>
<td>Class end</td>
<td>May 7</td>
</tr>
<tr>
<td>Examination week</td>
<td>May 10-14</td>
</tr>
<tr>
<td>Commencement ceremonies</td>
<td>May 17-19</td>
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<tr>
<td>University holidays</td>
<td>May 31</td>
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### Summer Session

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<th>1993</th>
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<tr>
<td>Registration</td>
<td>June 14</td>
</tr>
<tr>
<td>Classes begin</td>
<td>June 15</td>
</tr>
<tr>
<td>University holiday</td>
<td>July 4</td>
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<tr>
<td>Classes end</td>
<td>August 6</td>
</tr>
<tr>
<td>Commencement ceremonies</td>
<td>August 6</td>
</tr>
<tr>
<td>Independent study unit for law and graduate students</td>
<td>August 9-20</td>
</tr>
</tbody>
</table>

### Campus Visits

The best introduction to The University of Iowa is a visit to the campus. Come first to the John G. Bowman House Admissions Visitors Center, 230 N. Clinton. Office hours: weekdays 8:30 a.m. to 4:30 p.m. and selected Saturday mornings. It is best to visit the campus on weekdays, when classes are in session and when other University offices are open. Please call to arrange for a campus visit: toll-free 1-800-553-4692, nationwide; direct dial 319-335-3647.
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The University of Iowa is a major national research university with a solid liberal arts foundation. Founded in 1847 as Iowa’s first public institution of higher education, it has won international recognition for its wealth of activities in the arts, sciences, and humanities.

Iowa was the first U.S. public university to admit men and women on an equal basis and the first institution of higher education in the nation to accept creative work in theater, writing, music, and art as these 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 premiership in educational testing.

The home of pioneering science research, Iowa has designed and built research instruments that earned many major U.S. science medals, including the Nobel Peace Prize currently on a six-year journey to Jupiter. Its research in hydraulic engineering is world renowned, as are its innovations in biochemistry, biomedical engineering, agricultural medicine, and pharmacology education.

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

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 university research and teaching. It places strong emphasis on undergraduates, international, interdisciplinary and interdepartmental work in the undergraduate, graduate, and professional schools. Together with distinguished teachers and scholars in a close-knit, intellectual community.

Liberal Arts at Iowa: Education for Life

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

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

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

The University reaches out to all segments of society. It seeks students who high school graduates, yet at the same time it serves a broad cross-section of students. Approximately 28,000 students enroll at Iowa during fall and spring semesters. Nearly 70 percent come from Iowa, 28 percent from surrounding states, and 4 percent from the remaining states. International students from 160 foreign countries make up 5.5 percent of the University’s enrollment.

Wealth and Diversity of Programs, Services

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

The University of Iowa Hospitals and Clinics serves more than 400,000 patients from Iowa and other states every year. Specialized care is provided by more than 1,200 physicians and dentists, 1,300 registered nurses, and 3,200 professional and support staff. Teams of faculty, clinical support specialists, and students study and care in their care for patients. University Hospitals and Clinics keeps in close touch with community hospitals and health professionals throughout the state, continually sharing new knowledge with them.

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

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

Overlooking the Iowa River is Old Capitol, the central landmark of the campus. Built in Greek revival style during the early 1840s, Old Capitol served as the last capitol building for Iowa’s territorial congress until 1845, and then housed the legislature and government offices for the state of Iowa until 1857, when state government moved to Des Moines. Various University offices and departments were housed in the building until it was restored as a National Historic Landmark and opened to the public in 1976.

A major attraction and educational facility at the University is Iowa Hall, a 4,000-square-foot gallery in the Museum of Natural History. Macbeth Hall that preserves a fine collection of stone Iowa’s four billion years of natural history. The museum itself boasts more than one million specimens of plant and animal life.

In addition to the Iowa City campus, there are University research and field study facilities at nearby Ottumwa, at the Macbeth Nature Reserve area of north Iowa City, and at the Lakeside Laboratory on Lake Okoboji in northwest Iowa.

Iowa City

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

A community of 60,000 people, Iowa City lies within 300 miles of Chicago, Minneapolis, and St. Louis. The city is accessible by air with service the Cedar Rapids airport, by major bus lines, and by car from major highways.

What Iowa Is All About
ACADEMIC PROGRAMS

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 40 percent of its undergraduate students. It offers the largest variety of courses and programs. It is the largest of the University's 10 colleges and comprises about 60 percent of the total student body. The College of Liberal Arts is home to 10 undergraduate programs, including a number of interdepartmental courses in the College of Liberal Arts.

The University faculty includes about 1,600 full-time members, many of whom have established national and international reputations. Their effectiveness as teachers is enhanced by their involvement in scholarly and scientific research. Some faculty members from the University's professional colleges also teach undergraduate classes, including a number of introductory-level classes in the College of Liberal Arts.

The University's undergraduate students enroll in a wide variety of majors, minors, and specializations. A small percentage of these students have pursued graduate studies at the University. The University's graduate students can be found in a variety of fields, including arts, humanities, sciences, and social sciences. The University's graduate students have a higher level of education than the average undergraduate student. The University's graduate students have a higher level of education than the average undergraduate student.

A growing trend toward lifelong learning, the University of Iowa, in recent years, has expanded educational programs and services, both on and off campus, for students who never entered as regular full-time students. These learning opportunities include museums, libraries, workshops, continuing education programs for professionals, Saturday evening classes offered on campus, and credit courses taught on campus. In 1997 the University, in cooperation with Iowa State University, launched a new Bachelor of Liberal Studies (B.L.S.) degree program designed for adults who wish to earn a college degree, but are unable to enroll in traditional on-campus study.

Degrees Offered

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

Bachelor of Arts, Bachelor of Science, Bachelor of Music, Bachelor of Fine Arts, Bachelor of Commerce, Bachelor of Liberal Studies, Bachelor of Business Administration, Bachelor of Science in Engineering, Bachelor of Science in Nursing, Bachelor of Science in Medicine, Bachelor of Dental Surgery, Bachelor of Dental Medicine, Bachelor of Veterinary Medicine, Master of Arts, Master of Science, Master of Business Administration, Master of Fine Arts, Master of Social Work, Master of Physical Therapy, Master of Arts in Teaching, Educational Specialist, Doctor of Musical Arts, Doctor of Pharmacy, and Doctor of Philosophy.

Accreditation and Associations

The University of Iowa has been accredited by the North Central Association of Colleges and Schools since 1913. The University has been a member of the Association of American Universities since 1911. The University has been accredited by the American Association of Medical Colleges since 1922. The University has been a member of the Association of American Medical Colleges (AAMC) since 1922. The University has been a member of the National Committee on Institutional Cooperation (NCIC).

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

Colleges

Business Administration—American Association of Colleges of Business

Business—Commission on Accreditation of Business (ACB)

Medicine—Universe Commission on Medical Education, representing the American Medical Association (AMA), and the Association of American Medical Colleges (AAMC)

Nursing—National League for Nursing, Iowa Board of Nursing

Pharmacy—American Council on Pharmaceutical Education

Schools

Journalism and Mass Communication—Accrediting Council on Education in Journalism and Mass Communication

Library and Information Science—American Library Association

Music—National Association of Schools of Music

Social Work—Council on Social Work Education

Departments and Programs

The undergraduate engineering programs of the Departments of Biomedical, Chemical, and Environmental, Electrical and Computer, Industrial, and Mechanical Engineering—Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET)

Chemistry—American Chemical Society

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

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 Park and Recreation 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, and Council on Medical Education, both of the American Medical Association

Physical Therapy—American Physical Therapy Association

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

Physiology—American Psychological Association

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

Theatre Arts—National Association of Schools of Theatre

Academic Sessions

The University's academic year consists of two semesters of approximately 16 weeks each. The University observes the federal summer session and, following that, an Independent Study Unit of three or more additional weeks for students in the Graduate College and the College of Law.

Academic Recognition

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

All Undergraduate Colleges (except Pharmacy)

Highest distinction—highest 2 percent
High distinction—next highest 3 percent
Distinction—next highest 5 percent
College of Pharmacy

Highest distinction—grade-point average of 3.75 and above
High distinction—grade-point average of 3.35 to 3.75
Distinction—grade-point average of 3.25 to 3.49
Dean's List
Liberal arts students who achieve a grade point average of 3.50 or above during a four-semester period are recognized on the Dean's List for that semester.

President's List
Undergraduate students who achieve a grade point average of 4.00 for two consecutive semesters or 12 or more semester hours of graded work and who have no hours of I or O grades are recognized by inclusion in the President's List.

Undergraduate Scholarships
For students who rank in the top one percent among undergraduates at the University, Undergraduate Scholarships provide a limited number of students with an opportunity to do scholarly work with faculty members from all areas of the University on projects that range from art to Spanish, from toxic to medieval. Depending on their interests and fields of study, undergraduate scholars might help in classrooms, assist in research laboratories, work in the field, perform laboratory experiments, gather and analyze data, program, test, or edit manuscripts.

The largest reward from this 10-hour-week appointment is the working relationship student form faculty members and the implement they have to important teaching and research activities. As long as they maintain superior performance, students may be invited to continue their work throughout their college careers, allowing them to increase the breadth and depth of their scholarship work and to cement the mentor relationship with their faculty member.

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

University Honors Program

The University of Iowa Honors Program offers special academic and extracurricular opportunities to outstanding students in the Colleges of Business Administration, Education, Engineering, Liberal Arts, Nursing, and Pharmacy. Freshmen and sophomores may take special College of Liberal Arts honors courses, which are taught at a level and pace appropriate to honor students. Students can earn honors credit for courses that do not have honors sections through special arrangements with the professor (for example, by completing a special project). With permission from the University Honors Program and faculty, any course can be designated as "honors course" and can be noted on the student's transcript.

Seniors and juniors in the honors program who wish to work individually with faculty in research are invited to apply to be honors research scholars. Each semester a maximum of a faculty member number of honors research scholars receive academic credit for the course 141:100 Honors Research Practicum.

Seniors with an interest in exploring the teaching aid of an academic career are invited to apply to be honors teaching interns. Each semester a number of honors teaching interns receive academic credit for the course 141:100 Honors Teaching Practicum. In the junior and senior level, most departments offer honors seminars, internships, capstone projects, and/or the opportunity to pursue an original senior project under the guidance of a faculty mentor. Honors students are encouraged to explore the option of designing their own honors interdisciplinary major. The primary components of the major are a study of a major, which is a carefully crafted outline for the major, and 36 semester hours of approved coursework, including a 4-credit honors to conduct research and complete a honors thesis project that incorporates an interdisciplinary approach. These components are developed by the student in consultation with the faculty member and the honors director.

Successful completion of any honors major requires up to all the requirements for the honors major. However, many more honors students pursue a bachelor's degree with honors in the major. Students who graduate with honors receive special recognition during commencement ceremonies. Other student academic awards and recognition include the University of Iowa College of Liberal Arts and Sciences Honors Recognition Week in the spring.

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

Honors Center
The University of Iowa Honors Center is a meeting place and study center for the students in the honors program. It houses a reference library, study areas, computers, and other facilities. The Computer Center, which is used for meetings, recreation, and research, is located near the student association offices in the honors program. The Associated Student Honors Students, plan a variety of activities—recreational, social, cultural, and academic—through the program.

Enrolling students with strong academic records are invited to join the honors program, but any student whose grade point average before the required minimum (3.20) may join at any time. To remain in the program, students must maintain a 3.20 grade point average. For details of admission requirements for entering students and for more information about other aspects of the program, contact the University Honors Program.

The following are University Honors Program courses:

- 141:100 Honors Research Practicum 3 s.h.
- 141:100 Honors Teaching Practicum 3 s.h.

University Honors Program

- Course (2 credit hours) Grade point
- A+ 4.33
- A 4.00
- A- 3.67
- B+ 3.33
- B 3.00
- B- 2.67
- C+ 2.33
- C 2.00
- D+ 1.67
- D 1.33
- D- 1.00
- F 0.67

Course title

- *H = honors
- *I = independent study
- *N = non-credit
- *G = graduate
- *F = failure
- *S = subject
- *S = satisfactory (Graduate College only)
- *W = withdrawal

*Not used in computing grade point averages

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

The College of Law uses a numerical grading system.

Numbering of Courses

Each course in the regular University curriculum has an identifying number, prefixed by the number of the college, department, or program that administers the course. For example, "151" is the code for the course numbers 1 in the Department of Biological Sciences (identifying "151" to be included in a biology course grade for undergraduates, numbers 100 to 199 designate courses for undergraduates and graduate students, and numbers 200 and above designate courses primarily for graduate students.)
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<th>College of Business Administration</th>
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<td>6A Accounting</td>
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<tr>
<td>6B Business Administration</td>
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<tr>
<td>6C Economics</td>
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<td>6D Economics</td>
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<td>6E Finance</td>
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<td>6F Management and Organizations</td>
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<td>6K Management Sciences</td>
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<td>8B Operative Dentistry</td>
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<td>8D Endodontics</td>
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<tr>
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<td>8t Oral and Maxillofacial Surgery</td>
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<tr>
<td>8D Dental Hygiene</td>
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<td>7E Elementary Education</td>
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<td>7H Higher Education</td>
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<td>7P Educational Psychology, Measurement, and Statistics</td>
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<tr>
<td>7S Secondary Education</td>
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<td>7U Special Education</td>
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<td>7W Instructional Design and Technology</td>
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<td>52 Chemical and Biochemical Engineering</td>
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<td>53 Civil and Environmental Engineering</td>
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<td>55 Electrical and Computer Engineering</td>
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<td>56 Industrial Engineering</td>
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<tr>
<td>08S Bachelor of Liberal Studies</td>
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<td>1L Lakeside Laboratory</td>
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<td>06S Bachelor of General Studies</td>
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<tr>
<td>08S Bachelor of Liberal Studies</td>
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<td>Design</td>
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ADMISSIONS

High School Preparation

Appropriate academic preparation for college work is important. 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 programs of their choice.

Students entering the University must have completed the following set of high school courses (and their equivalents). These high school unit requirements apply to entering freshmen who graduated from high school after 1985. Some transfer students with fewer than 24 semester hours of transferable credit who graduated from high school after 1985, and some transfer students with 24 or more semester hours of transferable credit who graduated from high school in 1980 or before, must meet additional requirements very similar to those for students entering the College of Engineering (listed below).

Applying for Admission

Prospective students interested in enrolling in any of the schools of The University of Iowa should consult the Office of Admissions to receive admission forms and application procedures for both the main and University College housing. All applicants must submit formal applications. College entrance exam scores, and other required supporting materials to the Office of Admissions. Specific admission standards for the respective colleges refer to the appropriate college sections of the Catalog.

ACT and SAT Scores

All entering freshmen and undergraduate transfer students who present fewer than 34 semester hours of transferable work are required to complete the following: the ACT or Scholar's Aptitude Test (SAT) and have their scores reported to the University before they register for class. The Office of Admissions, recommends that students complete the ACT or SAT during the spring of their junior year of high school in the following summer.

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

Graduate and Professional College Examinations

Prospective Graduate College applicants are required to take the Graduate Record Examination (GRE) General Test or, if applicable, 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 $25 application fee must accompany applications submitted by prospective students and personally enrolled in a degree program at the University. The application fee for foreign students is $50. Application fees are not refundable.

Re-entry

Undergraduate students who have been absent from the University for 12 months or more and graduate students who have been absent for 24 months or more must apply to the Office of Admissions for re-entry.

Students who have been enrolled at another college or university after leaving the University of Iowa or who have not attended official transcripts along with their application for re-entry. A $25 re-entry application fee is assessed to re-entry students when they enroll.

Application Deadlines

U.S. Citizens

Applying to any of the schools of the main campus or the University College before the appropriate application deadline.

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, graduate students, and domestic students are encouraged to apply by the fall semester in which they plan to enroll. All application materials are due in the Office of Admissions for the deadlines listed below. Foreign students usually have earlier application deadlines (see "Foreign Students," below).

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

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

College of Dentistry: November 30, fall semester only; preliminary applications should be on file with the American Dental Association of Dental Schools Application Service by this date. Notification of acceptance begins December 1.

College of Engineering: May 15 for summer session, May 15 for fall semester, November 15 for spring semester, early application deadline. If admitted, deposit or enrollment deposits are required for 2022-2023 academic year.

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

Graduate and Professional College Examinations

Prospective Graduate College applicants are required to take the Graduate Record Examination (GRE) General Test or, if applicable, 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.
Determining Residence

For admission, tuition, and fee purposes, the University registrar classifies all students enrolled in the University as residents or nonresidents of Iowa according to criteria established by the State Board of Regents and on the basis of information provided by the student. The criteria may be found under "Iowa Administration - Board of Regents" at the back of the Catalog.

English Proficiency

Non-Native Speakers

The University's English proficiency requirement assumes that non-native speakers have (at least) sufficient English to study without being hindered by language problems, to understand lectures, and to participate successfully in class discussions. All applicants to the University whose native language is not English are required to submit scores on the Test of English as a Foreign Language (TOEFL) with their applications for admission and supporting academic documents. Automatic waivers from this policy are granted for persons who have received a baccalaureate or equivalent degree from a university in the United States, the United Kingdom, Canada (including French Quebec), Australia, New Zealand, or the Republic of Ireland.

U.S. Citizens and Permanent Residents

U.S. citizens and permanent residents whose native language is not English are not required to submit scores on the TOEFL before registering for courses. Students are required to complete the English proficiency requirement as part of their degree and should register for courses.

TOEFL requirements for admission to the College of Liberal Arts and Sciences are as follows:
- Students with TOEFL scores below 500 are not required to submit additional English language proficiency evaluations before registering for courses.
- Students with TOEFL scores between 500 and 550 are required to complete additional English language proficiency evaluations before registering for courses.
- Students with TOEFL scores above 550 are required to complete additional English language proficiency evaluations before registering for courses.

Graduate students may be admitted to take a full academic course load, excluding English as a Second Language (ESL) courses.

TOEFL scores of 500 or below may be required to enroll in English as a Second Language (ESL) courses.

TOEFL scores of 500 or below may be required to enroll in English as a Second Language (ESL) courses.

TOEFL scores of 500 or below may be required to enroll in English as a Second Language (ESL) courses.
Graduate students should consult their advisors prior to registering to determine whether or not they should enroll in courses work in English as a Second Language.

**English Proficiency Evaluations**

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

**Medical Information**

The Student Health Service provides health care for registered students. After students are admitted to the University, they receive a medical history form, which they must complete, including all information about immunizations. Proof of immunity to measles is a prerequisite to registration. Completed medical history forms should be returned to the Student Health Service. For students who have moved from one campus or academic advisor to another, the attending physician must report to the Student Health Service that continuing care can be provided.

**Campus Visits**

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

Campus visits might include a meeting with an admissions counselor, a group information session, a campus or residence hall tour, and an appointment with a faculty member or academic advisor in a particular area of study; or some visitors might prefer only one of the preceding elements. Visit programs are arranged to provide information about academic programs, admission requirements, financial aid, campus life, housing, and the many student services available at the University. Students also can explore University museums, libraries, and downtown Iowa City.

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

**Orientation Services**

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

Once admitted to the University, students are expected to enroll in orientation/registration programs before their first classes. During orientation, new students learn about academic policies and resources, take placement tests, meet with their academic advisors, complete their first registration, and become acquainted with faculty, staff, and other students. Parents are encouraged to attend special parent orientation sessions conducted concurrently with the student programs.

Students and transfer students admitted for the fall semester attend the orientation/registration programs during the summer prior to the start of classes. Students admitted for the spring semester attend the sessions in December or during the week preceding the start of the semester. Students admitted for the summer session attend an orientation program the Sunday before classes begin in June.

**Services for Transfer Students**

The Office of Admissions provides a variety of services to help prospective transfer students make a smooth transition to University life. Students are encouraged to contact the office with questions concerning admissions criteria, program of interest, and course requirements. Pre-admissions representatives annually visit each Iowa area community college and are available to answer questions via scheduled appointments, special visit programs, written correspondence, or by telephone. A variety of written materials is available to help students understand polices and procedures.

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

**Records**

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

**Regents Exchange Program**

University of Iowa students may take courses at either of the other two regents universities for University of Iowa resident credit. Regular, degree-seeking students in good standing in any of the three Regents universities may attend another Regents university for a maximum of two semesters, the credits earned at the other university are accepted as resident credit at the home institution. Approval for participation and credit in the exchange program must be obtained in advance of registration. The department head must approve the acceptance of such credits if they are to apply to that major, and time must be allowed to ensure complete processing of the application between the cooperating universities within the time limits specified for enrollment. Detailed information and application forms for the exchange program are available from the Office of the Registrar.

**TUITION AND FEES**

The University's schedule of tuition and fees for full-time students, per semester, for the academic year 1992-93 is stated below.

- Extension courses are $158 per semester hour for graduate students and $82 per semester hour for nonresidents. Undergraduate courses are $100 per semester hour. Correspondence courses are $87 per semester hour. All fees are subject to change by action of the State Board of Regents.

**Undergraduate**

- Resident: $1,084
- Nonresident: 3,526

**Graduate**

- Assistant: 1,253
- Nonresident: 2,675

**Dentistry**

- Resident: 2,373
- Nonresident: 6,756

**M.B.A.**

- Resident: 1,772
- Nonresident: 4,738

**Medical**

- Resident: 1,614
- Nonresident: 4,059

**Doctor of Pharmacy**

- Resident: 2,373
- Nonresident: 4,579

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

**Registration**

All persons who attend University classes must first be admitted to the University and are required to register and pay the appropriate tuition and fees. Students in the College of Liberal Arts, the College of Pharmacy, the College of Human and Community Development, and the College of Business Administration may attend the College of Liberal Arts, the College of Pharmacy, the College of Human and Community Development, and the College of Business Administration, respectively. Registration periods are announced for the fall semester on the lowest number of
semester hours for which the course is offered that semester.

Payment of Student Accounts
The University makes a monthly bill for each student to an approved address. The bill includes charges incurred for tuition, fees, board, and other expenses in residence halls and campuses; car registration and parking fees; library and parking fees; and other departmental charges. Tuition and fees are billed three times each semester and once during the summer session. Tuition and fee adjustments occur on a monthly basis.

Refund Schedule
Students who withdraw registration during a regular semester receive reductions of fees assessed, as follows: during the first week of classes—90 percent; during the second week—75 percent; during the third week—50 percent; during the fourth week—25 percent. There are no reductions of fees for withdrawals after the fourth week of classes.

Financial Aid
The University of Iowa has an excellent record of helping its students obtain scholarships, grants, loans, and other forms of financial assistance. Approximately 65 percent of Iowa residents receive some form of aid. The Office of Student Financial Aid helps students sort through the myriad forms of aid available.

Application
Applications are accepted for admission to be considered for financial aid at the University. From January through April, all newly admitted students receive instructions on how to complete the financial aid filing process.

Eligibility for Aid
Eligibility for financial aid is determined by the Free Application for Federal Student Aid (FAFSA) or by the University's Student Aid forms. Students must meet the University's minimum grade-point average requirements for admission. The Financial Aid Office provides information on the University's financial aid programs.

Opportunity at Iowa Scholarships
The University's academic scholarships are awarded to students based on academic merit. Students must apply for these awards, and they are renewable for up to four years. The University awards up to 4,000 dollars per year, and these scholarships are offered on a competitive basis. All students must meet the University's minimum grade-point average requirements for admission.

National Merit Scholarships
The University offers National Merit Scholarships to all students who have been selected as National Merit Scholarship Finalists. The University will mail a letter to all students who have been selected as Finalists. Students must apply for these awards, and they are renewable for up to four years. The minimum award is $100. Awards range from $750 to $2,000, based on financial need.

Departmental Scholarships
For information about departmental scholarships, students should inquire at the offices of the academic programs of interest.
University of Iowa Tuition Scholarships

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

LaVerne Hoyes Scholarships

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

University of Iowa Farm Scholarships

Farm scholarships are for entering freshmen who are residents of Iowa. Applicants must rank in the upper 20 percent of their graduating class, be enrolled full-time in an agriculture program, and live on an Iowa farm, owned and operated by their parents. Students must file the FFS, FAF, or SINGLELIE. Applicants are available from the Office of Student Financial Aid and must be submitted by April 1.

Grants

Federal Grants

Undergraduate students without bachelor’s degrees may apply for Federal Grants. These awards mean that $2,000 or more per year, depending on financial need and federal aid, must be received at least half-time in a degree program in order to be eligible. The FFS, FAF, or SINGLELIE determines eligibility 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 FFS, FAF, or SINGLELIE determines eligibility for this program.

Educational Opportunity Program (EOP) Grants

Institutional funds are awarded to minority students who show exceptional financial need. Parental income and asset information must be reported. The FFS, FAF, or SINGLELIE determines eligibility for this program.

Iowa Grant

The Iowa Grant is a state-supported program awarded on the basis of need, as determined by the University of Iowa’s need analysis. The FFS, FAF, or SINGLELIE determines eligibility for this program.

IMAGES

The Iowa Minority Academic Grants for Economic Success (IMAGES) is a program for minority undergraduates with financial need. The program is funded by the Iowa legislature. Preference is given to residence students in Iowa. The FFS, FAF, or SINGLELIE determines eligibility for this program.

Loans

Perkins Loans

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

Stafford Loans

Stafford Loans are low-interest loans made to students by lenders such as banks, credit unions, or savings and loan associations. Loans are insured by a guarantee agency in each state and authorized 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 FFS, FAF, or SINGLELIE determines eligibility for these loans. Applicants must submit a Stafford Loan application, which is available from the lending institutions.

PLUS Loans and Supplemental Loans for Students (SLGS)

PLUS loans are for parent borrowers. The SLGS is for students. Both loans provide additional funds for educational expenses. PLUS and SLGS applications are available from banks, credit unions, and savings and loan associations. The bank has a variable interest rate that is adjusted each July. SLGS borrowers must file the FFS, FAF, or SINGLELIE.

Health Professions Student Loans

Health Professions Student Loans are long-term federal loans for student residents full-time in the Colleges of Medicine, Dentistry, or Pharmacy. Awards are available on a need basis. The interest rate is 5 percent. The FFS, FAF, or SINGLELIE determines eligibility for this program.

Rural Student Loans

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

Jobs

Part-Time Jobs

Student part-time employment can provide a meaningful work experience as well as work-study or work-internship experiences. The University of Iowa estimates nearly 11,000 students in a variety of positions. Ranging from accounting to waiter, the jobs offer students the opportunity to increase skills, gain experience, and earn money.

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

Jobs are advertised via computer terminals across campus.

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

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

College Work-Study Program

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

The amount of CWS money a student is eligible to earn varies depending on educational expenses. The FFS, FAF, or SINGLELIE and legislative funding. CWS employment is limited to 20 hours per week during the academic year. The minimum wage paid by the University is $4.65 per hour. Students are paid by check once every two weeks.

Other Sources of Aid

A guidance counselor or high school principal may have information on Iowa scholarships, and school or public libraries are excellent sources for publications about financial aid. Many places of employment, professional associations, and
Additional Information for Graduate Students

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

The resource center of the University’s Division of Sponsored Programs has information on student aid available from non-university sources, such as foundations and professional associations.
ACADEMIC SERVICES

Academic Advising

Both students and graduated students are advised by the Academic Advising office. Other existing problems with declared majors are assigned to advisers in their major departments. Upon admission to the University, professional college advisers allocate majors and other problems to the Academic Advising office.

Undergraduate Academic Advising Center

The University of Iowa provides academic advising through its Undergraduate Academic Advising Center. Advising helps students understand their academic objectives and plan their courses. Academic advisers can assist students in selecting courses, planning their academic programs, and determining their graduation dates. Advising is available to all students, regardless of their major, and is offered through the University of Iowa's Academic Advising Center.

Collegiate Academic Offices

Each of the University's undergraduate colleges maintains an academic advising office. These offices provide information to students about academic advising, academic majors, course requirements, graduation dates, and other related topics. Advisers assist students in making decisions about their academic programs and the courses they need to take to complete their degree.

International Education and Services (IES)

The IES is the focal point for the University's international education. It is responsible for maintaining a comprehensive international education program, including study abroad programs and other programs for international students. The IES provides information about study abroad programs, including information about tuition, housing, and other related topics. Advisers are available to assist students in planning their study abroad experiences and in making decisions about their academic programs.

The OIES promotes development of international and intercultural relationships, including study abroad programs. It also assists students and faculty with research and study in international contexts. The OIES encourages the development of international links between universities in Iowa and other countries and promotes collaboration with international institutions.

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In addition to the study abroad courses listed below, the following programs are offered through the OU International Department: 3,119 Regents Programs Abroad. This program allows students to study at one of the many OU partner institutions around the world. Students must apply to the OU International Department to participate in this program.

The OIES provides services to students and faculty members involved in international programs and activities. These include assistance with visa and immigration issues, housing, and other related topics. Advisers are available to assist students in planning their study abroad experiences and in making decisions about their academic programs.
Registrar

The Office of the Registrar determines the residence status of each student, issues Transcripts and Final Graduation Audit, issues registration procedures, provides course information, and coordinates commencement and academic special events programs. It assists you, the student, with the various requirements of students' academic records, and issues official transcripts and verifications. The Registrar's office helps students determine registration requirements, submit applications for degrees, and interpret college and university academic policies. It provides assistance to students on Selective Service and military affairs, and it helps student veterans with information at the University and secure receipt of the Veterans Affairs benefits.

Transcripts

Students who have completed work at The University of Iowa can obtain an official transcript of their work upon request in the Office of the Registrar. Fees are $3 for the first copy and $1 for each additional copy on the same order. For an additional $1 charge, students with proper identification can obtain an immediate transcript service.

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

Services for Persons with Disabilities

The University of Iowa is committed to making its programs, events and activities accessible to people with disabilities. The Office of Services for Persons with Disabilities (SPD), located in Burge Hall, provides access to students with a wide range of visible and invisible disabilities, including hearing and speech impairments, learning disabilities, visual impairments, physical impairments, and others. The office's goal is to help students with disabilities enjoy the same rights and assume the same responsibilities as do all students. The office also provides information to students, faculty, and staff on services for students with disabilities.

SPD 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, ADA and accessibility, and international students. The Recreational Services (see "Recreational Services") in this section of the Catalog. The office works with students individually to locate the type of assistance appropriate to their needs. Students may contact the Disability Services Office to request an accommodation for a disability.

Special Support Services

The Office of Special Support Services, located in Carswell Hall, encourages the mobility of diverse groups of students to develop their individual potential as they may reach their educational degree objectives at The University of Iowa. The office is a resource for students who have culturally and socially different backgrounds and provides eligible students with academic, social, and financial support.

The office also assists in the recruitment of prospective undergraduate, graduate, and professional students. The Office of Special Support Services includes New Student Orientation to Learning and the Upward Bound Program. All non-Iowans Iowa students who participate in TRIO Student Support Services may retain eligibility.

GENERAL SERVICES

Campus Information Center

Located in the east terrace lobby of the Iowa Memorial Union, the Campus Information Center provides information about campus and community resources and University services and operating hours. It is equipped to accept cash and credit card payments, issue parking permits, provide a variety of useful items such as maps, brochures, periodicals, and directories. The center is 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 cultural, artistic, recreational, and educational programs and activities in the Iowa Memorial Union. The University of Iowa believes that cultural activities and programs contribute to the student experience by enhancing students' academic and personal development.

Professional staff members provide information to students who want to become involved in organizations suited to their interests or to form new groups or organizations. They also conduct workshops on enhancing leadership skills. The Student Volunteer Clearinghouse, a program designed to incorporate local volunteers and University students interested in volunteer service, is coordinated by OCPSA.

Campus programming and special event planning are ongoing tasks for OCPSA. Student groups, working in conjunction with OCPSA staff, plan and conduct traditional events such as Homecoming, Winter, and homecoming events, and new campus programs. In addition to the Arts, Crafts, and Recreation Area, the Student Government Association, the Student Union Office, the Campus Programs Resource Center, the Iowa Memorial Union, and the University of Iowa's American Student Cultural Centres, and the Iowa-Native American Cultural Center, the University of Iowa's American Student Cultural Centres, and the Iowa-Native American Cultural Center.

Intercollegiate Athletics for Men

The University of Iowa is a member of the Big Ten Conference and has an athletic program in football, basketball, track and field, swimming, and golf, tennis, wrestling, cross-country, and gymnasium. The athletic program is supervised by the University's athletics director and the Athletics Department. The University of Iowa is a member of the National Collegiate Athletic Association and the Big Ten Conference. The university's athletic program is overseen by the University of Iowa Athletics Department. The university's athletic program is overseen by the University of Iowa Athletics Department.

Intercollegiate Athletics for Women

The University of Iowa sponsors national collegiate intercollegiate athletic teams for women in basketball, cross-country, field hockey, golf, gymnastics, softball, swimming and diving, tennis, track and field, and

Cultural Centers

The University sponsors the Afro-American Cultural Center and the Chicoine-Native American Cultural Center under the auspices of the Office of Campus Programming and Student Activities. Students meet at the center's shared experiences, first cultural and personal support, relax, and social programs, all in an atmosphere that emphasizes their cultural heritage. Programs and activities at the center are open to all students.

The Afro-American Cultural Center sponsors discussions, programs, activities, classes and workshops on cultural themes. The center also houses a library with special-interest books and periodicals and is well-maintained by student and guest artists.

International Center

The International Center serves members of the University community with international interests. Its facilities and programs are designed to encourage interactions among people of all cultures. The International Center is located on the University of Iowa City campus and is sponsored by an International Center.

Sports and Recreation

Intercollegiate Athletics for Men

The University of Iowa is a member of the Big Ten Conference and has an athletic program in football, basketball, track and field, swimming, golf, tennis, wrestling, cross-country, and gymnastics. The athletic program is supervised by the University's athletics director and the Athletics Department. The university's athletic program is overseen by the University of Iowa Athletics Department.

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Arts Council also coordinated through OCPSA.
Housing • Student Life at Iowa

Housing Policy

The following is the University’s statement on off housing practice. It is also the first policy of the University that boarders shall be required to study the faculties of their residence for the period of their occupancy, and to participate in the activities of their residence in the manner and to the extent consistent with the policies of the University. The faculty of the residence is responsible for the administration of the residence and for any violations of its rules.

University Residence Halls

The University’s nine residence halls provide housing and living accommodations and facilities and programs to support the total student experience. They are designed to provide a pleasant atmosphere conducive to effective study. Single, double, triple, and quad rooms with or without private or shared bathrooms are available. Each residence hall has a central location and is equipped with modern facilities and amenities. Students are encouraged to participate in the activities of their residence and to take advantage of the opportunities available.

Applications and Assignments

Prospective undergraduate students should request housing application forms by calling the University Housing Office. Students may apply for housing up to one year in advance. The application process is described in the University Housing Handbook. Students are encouraged to submit their applications early to ensure placement in their desired residence halls.

Rates

Basic rates for University residence halls are listed in the University Housing Handbook. Rates are subject to change annually.

Family Housing

The University of Iowa provides 749 housing options for families with children who must be on campus. Facilities include apartments, townhouses, and houses. Students who do not live in residence halls may purchase a full or partial board contract.

Off-Campus Housing

The Off-Campus Housing Office is located in the Student Services Building and provides information on off-campus housing options. Students are encouraged to visit the office to discuss housing options and to receive guidance on the housing application process.

Fraternal and Sorority Life

Undergraduate housing options include Alpha Chi Omega, Alpha Delta Phi, Alpha Kappa Lambda, Alpha Phi, Delta Chi, Delta Delta Delta, Epsilon Sigma Alpha, Gamma Phi Beta, Kappa Kappa Gamma, Sigma Alpha Epsilon, Sigma Chi, Sigma Nu, Sigma Theta Chi, and Phi Delta Theta. For more information, please contact the Off-Campus Housing Office.
CODES, POLICIES, AND STUDENTS’ RIGHTS

Code of Student Life

As members of the academic community, students are encouraged to develop a community for critical judgment and to engage in a sustained and independent search for truth. Freedom to teach and freedom to learn is inseparable from the academic freedom. The freedom is thus dependent on appropriate opportunities and conditions in the classroom, on the campus, and in the larger community. To provide and safeguard the right of every individual student to exercise the freedom to learn without undue interference by others, the University has developed a Code of Student Life. The code covers conduct that adversely affects a University process or function or some distinct and clear interest of the University as an academic community. In order to foster an environment where academic freedom are exercised in a responsible manner, all students are expected to acquiesce themselves with the code and to conduct themselves in accordance with the standards it sets forth.

University Policy on Human Rights

The University of Iowa brings together in common pursuit of its educational goals persons of many nations, races, and creeds. The University is guided by the concept that in no aspect of its programs shall there be differences in the treatment of persons because of race, creed, color, national origin, age, sex, disability, and any other classifications that deprive the person of consideration as an individual, and that the educational and other university activities shall be available to all. Among the classifications that deprive the person of consideration as an individual are those based on sexual orientation and gender identity. This principle is expected to be observed in the implementation and administration of the University, specifically in the admission, housing, and education of students; in policies governing programs of extracurricular life and activities; and in the employment of faculty and staff. 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 informal mechanism established in each college for this purpose. Although there is some variance among colleges, these mechanism generally involve the following steps.

• The student should first attempt to resolve the issue with the faculty member involved.

• If a satisfactory resolution is not obtained, the student may take the matter to the college dean.

• If there is a satisfactory outcome still not obtained, the student may take the matter to the college dean.

The Colleges of Education, Engineering, Liberal Arts, Medicine, and Nursing have written policies and procedures for resolving complaints. The College of Dentistry, Engineering, Law, and Nursing also have established an ombudsperson system as an alternative mechanism for handling student complaints. Information concerning the informal mechanisms established in each college is available in the college dean’s office.

Students who seek advice with the appropriate dean for academic affairs in the Graduate College concerning ways to resolve complaints.

If a student’s complaint concerning a faculty action cannot be resolved through the informal mechanisms available, the student may file a formal complaint, which will be handled under the procedures established for handling with alleged violations of the “Standards on Professional Ethics and Academic Responsibility,” as specified in section 20.290 of the University Operations Manual. A description of these formal procedures, found in section 20.290 of the University Operations Manual, can be obtained from each college dean’s office, the University and college ombudsperson, the College of Liberal Arts and Science Office at Academic Profiles, or the Undergraduate Academic Advising Center.

University Ombudsperson

The Office of the University Ombudsperson responds to problems and disputes brought forward by all members of the University community—students, staff, and faculty—by providing a neutral venue for the resolution of disputes. The University Ombudsperson investigates complaints of unfair treatment or emotional procedure and serves as a neutral and independent entity in the resolution process.

The Ombudsperson hears all sides of a question in an impartial and objective way.

The Ombudsperson’s office is an independent entity. It is not part of and does not report to the University administration. It treats all requests and conclusions in strict confidence. It never divulges a client’s name or the nature of his or her complaint without the client’s consent.

Before consulting the ombudsperson, students, staff, and faculty should try to resolve their problems by following procedures outlined by University rules and policies. Where practical, faculty and staff members should discuss problems with immediate superiors and/or supervisors; students should follow procedures in the handbook, catalogs, and/or publications. AFFECTING STUDENTS, STUDENTS, STAFF, AND FACULTY should consult the appropriate academic advisor, department head, supervisor, chair, dean, or other administrator before contacting the ombudsperson.

Policy on Sexual Harassment

Following are excerpts from the University “Policy on Sexual Harassment and Sexual Misconduct,” which is printed in full in the booklet Policies and Regulations Affecting Students. Division 1. Sexual Harassment

Section 1. Rationale

(a) Sexual harassment is reprehensible and will not be tolerated by the University. It infringes the mission of the University and threatens the career, educational experience, and well-being of students, faculty, and staff. Relationships involving sexual harassment or discrimination have no place within the University. In both obvious and subtle ways, the very possibility of sexual harassment is destructive to individual students, faculty, staff, and the academic community as a whole. When, through fear of reprisals, a student, staff member, or faculty member abstains or is prevented from subjecting his or her complaint to the University’s ability to carry out its mission is undermined.

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

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

Section 2. Prohibited Acts

No member of the University community shall engage in sexual harassment. For the purposes of this policy, sexual harassment is defined as unwelcome advances, requests for sexual favors, or any other verbal or physical conduct of a sexual nature when
Section 7. Consensual Relationships in the Instructional Context

No faculty member shall have an consensual 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.
Special Resources at Iowa

Research and Interdisciplinary
- Actvities: 27
- University Libraries: 34
- The University of Iowa Health Center: 35
- The Iowa Center for the Arts: 37
- Museum of Natural History: 40
- Old Capitol: 40
- Other Services: 40

Masterclass with Horners Auditorium guest artist Isaac Stern
RESEARCH AND INTERDISCIPLINARY ACTIVITIES

The University recognizes that its creative activity is indispensable to its reaching its role in providing excellence, relevance, and effectiveness expected of a distinguished institution of higher learning.

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

The Office of the Vice President for Research maintains as an overview of the many individual research commitments of the institution and administrative responsibility for the research mission of the University in many ways:

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

The Office of the Vice President for Research maintains a close relationship with the Graduate College because of the college's dual role as the cornerstone and the vital connection between graduate programs and research and creative activity.

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

Faculty members include two each from the physical, biological, and social sciences and the humanities, and two from the faculty at large. The council gives regular consideration to matters such as the establishment of general policies regarding the University's research and creative efforts, the review of policies and procedures concerns 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:

Carver Scientific Research Initiative Grants Program

The Carver Scientific Research Initiative Grants Program, funded by the Roy J. and Carver Charitable Trust of Muscatine, Iowa, is designed to focus support on nonmedical projects in the hard sciences and technology-related fields. The program provides competitive research grants as "venture capital" to ensure crucial faculty who have existing ideas with long-range potential, but who need to conduct preliminary studies in order to obtain external funds. Awards normally are limited to projects in the natural, physical, biological, and technological sciences in the Colleges of Liberal Arts and Engineering.

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 associate professor or professor. The host 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-scale program of research.

Incidental Grants

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

Services

The Office of the Vice President for Research also provides a variety of university-wide services required by faculty members engaged in research and creative activities. They include the following:

Central Research Facilities

To maintain state-of-the-art resources for key research activities within the University, research facilities are available to faculty supported by the University. Facilities are available to faculty students for research use by graduate students. Currently these facilities include the following:

Animal Care Unit

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

Faculty members are encouraged to consult with animal care personnel when writing applications for grants, especially with regard to choice of animal models and numbers, completion of animal care and use review forms, and care of sick or injured animals. Questions concerning humane treatment, budgetary considerations, and the University's policy on animal care. Training for personnel concerning proper husbandry and biomedicine is available upon request. All requests for animals must be initiated through the Animal Care Unit. All protocols involving animals, regardless of funding source, must be reviewed by the University Animal Care and Use Committee before study is begun.

Computer-Assisted Image Analysis Facility

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

Image processing applications include digital image acquisition, image enhancement, and image analysis. Images can be digitized from films, video signals, videotape, microscopic electron micrographs, autoradiographs, gels, and photographs. Images that have been digitized elsewhere (including images from medical scanners) and stored on magnetic media can be transferred into the computer via a magnetic tape drive, a floppy disk drive, network, or a computer modem.
Electron Microscopy Facility

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

Equipment includes the following: a Hitachi S-5700 scanning electron microscope equipped with a cryo stage, a backscatter electron detector, and a Kevex EDS system; a Hitachi S-4500 field emission scanning electron microscope equipped with a backscatter electron detector; Hitachi H-400 and H-7100 transmission electron microscopes equipped with STEM and a Kevex EDS system, a cryo stage, electron diffraction, a tilting hexagon stage, and a tilting rotation holder; a Hitachi H-800A laser scanning confocal microscope equipped with a krypton/argon laser, dual detector system, optical disc storage, freeze-frame camera, color printer, and a heighting/cooling stage; a Zeiss 2001 transmission electron microscope; an Automatic tissue processor; a Hitachi S-490 SEM/AM system; and a FourBerker stylish 6U electron microscopes

including the FC-4D cryo-microtomy apparatus; A-O cryo-preparations, as Cytocut vibrations; a Febercut cryostat; A/LK glass knife maker; diamond knives; and a Lutz (upper) knife microtome equipped with崩解, sharpened, diamond, phase, Normal Ultracut, ultrapure, and epifluorescence microscopy, as well as 200m, Polaroid, and video camera; a Genl ton mill; a Hitachi plasma ash; an Erichsen carboneter; a Hitachi vacuum evaporator; a Water desiccator; centrifuge; balances; oven; and three photographic darkrooms equipped with automatic film and print processors.

The facility also provides all necessary, supplies, and training for investigators involving microscopy, including specialized staining and embedding techniques, special metal coating, cryofixation, cryofracturing, cryo cryo-sectioning, cryo-epi-sectioning, immunostaining, immunocytology, immunohistochemistry, and cryosectioning, the preparation of material science samples for both TEM and SEM, including X-ray microanalysis, and other procedures. A limited cataloging test and review of recent applications of light, transmission, and scanning electron microscopy is also available.

High Field Nuclear Magnetic Resonance (NMR) Facility

Three superconducting spectrometers form the basis for the High Field NMR Facility. The Bruker WM-200 spectrometer operates at 300 MHz, and the Bruker MSL-300 operates at 300 MHz for proton observations. The Bruker AMX-200, operating at 400 MHz, is equipped with the most advanced commercially available NMR spectrometer. Very high spatial resolution and sensitivity can be achieved for structural determination of complex molecules. All three instruments are fully multifrequency and have variable temperature capabilities. Virtually any multipulse two-dimensional experiments can be performed on the spectrometers.

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

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

High Resolution Mass Spectrometry Facility

The High Resolution Mass Spectrometry Facility, located in the Chemistry-Biology Building, provides an instrument to the mass spectrometry 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 biorganics can be obtained (to 6000 amu). The most important of these areas include gas chromatography/mass spectrometry, fast atom bombardment mass spectrometry, and mass spectrometry.

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 non-aqueous, large polar, and for inorganic compounds that cannot usually be studied by other mass spectrometric methods. FABMS is particularly useful for biologically important compounds such as steroids, nucleic acids, oligosaccharides, antibiotics, and toxins.

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

The facility houses three mass spectrometers. The primary instrument is a VG DA-500 high resolution mass spectrometer, which is interfaced to a Varian MM-100D mass spectrometer, a VG-40 mass spectrometer, and a DEC PDP 11/73 data system. The instruments are equipped with positive and negative ion 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 second, a VG TR-30 triple quadrupole mass spectrometer interfaced to a VG 9000A GC and a DEC PDP 11/33 data system, permits GC-MS analysis. The third instrument, a VG TR-30 single quadrupole mass spectrometer, is interfaced to an HP 5890A GC and an INSTRUMENTS 3857 computer. The TR-30 is available for routine, low resolution CI, ESI, and GC-MS experiments. The user-friendly nature of the TR-30 data system permits hands-on sample analysis after a brief training period.

Large Scale Fermentation Facility

The Large Scale Fermentation Facility, located in the Bowen Science Building, makes possible the large-scale growth and recovery of such microorganisms as yeasts and bacteria.

With its sophisticated growth, monitoring, and fermentation facilities, the facility is one of only four medium- or large-scale fermentation facilities in the United States designed to grow microorganisms. It is one of only five or six such facilities also growing mammalian cells in 70-100 degree Celsius cultures.

The main director is available for consultation on medium composition, fermentor conditions, and growth monitoring. Further services are provided in areas such as inoculum preparation, medium preparation, fermentation, process modification, and harvest monitoring. Users can arrange for scheduled pilot studies, experimental strategy, and other technical and scientific services.

Social Science Laboratory

The University of Iowa Social Science Institute (SISS) is a research and teaching facility that supports the work of faculty and graduate students in a variety of departments on campus.
services at the center are tailored to the needs of entrepreneurs and investors. However, the University's Office of Technology Transfer aids in the process of converting inventions into commercial products, thereby creating new businesses and jobs.

The strength of the center lies in its ability to engage members with cross-disciplinary interests and provide resources for academic research and professional development. The University of Iowa is a hub for innovation and a leader in research and education, recognized for its contributions to fields ranging from medicine and engineering to the arts and humanities. The University of Iowa Research Foundation (UIRF) is dedicated to advancing research and innovation through the development of new technologies and the commercialization of intellectual property.

**Center for Advanced Studies**

The Center for Advanced Studies, a two-year program, is designed for residents from a broad range of disciplines and institutions to pursue interesting and promising scholarship. Located in the Old Carriage House, the center encourages community collaboration, as small teams, or in large seminars—to reflect, write, and exchange ideas. Fellowship grants for summer sessions or fall or spring semesters are available to support full-time or part-time research.

**Center for Global and Regional Environmental Research (CGRER)**

CGRER is a hub for interdisciplinary study of the physical, chemical, and biological processes that influence the earth’s climate and ecosystems. The center’s primary goal is to evaluate the effects of global climate change on the world’s ecosystems and human societies, and to develop strategies for mitigating and adapting to these changes. CGRER’s research focuses on understanding the complex interactions between physical, chemical, and biological processes, and on developing strategies for managing and mitigating the impacts of climate change.

**Public Policy Center**

The Public Policy Center is dedicated to fostering research and teaching in the area of public policy, with a focus on issues such as health, education, and the environment. The center is committed to engaging with policymakers and the public to address pressing issues and to promote evidence-based decision-making.

**Office of the State Archaeologist**

The Office of the State Archaeologist (OSA) conducts archaeological work that focuses on understanding the cultural history of Iowa, its environment, and its people. The OSA conducts research on prehistoric and historic sites, including those related to Native American cultures and European settlement.

**Student Impact**

The University of Iowa is dedicated to preparing students for success in their chosen fields, whether in academics, research, or the workforce. The center’s programs and initiatives are designed to support students in their academic and professional goals, fostering a culture of innovation and excellence.

**Iowa Community Support**

The University of Iowa is committed to community engagement and outreach, working with local organizations and businesses to support community initiatives and improve quality of life. The center’s programs and services are designed to support community development and provide resources for local residents.
The OSA conducts research, educational, and service activities throughout the state and provides consulting services for agencies, institutions, and firms that may require archaeological expertise. Its Fieldwork Emphasis archaeological survey and evaluation of development areas, such as new highway corridors, to record data before threatened areas. It also conducts field schools, research workshops, and cooperative research projects with other departments and agencies. Through OSA, University of Iowa students engage in a variety of laboratory and fieldwork.

Staff members of OSA collaborate on research projects with the Departments of Anthropology and Geology and with their colleagues in the Iowa Quaternary Studies Group. Several have attained faculty appointments and teach courses in the anthropology department.

OSA resources include more than 2,000 accessioned artifact collections that span the area, comparative and type collections that aid in identifying archaeological material; extensive archival and document holdings on Iowa archaeology and ethnology subjects; and field equipment designed to support large-scale archaeological projects.

Members of the University community and the public are welcome to visit the OSA. OSA offices, laboratories, and collections are located in Eastern.

Woog Computing Center

The C. P. Woog Computing Center (WCC), located in the University Services Building, provides research and instructional computing facilities to all faculty, students, and staff at The University of Iowa.

WCC maintains systems capable of a wide variety of applications. These facilities are accessible through networked terminals and workstations within the University.

WCC campus and external network connections provide University users with convenient access to external computing and information resources. On behalf of the University, WCC maintains compatibility with the CICHEF and BINTNET networks.

The WCC's Network Services Office plans, coordinates, installs, and manages service departments for network technology. It also provides consulting and management services for comprehensive network-based applications.

WCC's Personal Computing Support Center provides product referendum service for students, faculty, and staff. The center also provides no-cost computer support to campus computer users.

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

Numerous educational seminars and consultation on general computer use are available on an ongoing basis. Specialized consultation also is provided for equipment and software support, networking, desktop multimedia, calculations, and instructional design application.

Detailed information on computing facilities and services is available at the WCC Information Center. This information can also be obtained from the WCC Information Center in the Lindquist Center.

Evolutionary Ecology and Behavior

Chair: Sohren Hendrix

Faculty: Richard B. Baker (Genetics), Robert W. Queen (Biological Sciences), John F. Shingleton (Biological Sciences), Harvey A. O'Connor (Biology), David Weins (Chemistry).

Instructor: Tony L. Oreh (Anatomy/Physiology), J. B. Rado (Geology), Stephen Hendrix (Neuroscience), Diana Harlow (Biological Sciences), George Wiesenhutter (Geography), Jerry Clark (Chemistry).

Programs and Facilities

The Department of Biological Sciences offers programs of study leading to the M.S. and Ph.D. degrees with specialization in ecology and evolutionary biology, emphasizing adaptation, population ecology, and community ecology.

Particular strengths of the program are quantitative methods in ecology and evolutionary ecology, plant growth interaction, population biology, and tropical biology. There is a real and strong emphasis on balances between continuous experimentation and field observation. Laboratory research may include controlled breeding studies, which incorporate demography, behavior, life history, or other traits are investigated. Field research emphasizes the adaptive significance of traits, interactions between species, and populations and communities dynamics.

Opportunities for field research are provided initially in the Midwest, especially in Iowa and just outside Iowa City, with salt marsh, temperate deciduous forest, and old fields. The Iowa Lakeside Laboratory in Lake Okoboji, with research laboratory facilities, has proven to be an outstanding place to study amphibian biology, marine, and lake ecosystems.

Fieldwork by faculty and student also takes place worldwide. Recent studies have been conducted in East Africa, England, the Cariabean, Brazil, Central America, the Great Smoky Mountains, the Midwest, the Amazon, the Rocky Mountains, and the Florida Keys. The Smithsonian Tropical Research Institute in Panama and the French National de la Recherche in Afaica are strong sites used by student and faculty.

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, Colombia.

Indoor facilities permit a wide range of studies, with varied equipment for observation and analysis, such as microscopes, video cameras, walk in environment chambers, computer terminals, a GC/MS, and a FID GC/MS. The lab is based in the University.

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

Financial Support

All graduate students are offered financial support. Teaching assistantships, research assistantships, fellowships, and teaching assistantships are available. The Graduate School awards student travel for academic departmental activities. Student travel is typically supported by the NSF for students and faculty in the University. Computer facilities are available for graduate students, educational researchers, and faculty members.

Iowa Quaternary Studies Group

Professor: Robert P. Baker (Geology), Lox D. Deese (Geology), Burke C. Graham (Geology), Wieland M. Sladek (Geology).

Assistant Professors: Mary L. Wohlen (Archaeology), A. M. Chan (Archaeology), C. D. Pye (Archaeology), R. A. W. West (Archaeology).

Adjunct Assistant Professor: M. S. Schrader (Biology).

Programs and Facilities

Students working towards master's and doctoral degrees in the Department of Geology and Geochronology, Biogeology, and Biogeography may develop programs of study through cooperation with the Iowa Quaternary Studies Group.

Students with interests in Quaternary studies are encouraged to form programs with either or both of the Quaternary Research Center or the Department of Sedimentary Geology as focal points. Specializations in the Quaternary Research Center include climatic and biotic evolution, greenhouse gas concentrations, climate and sea level, and Quaternary landscapes.

Programs and courses in the Department of Sedimentary Geology include stratigraphy, sedimentology, sedimentary petrology, diagenesis, sedimentary basin analysis, and environmental and geochemical aspects of sedimentary processes.

Research by faculty and students includes paleoecological and paleoenvironmental studies using pollen, volcaniclastic sediments, and detrital minerals.
breathes, includes, insects, and vegetation; studies of geologic, geomorphology, geology, and stratigraphy; biotic geology; and stratigraphy; and stratigraphy and geosyncline; physical-geographic and climate; studies in the Middle East, Europe, and Asia; studies of human settlement and its environment and analysis 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 Great Barrier Reef.

Facilities available on campus include trailer-mounted and land-based coring devices, ultraviolet and weathering facilities, downhole and surface monitoring, and seismic equipment. All these facilities and equipment are available to students and faculty.

The Museum of Natural History and the Anthropology Department have a number of important research collections, including the Paleontological Repository (millions of specimens of various vertebrates and invertebrates) and the Herbarium (over 200,000 specimens of vascular plants and about 40,000 specimens of bryophytes). The Office of the Archeological Repository houses the State Archeological Repositories, which store artifacts from over 12,000 years. Other specialized collections of museum quality include fossils and minerals and over 5,000,000 photographs and slides.

Departmental facilities in the science and technology disciplines provide a wide range of research equipment and facilities. Students may use these facilities to pursue their interests and research.

Financial Support
Teaching and research assistantships are available to outstanding students. Assistantships vary from $1000 to $3000 per year. In most instances, students are allowed to work for the entire year. A wide variety of teaching and research assistantships are available to graduate students and faculty.

For more information, contact the Department of Geology, College of Biological Sciences, Geography, Geology, or Statistics and Actuarial Sciences, or the Director of the Department of Geology.

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. Each unit is described briefly in this section.

Institutes
- Iowa Institute for Dental Research: College of Dentistry
- Economic Research Institute: College of Business Administration
- Financial Markets Institute: College of Business Administration
- Industrial Relations Institute: College of Business Administration
- Institute for Health, Behavior, and Environmental Policy: College of Medicine
- Institute for Insurance Education and Research: College of Business Administration
- Institute of Agricultural and Occupational Health: College of Medicine
- Institute of Hydraulics Research: College of Engineering
- Iowa Institute of Biomedical Engineering: College of Engineering
- Eric B. McClure Institute of Accounting Research: College of Business Administration

Centers
- Alzheimer's Disease Research Center: College of Medicine
- Asthma and Allergic Diseases Center: College of Medicine
- Biomedical Consultations Center: College of Medicine
- Cancer Center: College of Medicine
- Cardiovascular Research Center: College of Medicine
- Center for Advanced Reproductive Care: College of Medicine
- Center for Asian and Pacific Studies: College of Liberal Arts
- Center for Biomolecular and Bioengineering: College of Pharmacy
- Center for Global and Regional Environmental Research: College of Engineering
- Center for Health Effects of Environmental Contamination: College of Engineering
- Center for Health Services Research: College of Medicine
- Center for International and Comparative Studies: Graduate College
- Center for Laser Science and Engineering: Graduate College

Center for New Markets: College of Liberal Arts
Center for the Study of Recent History of the United States: College of Liberal Arts
Center for University Libraries
Center for Geophysical and Environmental Studies: College of Engineering
Center for Residence in Pediatric Neurology and Urology: College of Medicine
Center on Aging: College of Medicine
Center for Research in Pediatric Neurology and Urology: College of Medicine
Clinical Research Centers: College of Medicine
Cochlear Implant Clinical Research Center: College of Medicine
Comparative Legislative Research Center: College of Liberal Arts
Cancer in the National Center for Gifted Education: College of Medicine
Cancer: Diabetes and Endocrinology: College of Medicine
Craniofacial Anomalies Research Center: College of Medicine
Hazardous Substances Research Center: College of Engineering
Iowa Center for Communication Study: College of Liberal Arts
Iowa Center for the Book: College of Liberal Arts
Iowa Center for Substance Abuse Research and Education: College of Medicine
Iowa Child Health Research Center: College of Medicine
Iowa Geriatric Education Center: College of Medicine
Iowa Institute of Biomedical Engineering: College of Engineering
Iowa Urban Community Research Center: College of Liberal Arts
Law Health Policy and Disability Center: College of Law
Manufacturing Productivity Center: College of Business Administration
Medical Health Care Research Center: College of Medicine
Midwest AIDS Training and Education Center (MATC): College of Medicine
National Center for Voice and Speech: College of Liberal Arts
National Center for the Study of Childhood: College of Law
National Resource Center for the Study of the Law: College of Liberal Arts
National Museum of Natural History: College of Medicine
National Resource Center for the Study of the Law: College of Liberal Arts

Public Policy Center: College of Liberal Arts
Science Education Center: College of Education
Small Business Development Center: College of Business Administration

Laboratories
Bone Healing Research Laboratory: College of Medicine
Iowa Lakeside Laboratory: College of Liberal Arts
Orthopaedic Biochemistry and Cell Biology Laboratory: College of Medicine
Orthopaedic Biomechanics Laboratory: College of Medicine
Translation Laboratory: Division of Continuing Education

Others
Biochemistry Prognosis Consortium: College of Medicine
Birth Defects and Genetic Disorders Unit: College of Medicine
Collaborative Studies of Allergic Disorders: College of Medicine
Diabetes Control and Complications Trial: College of Medicine
Gerontology Projects: College of Liberal Arts
Iowa Lakes Laboratory Project: College of Liberal Arts
Iowa Teaching Nursing Home: College of Medicine
Iowa Testing Program: College of Education
Office for Rural Education Policy and Planning: College of Education
Pharmaceutical Service: College of Pharmacy
University Examination and Evaluation Service: Office of Academic Affairs

Center for International and Comparative Studies
The Center for International and Comparative Studies (CICS) coordinates, promotes, and supports interdisciplinary international studies at The University of Iowa. A Title VI National Resource Center on International Studies, one of only 13 such centers in the United States, CICS serves the campus, the region, and the nation by making available the University's human and financial resources through conferences and lectures, publications, course programs, instruction, and research. Within the University, the center extends financial support to existing international programs and encourages institutional innovation and the enhancement of international studies. It supports faculty, staff and student research, undergraduate and graduate instructional programs, and public programs and outreach activities. In conjunction with affiliated programs, representation is maintained by faculty, staff, and students from all ten colleges of the University and each department in the University of Iowa.

The center is administered by a full-time faculty director, a full-time associate director, a full-time coordinator of international programs, and an executive coordinator. CICS offices and conference rooms are located in the Convention Center. The center is linked administratively to the Office of the Vice President for Academic Affairs.

Interdisciplinary Programs
Eight interdisciplinary programs are represented in CICS: Four promote instruction and research with a geographical focus: the African Studies Program (ASP), the Asian Studies Program (ASP), the Latin American Studies Program (LASP), and the Middle Eastern, Central Asian, and European Studies Program (MECEP). Three others—along with the Global Studies Program—also are involved in undergraduate international programs in the College of Liberal Arts. (For more information, see the appropriate departmental sections of the College of Liberal Arts section of the Catalog.)

The remaining programs pursue independent and research activities along topical lines: the Global Studies Program, the Project for International Communication Studies (PICS), the Program for International Development (PID), and Women's and International Development (WID).

The center also houses or works closely with eight affiliated programs: the Asia, Africa, and Traditional Technologies in Development Project, the Development Support and Communication Program, the Foreign Language Area Program, the International Health Program, the Center for Asian and Pacific Studies, the International Relations and International Political Science Program, the International and Comparative Law Program, and the Project for Advanced Study of Art and Life in Africa.

International Research
The center sponsors research and curriculum development grants to faculty and staff, language and area studies fellowships to graduate students, and international research fellowships to undergraduate scholars. It supports research projects in Africa, Asia, Europe, Latin America, countries of the former Soviet Union, the Middle East, and the United States that involve faculty and staff exchange, technical assistance, development consultations, and workshops. In conjunction with the University of Iowa Libraries, it also publishes the minority of research in the Iowa International Studies Project. The Journal of International and Comparative Studies is published in print and is available in electronic format. The Journal is published by the University of Iowa Libraries, and the Iowa International Studies Program.

Iowa Lakeside Laboratory
The Iowa Lakeside Laboratory, a field station for the biological and physical sciences on Lake Okoboji in northwest Iowa, is the site of a cooperative program in teaching and research carried on under the auspices of the Iowa State University, the University of Northern Iowa, and the University of Iowa. Two weeks each are paid during July, July, and August. Fellowship for graduate research is available. The "Iowa Lakeside Laboratory" is operated by the University of Iowa Libraries, the College of Liberal Arts section of the Catalog.

Instructional Programs
The center supports instruction through courses, seminars, summer workshops, and curriculum development grants. In conjunction with academic units, it offers a certificate in African studies, global studies, and Latin American studies; undergraduate minors in global studies and Latin American studies; a minor in American studies, and a master's degree in development studies.

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

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

The institute offers students a seminar and a related arts series that focus alternately on topics of social, aesthetic, or theoretical interest or on specific cultural eras and thereby attract a specific campus or community. The Festival in Cinema and Culture is produced each year; the festival includes a series of film series and programming at the campus' John and Mary Pappajohn Cinema Center.

Iowa Lakeside Laboratory
The Iowa Lakeside Laboratory, a facility for the biological and physical sciences on Lake Okoboji in northwest Iowa, is the site of a cooperative program in teaching and research carried on under the auspices of the Iowa State University, the University of Northern Iowa, and The University of Iowa. Two weeks each are paid during July, July, and August. Fellowship for graduate research is available. The "Iowa Lakeside Laboratory" is operated by the University of Iowa Libraries, the College of Liberal Arts section of the Catalog.
Traditionally, the strength of a library system has been measured by the number of volumes it held. Because of the substantial, seemingly geometric growth in recorded information, and because of assiduous resources available to acquire this information, it is expected that an increasingly important measure of library effectiveness will be the staff's ability to identify ownership of material at hand locally and to borrow the material in a timely fashion.

The University of Iowa Libraries is a member of several consortia: the Research Libraries Group, the Iowa Computer Network, the National Library of Medicine's Regional Medical Library Network, and is a resource-sharing network for the CIC institutions (the Big Ten and the University of Chicago). Through these organizations, and expansions through the Research Libraries Group, faculty and students at Iowa have gained greatly enhanced access to material held at other institutions.

The University of Iowa Libraries is a major player in the preparation of health professionals for Iowa and the nation. In its health science center, the University of Iowa Libraries have found the academic programs, clinical facilities, and service agencies to propose students and practitioners to serve a wide spectrum of health-related issues ranging from the new to the most advanced diagnostic and treatment procedures—and is search for entirely new knowledge.

As soon as they have acquired basic knowledge in the sciences, medical students begin a long, hard task to learn how to live. Following the examples and advice of well-traveled practitioners who teach while providing health care for thousands of patients from the community, state, and region. The University of Iowa Health Science Center thus is a stimulus center of learning and of service. It is one of the most advanced, comprehensive health science centers in the United States.

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

Programs, faculties, courses, and resources of the Colleges of Dentistry, Medicine, Nursing, and Pharmacy are described in other sections of this Catalog. Other health science-related units and related programs are identified below.
The council coordinates clinical services and training in speech-language pathology and audiology. It is a branch of the Department of Iowa Hospitals and Clinics (Division of Developmental Disabilities, Department of Pediatrics, Child Health Specialty Clinics, Department of Psychiatry—Child Psychiatry Service, Department of Neurology—Head and Spinal Injury, Department of Neurology; the Veterans Affairs Medical Center in Iowa City; and the Department of Speech Pathology and Audiology).  

**Dental Health Bureau**  

The Oakdale office of the Dental Health Bureau is a branch of the Dental Health Bureau of the Iowa Department of Public Health. The bureau's primary purpose is to promote the dental health of Iowans through planning, organizing, and providing support services. The bureau provides dental health education and guidance to all sectors in an effort to improve the dental health of Iowans. It conducts TEAM dental programs at Iowa elementary schools with the assistance of Iowa county dental hygiene students, who work under the supervision of public health dentists assigned from the bureau. These programs include a thorough, good dental hygiene, precision, a fluoride program, and consultation in dental health.  

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

**Oakdale Research Campus**  

Located seven miles southwest of Iowa City, the 250-acre University of Iowa Oakdale Research Campus is adjacent to the new Oakdale Research Park. Health-related programs based on the campus are the Cerebrovascular Center, Dental Center for Clinical Studies, Institute of Agricultural and Occupational Health, Regional Cancer Center, Cancer Research and Treatment Center, and Center for the Health of the Environment.

The Center for Advanced Studies provides office space and support for faculty members engaged in novel or developmental research.

Other health-related programs on the Oakdale campus are Iowa COMPASS, Iowa research, physics research, Materials Bonding Task lab, Animal Care Research Facility, University Hospital, Air Emergency Hospital, and Fred Sligh Research Laboratory.

The Oakdale Research Campus is administered by the Office of the Vice President for Research for "facilitating science and research activities" in this section of the Oakdale.

**Ronald McDonald House**  

In July 1985, a 23-bedroom Ronald McDonald House was opened to provide living quarters for families of seriously ill children who receive medical treatment at the University of Iowa Hospitals and Clinics. It is located on the campus of the University of Iowa Hospitals and Clinics in Iowa City. Many of these children and their families must travel long distances from their homes. To help make these families’ time easier, a group of parents, volunteers, University Hospital staff members, and McDonald's restaurant owners established the Children's Family Foundation, a non-profit corporation, which helped plan and raise the money to build the house, and since the University loaned the land on which the house was built. Since its opening, the Ronald McDonald House has opened, more than 12,000 families have stayed at this home away from home.

**University (State) Hygienic Laboratory**  

One of the University's custodial health services, the University Hygienic Laboratory directly serves much of its environmental research. The laboratory is engaged in research on water quality, food, and air quality, and consulting services in bioremediology, bacteriology, epidemiology, toxicology, and radiology.

As part of the University of Iowa Library, the Medical Library is part of the OAKES automated library system. All materials acquired since 1980 are cataloged in OAKES, as are all current periodicals and microforms still being processed for collections.
University Hospital School

As Iowa's University Affiliated program for children and young adults with developmental disabilities, the University Hospital School offers clinical services under the auspices of the Division of Developmental Disabilities within the Department of Pediatrics. In services are a component of the university's basic stress and special services of The University of Iowa Hospitals and Clinics. Interdisciplinary staff is the education of medicine, dentistry, education, nursing, nutrition, physical and occupational therapy, rehabilitation engineering, recreation therapy, psychology, social work, speech pathology and audiology, work with clients. Outpatient services provide comprehensive evaluation of the disabili of intants, children, and young adults. Programs to enhance function and quality of life are recommended in consultation with the patient's family, their respective, their family members, and community service providers. Competitively with local service is given high priority. Special clinics include the Child Development Clinic, Hearing Impaired Clinic, Neurodevelopmental Clinic, and Cerebral Palsy Clinic. Cerebral Palsy and Young Adult Clinic.

Short-term admissions to the inpatient unit may for relatively specific goals that can not be accomplished on an outpatient basis. The staff coordinates educational and community services for children and young adults.

The Iowa University Affiliated Program cooperates with a variety of state, regional, and local agencies to promote services for persons with disabilities. Pediatri specializes by time, location, and outreach information. It also offers a variety of educational and recreational activities for students. For community service providers, and for others. These activities include clinics; conferences, lectures, workshops, and seminars. They may also be held at the University of Iowa or at a community center.

Lectures in the division of genetics and molecular biology are also available, and the clinical staff of the Department of Pediatrics is located in the University Hospital School.

Wendell Johnson Speech and Hearing Clinic

Located in the Wendell Johnson Speech and Hearing Center, the clinic provides evaluation and rehabilitation services for individuals with speech, language, or hearing disorders. Counseling, education, and treatment programs are available for those with speech, language, hearing, and reading problems. Counseling services are also offered for those with speech, language, hearing, and reading disorders. Speech-language pathology and audiology services are offered to individuals with speech, language, hearing, and reading disorders. Services include

diagnostic examinations, consultations, individual, group, and small group sessions, and referrals to other clinics as needed.

Veterans Affairs Medical Center

Medical students, residents, and others in health-related fields receive much of their clinical training in this society-assessed 202-bed facility, which serves as a tertiary referral center for the Veterans Affairs Medical Center at Iowa City and the VA cooperative center in Des Moines. The VA cooperative center is located in Des Moines, and has 253,130 inpatient visits in its primary service area of eastern Iowa and western Illinois. A full range of inpatient rehabilitation, inpatient and outpatient mental health care and more than 25 primary and specialized services are provided, with more than 3,000 admissions and 1,400 outpatient visits made to the center annually.

The Veterans Affairs Medical Center, formally affiliated with the University's basic health science colleges, offers many training opportunities in clinical pharmacology, genitourinary, cardiology, neurology, oncology, and applied immunology. The center was instrumental in the creation of a new cadre of medical students. It provides up-to-date facilities for radiology, nuclear medicine, otolaryngology, and oncology. A new outpatient clinic to open in 1992 will function as a satellite clinic of the Iowa City campus, bringing a new cadre of students and residents to the University of Iowa.

Research also plays a major role in the medical center. Many research awards are made to the Center for Biochemistry and Research Center (SBRC), Medical School Laboratories, and Carneiro Laboratory. It is among the top five activities in VA research funding.

The Iowa Center for the Arts

Located across the Iowa River from the University of Iowa campus, the Iowa Center for the Arts is a non-profit cultural center not only for the University community but for the local arts and community. The center, which celebrated its 5oth anniversary in 1987, also houses the University's newly established Center for the Arts.

The arts and culture facilities include the Center for the Arts, which is open to the public and performs exhibits in the Arts Building, Music Building, School of Art and Art History, the Museum of Mr. and Mrs. Audborn, and the center's various performing arts showcase.

In addition to activities housed in these facilities, various educational programs in other parts of the campus reflect the University's strong commitment to creative activity.
structures and the educational and cultural offerings of the Iowa Center for the Arts. In addition to memories from the story of Iowa and the federal government, private contributions from growing numbers of corporate and individual sponsors have enabled the museum to expand 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 long been one of the great strengths of the university. The school has provided a home for the study of art and art history for more than a century. The school offers undergraduate and graduate degrees in art and art history, and is home to the world-renowned Art History Program.

The school's programs are designed to provide students with a comprehensive education in the history, theory, and practice of art and art history. The school's faculty are experts in a wide range of fields, including painting, sculpture, photography, and digital media.

The school's facilities include a state-of-the-art art history building, a gallery for contemporary art, and a museum for the permanent collection.

In addition to its academic programs, the school is home to a number of cultural institutions, including the Museum of Art, the University Art Galleries, and the Des Moines Art Center.

Museum of Art

As one of the two largest art museums in Iowa, the University of Iowa Museum of Art (UIMA) recognizes its responsibility to serve a varied audience. The museum has a diverse collection, which includes over 20,000 works of art from all over the world.

The museum's collection includes works by American and European masters, as well as contemporary artists. The museum also features a permanent collection of American art, including works by Robert Motherwell, Arshile Gorky, and Jackson Pollock.

The museum's programming includes lectures, workshops, and special exhibitions. The museum also offers a variety of educational programs, including tours for school groups and public programs.

Iowa's University Theatres

Iowa's University Theatres is the production arm of the University of Iowa. The theatre produces a variety of productions, including plays, musicals, and opera. The theatre also produces a variety of educational and community programs.

In addition to its productions, the theatre offers a variety of educational programs, including workshops, classes, and lectures.
the talents and resources of other units of the Iowa Center for the Arts, particularly Dance.

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

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

Hancher Auditorium

Hancher Auditorium is a regional and national cultural resource of the midwest. The 2,664-seat facility opened in 1972 and its first two decades had included audiences of nearly thirty million people. The auditorium is fully accessible to the mobility impaired including wheelchair seating. Hancher also has installed new flat floor seating in the second floor with increased legroom. The 2,000-seat Kennedy Center, 5,000-seat Lincoln Center, 1,500-seat Hollywood Bowl, 1,900-seat performances at Le Seuwe broke Hancher box office records.

Hancher has highlighted international performances, including the electrically driven drummers of the German group Scultura, and the South African indigenous singing group The Women. The Latin stylings of the Brazilian Batucada, the Latin stylings of the Miami Sound Machine, and the Indian stylings of the Kayak Chorus, Laurie Anderson, and Philip Glass.

National touring acts include the Chicago Symphony Orchestra and the Broadway hit. In 1995, 3000 performances at the Iowa Center for the Arts are available to Iowa communities through the Arts Education Outreach Program, a collaboration between the University's cultural resources and arts educators. The program reaches new audiences and serves a network of public and private school partnerships, including colleges, schools, arts councils, concert associations, libraries, churches, centers for women and the handicapped, service organizations, and other special community organizations.

Consistent with the University's resources, the educational outreach programs tailer to meet local needs. In addition to programming throughout the state, the Arts Education Outreach office schedules on campus concerts, workshops, performances for living audiences, and other educational programs.

Department of Dance

The Department of Dance, housed in Halsey Hall, resides in the center of facilities in the nation: six studios, two classrooms, audio-video computer rooms, and a 230-seat prototyping and performing space in North Hall. Teaching responsibilities are shared by seven full-time faculty and six part-time instructors. Ninety percent of the technical staff are accompanied by support at both full-time and part-time positions, derailing the department's production needs. Students in the department have many opportunities to perform. The University of Iowa touring company Invitations Company has successfully performed with the Arts Education Outreach Program, the yearly Dance Gala held in Halsey Hall, Symphony, Student, and Special Events in the Iowa Center for the Arts, and community performances.

Teaching opportunities for graduate and undergraduate students can be found in the Arts Education/Outreach Programs, Youth Dance Programs, Satisfaction Dance, Scholarship Dance, Student and Iowa Center Dance Company, and graduate teaching assistantships. Outstanding faculty and artist faculty perform in Hancher Auditorium.

Media Studies and Film

A division of the Department of Communication Studies, Media Studies and Film offers courses and grocery in electronic and visual arts. Its studio in video and film produces a weekly television show with students in other units of the Iowa Center for the Arts. The show produces video and film programs on other units of the Iowa Center for the Arts, as well as video and films with other units of the Iowa Center for the Arts with new audiences through various channels. The department produces videos of music videos with the University of Iowa's arts programs, a musical association with the Opera Theater in stages of the Iowa Center for the Arts.

Writing Programs

A creative writing program in the Department of English, the Writers' Workshop provides cultural, intellectual, and literary opportunities to students. The workshop programs include courses, workshops, and consultation with the Iowa Writers' Workshop.

The Iowa Writers' Workshop is the largest of the nation's writers' workshops and is a national leader in the advancement of the literary arts.

Windover Press

The skills of making books by hand—using handmade papers, handmade illustrations, handmade type, and hand-set type—may be preserved in the workshop of the Windover Press.

The Windover Press is one of the nation's small presses of distinguished limited editions. Its most recent publications have included fine books in the excellence of the American Society of Arts, which brave the competition in the world of fine books.
MUSEUM OF NATURAL HISTORY

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

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

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

The museum's Iowa Hall gallery features 60 evolutionary exhibits laid out for space, theme, and time, illustrating Iowa's natural heritage—its geology, native culture, and ecology. Exhibit highlights of Iowa Hall include the Marquette-Joplin diorama, Deovian reef, Mosquito lodge, and a life-size reconstruction of an Ice Age game ground sifter.

In first hall, the Lavan Island cyclist is a large and well-known bird habitat exhibit comprising a complete representation of a bird island ecosystem. Other exhibits in the Henry Hall, Iowa, Louisiana swamp, and cane, and cane on the South Louisiana prairie. The cage exhibit includes both the smallest and the most威能的 birds that appear on the prairie during migration. Monitors for exhibits feature narratives, displays, jokes, and historical notes, and games for children.

The major invertebrate phyla are represented in several exhibits and include familiar groups such as annelids, echinoderms, molluscs, and crustaceans, among others. Ectoentozoans in the museum present animals from many parts of the world, Indian and Eskimo materials, including basketry and canal navigation, and 18th century, are exhibited. The museum of human cultures through 13 million years of time is located in a display featuring reptiles of fossils from Africa, Asia, and Europe.

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

CAPITAL

Iowa's Old Capitol, a National Historic Landmark, has served Iowa for nearly 150 years as a seat of government and government employees in the early 1840s. It served as Iowa's old territorial capital from 1842 to 1846, and as the first state capitol from 1846 until 1877, when it was named the state capitol. On December 7, 1986, Old Capitol became the University's first permanent building.

An example of Greek Revival architecture, Old Capitol was restored in the 1970s to reflect its history and to serve as a living museum providing space for ongoing University functions. Two rooms have been restored to the 1860s to reflect the University's long and continuing use. Other rooms have been authentically remodeled, some with what may be original pieces used by state legislators in the 1860s. One of the building's most unusual features is its revolving spiral staircase, which dominates the central hallways.

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

OTHER SERVICES

Evaluation and Examination Service

The Evaluation and Examination Service is a non-degree and examination service that helps students and advisors make decisions related to course selection. In addition, the office provides registration materials, evaluates test scores, and provides assistance to students with disabilities. The office also provides standardized test programs, including the American College Testing Program (ACT), Medical College Admission Test (MCAT), Graduate Record Examination (GRE), Graduate Management Admission Test (GMAT), Law School Admission Test (LSAT), and the Test of English as a Foreign Language (TOEFL).

The exam service provides forms, and exam administration helps conduct exams and print and test forms. The office also provides additional support within the registration and testing process. The office offers error notices on questionnaires and design data and collection processing.

Printing Department

The Printing Department is the University's official printer, serving faculty, staff, and students. The full production facility offers design, editing, composition, prepress, prepress, printing, binding, letter sorting, and duplicating services. The department also functions as a service facility for student publishers, with a wide range of equipment, forms, and software.

Radio Broadcasting Services

WUSL and KIU FM extend the resources and activities of the University to the people of eastern Iowa through 18 hours of daily programming. The broadcasting schedule contains programs of educational, cultural, and informational programming that are generally available elsewhere. As an affiliate of National Public Radio (NPR), WUSL contributes program materials to a national network of more than 300 commercial and public stations. The main studios and offices are located in the Engineering Building and a free copy of the WUSL/KIU Program Guide is available.

University of Iowa Alumni Association

Since its organization in 1867, the Alumni Association of the University of Iowa has worked to promote the welfare, honor, and friends to continue their involvement with the University. In addition to offering traditional programs such as class reunions, the association promotes an annual program that sponsors a network of alumni clubs that take the University's mission to alumni. Through the state and national alumni association and the University of Iowa Alumni Association, it is able to keep 64,000 members up-to-date on University news and alumni achievements.

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

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

University of Iowa Foundation

The University of Iowa Foundation was organized in 1955 to help the University obtain the necessary educational benefits from private giving. The foundation is the preferred channel for private gifts to The University of Iowa through annual giving programs, endowment gifts, and gifts for scholarships, fellowships, and special-purpose campaigns.

The foundation is a nonprofit corporation empowered to solicit and receive gifts and
Office of University Relations

The Office of University Relations (OUI) works to promote understanding of, participation in, and support of the University’s mission and activities, both within the University community and among the general public. It seeks to maintain an effective communication program that uses both internal and external media. It provides services in public relations, fundraising, and marketing.

University of Iowa Press

The University of Iowa Press was established in 1921 to publish scholarly and creative work in the arts and sciences. The Press produces over 100 titles each year and is supported by the University and the College of Liberal Arts and Sciences.

University Relations Publications

University Relations Publications publishes a variety of publications, including the University's newsletter for faculty and staff, the alumni magazine, and the annual report. They also produce special publications for external audiences.

University Ombudsperson

The Office of the University Ombudsperson serves to resolve disputes and disputes brought forward by all members of the University community, including students, staff, and faculty. It also promotes a culture of fairness and justice through the handling of complaints and grievances.

University Relations

University Relations coordinates the activities of the University’s marketing and communications department, including public relations, media relations, and publications. They work to promote the University’s mission and activities through various channels, including print, web, and social media.
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Minors

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

The college offers a minor in the following fields: actuarial science, Afro-American studies, aging studies, American studies, ancient civilization, anthropology, art, Asian languages (Chinese, Hindi, Japanese, Japanese), Asian studies, astronomy, biochemistry, biology, classics, communication studies, comparative literature, computer science, dance, economics, English, French, geography, history, German, global studies, Greek, Hindu, Italian, Japanese, and mass communication, Latin, Latin American studies, linguistics, languages, law and economics, medicine, music, philosophy, physical education, physics, political science, psychology, religion, Russian, Russian, and Spanish (Latin), social science, sociology, Spanish, statistics, theater arts, and women's studies.

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

Interdisciplinary Programs

A number of interdisciplinary programs in the College of Liberal Arts offer majors, minors, or certificates. These programs include African American studies (certificate or option in B.A. in African-American world studies); Afro-American world studies (B.A. or minor); aging studies (minor or certificate); American studies (B.A. or minor); biochemistry; (B.A. or minor); comparative literature (B.A. or minor); global studies (minor, certificate, or honors interdisciplinary major); interdisciplinary studies (B.A.); international business (certificate); Latin American studies (minor or certificate); literature, language, and rhetoric; philosophy and ethics of political economy (B.A.); Russian, East European, and Eurasian studies (B.A.); science education (B.S.); and women's studies (minor). Specific requirements for these interdisciplinary degree programs, minors, and certificates are described in the departmental sections of the Catalog.

Honors Interdisciplinary Major

Honors students may pursue an individually planned order of study in one or more of the programs offered in the honors section and may pursue the degree with interdisciplinary honors. The honors major consists of 33 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 mathematical social science.

**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 Dental College or to any accredited medical or dental school in the United States that offers advanced degrees.

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

- satisfied the General Education Requirements;
- completed the requirements for a major, earned at least 64 semester hours at UI undergraduate;
- satisfied the residence requirement of the College of Liberal Arts.

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

Students who plan to accept early admission to the College of Medicine or Dental College and who wish to receive a baccalaureate degree from the College of Liberal Arts must request a degree estimation from the Office of the Registrar prior to 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 Colleges of Engineering and Liberal Arts. Successful candidates are awarded a B.S. (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 the combined program usually earn 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 in their major department in the College of Engineering and the other in their major department in the College of Liberal Arts.

To enter the combined degree program, students must be eligible for admission to the College of Engineering. Interested students should schedule an appointment with the assistant to the dean of the College of Engineering. Students must be approved by the chairperson of the Engineering Degree Program by the College of Engineering and must be admitted to both the College of Engineering and the College of Liberal Arts.

Students who enter the program are required to complete the General Education Requirements and the requirements for the major in the College of Liberal Arts.

It is crucial that students enroll in the appropriate mathematics and engineering courses early in their course of study to meet the complexity of their program. The specific engineering courses taken by students vary according to the engineering major selected. Since courses in major sciences, mathematics, humanities, and social sciences are accepted regularly for credit in both colleges, students may be able to satisfy the requirements of both colleges by taking a particular course.

To qualify for both the combined degree program, candidates must complete an overall total of 128 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 program in the Colleges of Medicine and Liberal Arts. Although both the College of Medicine and the candidate's academic program in the College of Liberal Arts, they must be eligible for admission to College of Medicine baccalaureate degree programs in medical technology, nuclear medicine technology, or physician assistant.

Students who select this program must meet the baccalaureate degree requirements specified by both colleges, and usually do so in about the academic year. 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 the major department of the College of Medicine and the other in the major department of the College of Liberal Arts. Candidates must satisfy all requirements for both degrees and complete an overall total of 124 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 use the director of the baccalaureate program of their choice in the College of Medicine.

**Two Bachelor's Degrees**

Students may be awarded two different bachelor's degrees from the College of Liberal Arts, either simultaneously or successively, if they meet the requirements described below. For example, a student may earn a B.S. in biology and a B.A. in English, or a B.S. in mathematics and a B.M. (Bachelor of Music).

**Simultaneous Degrees**

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

**Returning for a Second Degree**

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

Students may not earn a second B.A. if they already have a B.A. from the College of Liberal Arts, nor may they earn a second B.S. if they already have a B.S. from the college. Students may, however, earn a bachelor's degree in the same major or one major in the second major ("Returning for a Second Major or Bachelor's Degree") in the section of this catalog.

Holders of B.A. or B.S. degrees in liberal arts disciplines are considered to have satisfied all the General Education Requirements except foreign language. Holders of other degrees must satisfy the General Education Requirements. Students with bachelor's degrees from other colleges or universities may earn a bachelor's degree from the College of Liberal Arts by meeting the requirements described above.

**Requirements for Graduation**


**Total Hours Earned**

Students who enter a negotiating freshmen must earn a minimum of 124 semester hours of credit. The number required of a transfer student is calculated on the student's admission degree.**
Satisfactory Grade-Point Average

The general requirements for graduation are based upon the quality of work completed.

Candidates for the B.A., B.S., B.F.A., and B.M. degrees satisfy the qualifying requirements for graduation by earning a minimum grade-point average of C (2.00) in all college work attempted, all work undertaken at The University of Iowa, and all work attempted in the major field, including 200 at University of Iowa major work.

Candidates for the B.G.S. or B.A. in interdepartmental studies satisfy the qualifying requirements for graduation by earning a minimum grade-point average of C (2.00) in all college work attempted, all work undertaken at The University of Iowa, and all work attempted in the major field.

Candidates for the B.G.S. degree must earn a grade-point average of 2.00 in all college work attempted toward the degree, all work attempted after admission to the program, and all upper-division work.

Residence

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

Residence instruction includes course work at other colleges and universities, course work completed by the student in residence in other undergraduate colleges of The University of Iowa, and all work by correspondence, including University of Iowa Correlation Correspondence study courses.

B.S. students who are not in residence or the residence requirement may be met as follows: 30 semester hours of credit at The University of Iowa after they are admitted to the program.

Students in the combined degree program in the Colleges of Engineering and Liberal Arts must complete 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.

Students in the combined degree program in the Colleges of Medicine and Liberal Arts must complete 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.

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. Unified Program students must follow a prescribed sequence of study that fulfills all General Education Requirements. See ‘Unified Program’ below.

Rhetoric: one or two courses (4-8.0 s.h.)

Mathematics: for students admitted as degree candidates to the College of Liberal Arts before Fall 1990: see ‘Mathematics’ below.

Physical education: three or four courses (4 s.h.). B.S. students are exempt from this requirement.

Foreign language: fourth semester level of college language or fourth-year level of high school language (10.0 s.h.)

Foreign civilization and culture: one approved course (3-4.0 s.h.)

Historical perspectives: two approved courses (6 s.h.)

Humanities/Arts/Scis.: The Interpretation of Literature and two approved courses (9 s.h.)

Natural sciences: two approved courses, one of which must be a laboratory component (7 s.h.)

Quantitative or formal reasoning: one approved course (3.0-4.5 s.h.)

Social sciences: two approved courses (6 s.h.)

Unified Program

The Unified Program (UP) is a four semester series of general education courses for a small group of students who choose the program when they are freshmen. The 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 interchangeably with an equivalent approved course. All students in the UP take the same course and have the same instructor. Students may leave the program at any time and satisfy the General Education Requirements in other ways, but only freshmen must enter the UP. See ‘Unified Program’ in the Catalog.

Rhetoric

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

All students, regardless of the number of hours they transfer, must satisfy the rhetoric requirement.

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

by passing 100 and 102 Rhetoric I and II (8 s.h.)

by passing 10.3 Accelerated Rhetoric (4 s.h.)

by passing the speech test and 10.4 Writing and Reading (5 s.h.)

by passing the essay test and 10.0 Speaking and Reading (5-6 s.h.)

by passing both the speech and essay tests.

Proficiency Examinations

Placement and exemption tests are given during the first week of classes for students registered in rhetoric courses. Examination from part of all of the basis of these. Academic credit is only given for further information, see ‘Rhetoric’ in the current Schedule of Classes.

Students who have undergone formal assessment procedures for students with Disabilities and who are found to be learning disabled in rhetoric may request reasonable accommodations in order to continue to meet 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 admitted as degree candidates to the College of Liberal Arts before August 1990 must satisfy a mathematics requirement. The requirement is satisfied 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.

Physical Education

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

by completing 1 semester hour course in physical education with (285.1) or (285.2), for a total of 4 semester hours courses, or

by completing 285.3 Fitness and Wellness for Life (2 s.h.) and two 1 semester-hour courses in physical education, for a total of 4 semester hours. Students also may take exception from part or all of the requirement by passing tests in specific physical education skills (see below).

Only courses 285.1, 285.2, and 285.5 may be used to satisfy the requirement. Courses 285.1 and 285.2 are offered every semester; 285.5 awards letter grades only. 285.1 and 285.2 are skills courses, and are offered under these numbers have activity or sports titles and levels of proficiency. 285.1 designates courses that meet for the first three weeks of the semester; 285.2 designates those that meet for the second half of the semester. 285.5 Fitness and Wellness for Life (2 s.h.) is lecture-discussion courses, meets for the entire semester. Students who take 285.5 must fulfill the requirements of the requirement by taking a total of 7 semester hour credit courses.

If a student Reese the same skills courses or takes a more elementary course, the Office of the Registrar assumes a waiver for either duplication or progression. In eliminating course credits or using the second-semester option, students must complete or take the same activity or sport at the same level.

Exemption Tests

Students may be exempted from part or all of the physical education requirement for academic and or 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 exemptions. For more information, see "Physical Education Skills" in the current Schedule of Courses.

TRANSFER STUDENTS

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

- by transferring 4 semester hours of college physical education course work (skills, sports, and activities),
- by achieving an activity rating (60 or above) before admission to the University of Iowa, or
- by earning enough credit in physical education at Iowa to make a total of 4 semester hours combined with physical education credit 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 date of their graduation are exempt from the physical education requirement.

VETERANS

Veterans may be exempted from this requirement by presentation of the Board of the Regents official evidence of having completed a basic training program in a branch of the armed forces.

B.S. STUDENTS

Credit is granted for the B.S. degree are exempt from the physical education requirement.

Foreign Language

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

All degree candidates (B.A., B.S., B.F.A., B.G.S., B.L.S., and B.M.) who are admitted to the College of Liberal Arts fall semester 1990 and after must satisfy the foreign language requirement in one of the following ways:

- by completing the fourth-year level of a foreign language in high school;
- by completing the fourth-year level of college language at The University of Iowa, at another college or university, or at study abroad;
- by completing sequential years of one language in high school followed by sequential semesters of the same language in college; one year of high school work 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;
- by passing an achievement test measuring proficiency equivalent to that usually attained after four semesters of college study.

B.S., B.F.A., B.G.S., and B.M. candidates who were admitted to the College of Liberal Arts before fall semester 1990 and who will graduate by August 1994 may satisfy either the fourth-year language requirement described above or a second-semester requirement. Complete information is available in the Office of Academic Programs.

B.A. candidates must satisfy the fourth-semester requirement regardless of their area of concentration.

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

FOREIGN LANGUAGE PLACEMENT

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

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

Effective fall semester 1992, entering students who place at the third-semester level or higher:

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

Entering students who place below the third-semester level:

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

Students who have not met the admission requirement in a foreign language but who place below the third-semester level are not permitted to register for a free- or fee-based review course in that language. Such students continue study in that language, only must register for the designated review course (e.g., 9-10 First-Year French Review, 13-14 First-Year German Review, or 30-35 Elementary Spanish Review).

FOREIGN LANGUAGE INCENTIVE PROGRAM

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

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

For more information on eligibility and restrictions, see the handbook "Foreign Language Placement Test" published by the Office of Academic Programs.

SATISFYING THE REQUIREMENT BY EXAMINATION

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

Foreign Languages Offered at Iowa

Students proficient in French, German, or Spanish should take one of The University of Iowa's placement examinations regularly administered to entering students during the summer orientation programs and each semester just before the opening of classes. Proficiency examinations in Chinese, Danish, Dutch, ancient Greek, Hindi, Italian, Japanese, Latin, Persian, Russian, Sanskrit, and Swahili are arranged by contacting the appropriate department. Academic credit is not awarded for successful completion of these examinations.

Students who earn satisfactory scores on the Advanced Placement Program examinations in French, German, Latin, or Spanish may be awarded credit for proficiency if information is available from the Eta Lambda Beta Service.

Foreign Languages Not Offered at Iowa

Students proficient in a foreign language not regularly offered at The University of Iowa should apply to the Office of Academic Programs for permission. In some cases, arrangements can be made for an on-campus proficiency evaluation. Earnings are subject to limits only for a limited number of foreign languages, however, currently, immunizations can be made for students majoring in the language. Arabic, Yiddish, Farsi, modern Greek, modern Russian, Korean, Latin, Mesopotamian, Norwegian, Polish, Portuguese, Russian, Swedish, Urdu, and Vietnamese. Academic credit is not awarded for successful completion of these evaluations. Students proficient in a language for which testing is not available must complete the requirement by an approved method.

STUDENTS WITH DOCUMENTED LEARNING DISABILITIES

Students who have undergone formal assessment by the Office of Services for Persons With Disabilities and are found to have a language learning disability may substitute other approved courses to satisfy the foreign language requirement with substitutions approved by the Office of Academic Programs.
2:8 Human Genetics 3 s.h.
4:5 Genes and Society 3 s.h.
4:5 Technology and Society (Lab) 3 s.h.
4:7 General Chemistry I 3 s.h.
4:8 General Chemistry II 3 s.h.
4:13 Principles of Chemistry 3 s.h.
4:14 Principles of Chemistry II 3 s.h.
4:6 Principles of Chemistry Lab I 2 s.h.
12:1 Seminar in Earth History and Resources 2 s.h.
12:4 Evolution and the History of Life (Lab) 2 s.h.
12:5 Introduction to Geology (Lab) 4 s.h.
12:6 Introduction to Earth (Lab) 2 s.h.
12:14 Lecture in Evolution and the History of Life 2 s.h.
12:23 Earth History and Resources (Lab) 4 s.h.
12:54 Introduction to Environmental Geology (Lab) 3 s.h.
20:5 Chemistry and Physics of the Environment 3 s.h.
20:8 Basic Physics 3 s.h.
20:9 Basic Physics (Lab) 4 s.h.
20:11 College Physics (Lab) 4 s.h.
20:12 College Physics (Lab) 4 s.h.
20:17 Introductory Physics I (Lab) 4 s.h.
20:18 Introductory Physics II (Lab) 4 s.h.
20:20 Modern Astronomy 3 s.h.
20:25 Modern Astronomy 4 s.h.
20:31 Introductory Astronomy Laboratory (Lab) 1 s.h.
20:52 Characteristics and Origin of the Solar System 3 s.h.
20:61 General Astronomy (Lab) 4 s.h.
20:71 General Astronomy (Lab) 4 s.h.
44:3 Introduction to Physical Geology 4 s.h.
113:13 Human Origins 3 s.h.

Transfer Credit in Natural Sciences

Transfer students must complete a total of 7 -semester hours of approved courses at the University of Iowa in at least one college or university. If their transfer work does not include a course with a laboratory component, students must complete one of the approved laboratory courses listed above.

CfSP Credit in Natural Sciences

Students who score at or above the 70th percentile on one of the subtests of the CFSP general examination in natural sciences are awarded 3 semester hours of credit toward natural sciences requirement. They must complete the requirement by taking an approved 4-semester hour laboratory course.

Students who score at or above the 75th percentile on both subtests of the CFSP natural science general examination are awarded 3 semester hours of credit toward the natural sciences requirement and 3 semester hours of elective credit. They must complete the natural science requirement by taking an approved 3- to 4-semester hour laboratory course.

Quantitative or Formal Reasoning

This requirement may be satisfied by completing one of the courses listed below or by completing a more advanced course that transfers at least one semester hour as a prerequisite. Students should meet the requirements by the end of the second year in residence or during the first semester hours of study at The University of Iowa.

75:92 Elementary Statistics and Inference 3 s.h.
22:61 Introduction to Programming with Java 4 s.h.
22:64 Introduction to Calculus I with Applications 4 s.h.
22:65 Introduction to Calculus II with Applications 4 s.h.
22:66 Introduction to Calculus III with Applications 4 s.h.
22:67 Introduction to Calculus IV with Applications 4 s.h.
22:68 Introduction to Calculus V with Applications 4 s.h.
22:69 Introduction to Calculus VI with Applications 4 s.h.
121:1 Introduction to Environmental Geology 4 s.h.
20:53 Chemistry and Physics of the Environment 3 s.h.
20:8 Basic Physics 3 s.h.
20:9 Basic Physics (Lab) 4 s.h.
20:11 College Physics (Lab) 4 s.h.
20:12 College Physics (Lab) 4 s.h.
20:17 Introductory Physics I (Lab) 4 s.h.
20:18 Introductory Physics II (Lab) 4 s.h.
20:20 Modern Astronomy 3 s.h.
20:25 Modern Astronomy 4 s.h.
20:31 Introductory Astronomy Laboratory (Lab) 1 s.h.
20:52 Characteristics and Origin of the Solar System 3 s.h.
20:61 General Astronomy (Lab) 4 s.h.
20:71 General Astronomy (Lab) 4 s.h.
44:3 Introduction to Physical Geology 4 s.h.
113:13 Human Origins 3 s.h.

Social Sciences

Students must complete at least 12 semester hours from the course listed below.

121:1 Principles of Microeconomics 4 s.h.
121:2 Principles of Macroeconomics 4 s.h.
79:130 Politics of Education 3 s.h.
79:304 Psychology of Academic Learning 3 s.h.
167:1 Social Science Perspectives on Contemporary Africa 3 s.h.
167:2 Social Science Perspectives on Contemporary Africa 3 s.h.

107:1 Social Science Perspectives on Contemporary Africa 3 s.h.
107:2 Social Science Perspectives on Contemporary Africa 3 s.h.
30:1 Introduction to American Politics 3 s.h.
30:2 Introduction to Political Thought and Political Action 3 s.h.
30:4 Introduction to the Politics of the Industrial Democracies 3 s.h.
30:5 Introduction to the Politics of the Second World 3 s.h.
30:6 Introduction to the Politics of the Third World 3 s.h.
30:50 Introduction to International Political Behavior 3 s.h.
30:51 Introduction to International Relations 3 s.h.
30:61 Introduction to American Foreign Policy 3 s.h.
30:140 Government and Politics of Western Europe 3 s.h.
31:146 African Development 3 s.h.
31:179 Cross in the Middle East 3 s.h.
31:181 Islamic Psychology 3 s.h.
31:3 Science of Psychology (other than 31:1 or 31:3 may be used) 3 s.h.
31:12 Introduction to Clinical Psychology 3 s.h.
31:14 Introduction to Child Development 3 s.h.
31:16 Introduction to Mental Processes 3 s.h.
31:17 Introduction to Comparative Psychology 3 s.h.
34:14 Introduction to Sociology: Principles 3 s.h.

34:2 Introduction to Sociology: Problems 3 s.h.
36:25 Mass Media and Mass Society 3 s.h.
36:32 Communication Theory in Everyday Life 3 s.h.
44:1 Introduction to Human Geography 4 s.h.
44:13 Introduction to Social Geography 4 s.h.
44:16 Contemporary Environmental Geography 4 s.h.
44:30 Introduction to Economic Geography 4 s.h.
44:11 African Development 3 s.h.
47:1 Global Interdependence and Human Survival 3 s.h.
104:50 Social Scientific Perspectives on Leadership and Power 3 s.h.
113:13 Introduction to the Study of Culture and Society 3 s.h.
113:19 Anthropology and Contemporary World Problems 3 s.h.
113:19 Anthropology and Contemporary World Problems 3 s.h.
113:22 Urban Anthropology 3 s.h.
165:60 Introduction to Afro-American Studies 3 s.h.
127:51 Social Science Perspectives on Contemporary Africa 3 s.h.
141:71 Social Science Perspectives on Contemporary Africa 3 s.h.
141:168 African Development 3 s.h.

General Education Restrictions and Waivers

Pace/Nonpace: No course used to satisfy any of the General Education Requirements may be taken pace/nonpace.

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

No more than three courses from one department: Students may use no more than three approved courses from one department to satisfy the General Education Requirements. Courses not in the general education area except classical education and foreign language. In satisfying the preprofessional or foreign language requirement, students may use up to four approved courses from a single department.

Departmental waivers of General Education Requirements: Departmental waivers are no longer permitted for B.A. or B.M. candidates. However, with the approval of the Educational Policy Committee, departments may waive up to 7 semester hours of General Education Requirements for early R.A. and R.M. candidates in the final class or classes not relevant to the student's program. Approved waivers are listed in the current Catalog of Courses and in the sequential section of the Catalog.

Placement and Exemption Examinations for General Education

Satisfactory performance on tests administered at The University of Iowa may lead to full or
Restrictions and Limits on Semester Hours Applied Toward a Degree

- A maximum of 16 semester hours of credit with a grade of F or S and 16 with a grade of S (satisfactory) is accepted toward the 124 semester hours required for graduation. B.S. students are not subject to this restriction.

- The second-credit-only option may be applied to a maximum of three courses.

- A maximum of 30 semester hours of credit earned in general education courses or courses approved for general education by an agreement. Students who receive transfer credit toward the major in the College of Liberal Arts may be accepted toward the 124 semester hours required for graduation.

- A maximum of 30 semester hours of credit earned in other colleges of the University or through study abroad is accepted toward the 124 semester hours required for graduation.

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

- A student must earn 50 semester hours of degree credit from all sources. No more credit is accepted by transfer from a two-year college toward meeting the 124 semester hour requirement. If a student has named more than 50 semester hours of degree credit from a two-year college, the credit and grades earned in computing the grade-point averages and 100 may be used to satisfy course requirements, but the credit does not count toward the total hours credit for graduation.

- A maximum of 30 semester hours of credit from one academic department is accepted toward the B.A. or B.S. or toward the B.F.A. and 40 toward the B.G.S. or B.A. or interdisciplinary studies. This includes both University of Iowa and transfer course work.

- Candidates for the B.G.S. or B.A. in interdisciplinary studies may count 10 to 18 semester hours of advanced coursework from any one department toward the 30-semester-hour advanced coursework requirements.

- A maximum of 16 semester hours of vocational technical credit is accepted in transfer toward the 124 semester hours required for graduation.

- A maximum of 20 semester hours of ROTC credit is accepted toward the 124 semester hours required for graduation.

Courses without Degree Credit

Courses other than those that meet the requirements for a major or minor must be approved by the department chair of the student's major in order to be included in the student's academic record. These courses are used to satisfy the total course requirements of the student's degree program. Courses with a grade of C- or higher will be accepted toward the degree with the approval of the department chair. The student must be enrolled in the department in which the course is being taught, and the course must be approved by the department chair.
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 within the College of Liberal Arts. For example, a student majoring in Romance Languages & Literature and English or a B.S. in psychology and sociology.

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

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

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

Returning for a Second Major
Students who have already 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 in the College of Liberal Arts, declare the appropriate major in their application, and register as seniors (LR). Students who return to the University to complete a second major must meet the requirements of that second major, they must not duplicate courses; and the student's responsibility to apply to graduation analysis in the Office of the Registrar upon completion of the requirements for the second major so that a notation can be placed on the permanent record.

Students who 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. A minor in any degree-granting program in the college outside of their major field or in another college of the University. The minor may relate directly to the major or may allow a student to follow an entirely different and separate area from the major.

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

A minimum of 15 semester hours must be taken in the minor department or program. At least 12 of the 15 semester hours must be taken at The University of Iowa and must be courses accepted in the academic unit granting the minor. Neither transfer credit nor credit by examination is accepted toward the 12 semester hours of advanced work.

Students should check with their minor department to identify acceptable courses. Students must have a grade-point average of at least 2.0 in all work attempted in the minor department or program.

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

Guidelines
Each academic unit determines what is needed for a minor in its advanced coursework in colleagues acceptable for a minor. Students seeking information about acceptable courses should consult the minor departmental office.

Some programs in the college that do not offer a bachelor's degree offer minors. For example, majors in earning majors, 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 are not enrolled in a graduate or professional program may complete the requirements for a minor and apply to the Office of the Registrar to have a notation regarding the minor placed on their permanent record.

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

Course work applied toward the minor may also be used to satisfy major requirements in other related areas. Course requirements are those outside of the major department that are required in part of the major. (Students majoring in American studies may use the same course work to both the major and a minor in a cognate department.)

University of Iowa Guidelines
Cognate 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 15 semester hours from their major department toward the minor.

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

Candidates for the B.S. or B.S.E. are not eligible for a minor.

The following degree-granting programs do not offer minors: biochemistry; interior design; dental hygiene; elementary education; exercise science; general studies; health occupations education; interdepartmental studies; liberal studies; literature, history, and the arts; social studies; Spanish, East European, and Russian Studies; and speech and hearing science. A minor in science education is offered through the College of Education.

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

Minor in Business Administration
Students in the College of Liberal Arts may earn a minor in business administration. The minor in business administration satisfies all the requirements for the minor. At least 15 semester hours of course work toward the minor must be completed at The University of Iowa. A grade-point average of at least 2.00 is required in all courses taken for the minor and in all of these courses taken at Iowa.

65.79 Computer Analysis

Business calculus 222M-164, 22zM-17

4.0

Statistics 713B-216, 222B, 225-19

3.0

225F-102, 225C-220, or 314-13

3.0

65.71 Principles of Microeconomics

3.0

65.72 Principles of Macroeconomics

3.0

Accounting 5.71

3.0

65.73 Managerial Cost Accounting

3.0

65.74 Introduction to Law

3.0

*MBA 101 Fundamentals of Marketing

3.0

*OP 101 Introductory Financial Management (or 57-14)

3.0

*OP 109 Administrative Management

3.0

*Must be taken in junior or senior year.

Accelerated Professional Track
For superior students in the College of Liberal Arts, an accelerated professional track in any degree-granting program in the college outside of their major field or in another college of the University. The minor may relate directly to the major or may allow a student to follow an entirely different and separate area from the major.

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

A minimum of 15 semester hours must be taken in the minor department or program. At least 12 of the 15 semester hours must be taken at The University of Iowa and must be courses accepted in the academic unit granting the minor. Neither transfer credit nor credit by examination is accepted toward the 12 semester hours of advanced work.

Students should check with their minor department to identify acceptable courses. Students must have a grade-point average of at least 2.00 in all work attempted in the minor department or program.

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

Guidelines
Each academic unit determines what is needed for a minor in its advanced coursework in colleagues acceptable for a minor. Students seeking information about acceptable courses should consult the minor departmental office.

Some programs in the college that do not offer a bachelor's degree offer minors. For example, majors in earning majors, 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 are not enrolled in a graduate or professional program may complete the requirements for a minor and apply to the Office of the Registrar to have a notation regarding the minor placed on their permanent record.

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

Course work applied toward the minor may also be used to satisfy major requirements in other related areas. Course requirements are those outside of the major department that are required in part of the major. (Students majoring in American studies may use the same course work to both the major and a minor in a cognate department.)

University of Iowa Guidelines
Cognate 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 15 semester hours from their major department toward the minor.

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

Candidates for the B.S. or B.S.E. are not eligible for a minor.

The following degree-granting programs do not offer minors: biochemistry; interior design; dental hygiene; elementary education; exercise science; general studies; health occupations education; interdepartmental studies; liberal studies; literature, history, and the arts; social studies; Spanish, East European, and Russian Studies; and speech and hearing science. A minor in science education is offered through the College of Education.
Liberal Arts

Minors in Education

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

Registration

Late Registration

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

Classification of Students

<table>
<thead>
<tr>
<th>Rank</th>
<th>Semester</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>0-20</td>
<td>A1</td>
</tr>
<tr>
<td>Sophomore</td>
<td>30-50</td>
<td>A2</td>
</tr>
<tr>
<td>Junior</td>
<td>60-80</td>
<td>A3</td>
</tr>
<tr>
<td>Senior</td>
<td>90 or more</td>
<td>A4</td>
</tr>
</tbody>
</table>

Special (nondegree) student A9

Changes in Registration Initiated by the Student

Adding and Dropping Courses

Once classes have begun, courses may be added during the first three weeks of the semester (for the first one and one-half weeks of the summer session) with the signatures both of the student and instructor on a Change of Registration form. The form must be presented at the Registration Center. Courses may be dropped at any time during the first ten weeks of the semester (for first five weeks of the summer session) with the approval of the advisor and the instructor. Students who wish to add independent study, direct instruction, or business research may do so during the first eight weeks of the semester (for first four weeks of the semester), provided the student does not exceed the twenty weeks of the semester (for ten weeks of the summer session). Courses which are dropped cannot be re-enrolled after the third week of the semester (for first one and one-half weeks of the summer session). Students may request the dean's signature in the Office of Academic Programs.

Special courses that were on a different schedule or that start or end at times other than the beginning and end of the semester, and are so listed in the Schedule of Courses, may be added with the necessary signatures according to the first one-third of the course's duration and dropped anytime during the first two-thirds of the course's duration. Proportionately later registration deadlines operate during the usual eight-week summer session and for other special session courses.

Students who fail to attend class are not dropped from the course automatically. A student who wants to drop a course must obtain the necessary signature on a Change of Registration form and take it to the Registration Center. Only under special circumstances may an instructor deny a student from a course (see "Instructor's Option to Drop for Nonattendance," in this section of the Catalog).

Withdrawal (W)

Undergraduate students are assigned the grade of W (withdrawal) for any course in any college or college campus dropped after the third week of the semester for the first one and one-half weeks of the summer session. For courses that start at 6:00 a.m. or later, the beginning time is the beginning of the semester, and the end of the semester, students may drop the course assigned within the first five full days of the course's duration without being assigned a W.

Limits on Withdrawing from Courses

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

Students admitted as degree candidates to the College of Liberal Arts fall semester 1994 and after are limited to an overall maximum of five Ws while they are enrolled in the College of Liberal Arts. Freshmen entering the University directly from high school with no prior full-time college experience are permitted to exclude Ws they take during their first two sessions of enrollment from the maximum allowed. All other liberal arts students will be limited to a maximum of five Ws beginning with their fall semester 1994 or after. Ws earned by those students before fall semester 1994 will not count toward the maximum of five.

Students who have a legitimate reason for dropping a course (e.g., disability, death of an immediate family member) and can document that reason will be exempted from dropping the maximum. Requests for such exclusions must be made in the Office of Academic Programs.

Instructor's Option to Drop for Nonattendance

Instructor may drop students who have not attended any class sessions during the first eight calendar days of the semester (for the first four calendar days of the summer session), unless the students have offered acceptable reasons for beginning the course late. This privilege is for the benefit of students who otherwise would be unable to enroll in certain courses or sections. It should not be used when there are legitimate reasons for nonenrollment. These drop actions are made after the assignment of a W. The Registration Center notifies such students that they have been dropped from a course and the student's academic advisor.

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

Auditing Courses

Students in the College of Liberal Arts may audit a course (to learn the number of semester hours) if approved by the instructor and by the dean's signature in the Office of Academic Programs.

Instructor's Option to Drop for Nonattendance

Students who have registered for courses may obtain special permission approval from the instructor. To do so, students must inform the professor at the time of the course. Students may enroll for zero credit, and may change the number of hours they earn. Students may increase the number of hours during the first three weeks of the semester (for first one and one-half weeks of the summer session) and may decrease the number during the first two weeks of the semester (for first five weeks of the summer session). To change the number of semester hours, a student must drop the course and add it for the desired hours.

Withdrawal of Registration

Students may withdraw from the entire registration anytime before the end of the eighth week of the semester or sixth week of the summer session. No credit is given for the semester or session. Students who withdraw registration may not be reenrolled after the deadline for that session. Withdrawal credits are obtained in the Office of the Registrar.

Student Responsibility

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

Instructor's Option to Drop for Nonattendance

To provide vacancies in crowded classes, instructors may drop students who have not attended any class sessions during the first eight calendar days of the semester (for the first four calendar days of the summer session), unless the students have offered acceptable reasons for beginning the course late. This privilege is for the benefit of students who otherwise would be unable to enroll in certain courses or sections. It should not be used when there are legitimate reasons for nonenrollment. These drop actions are made after the assignment of a W. The Registration Center notifies such students that they have been dropped from a course and the student's academic advisor.

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

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

<table>
<thead>
<tr>
<th>Grade (Description)</th>
<th>Grade point for each semester hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>4.50</td>
</tr>
<tr>
<td>A</td>
<td>4.00</td>
</tr>
<tr>
<td>A-</td>
<td>3.67</td>
</tr>
<tr>
<td>B+</td>
<td>3.33</td>
</tr>
<tr>
<td>B</td>
<td>3.00</td>
</tr>
<tr>
<td>B-</td>
<td>2.67</td>
</tr>
<tr>
<td>C+</td>
<td>2.33</td>
</tr>
<tr>
<td>C</td>
<td>2.00</td>
</tr>
<tr>
<td>C-</td>
<td>1.67</td>
</tr>
<tr>
<td>D+</td>
<td>1.33</td>
</tr>
<tr>
<td>D</td>
<td>1.00</td>
</tr>
<tr>
<td>F (failing)</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Not used in computing grade-point averages.

Polynomials for Plus/Minus Grading

The grading system was expanded to include plus and minus grades effective with grades reported for the summer session 1993. The following polynomials govern the use of plus/minus grading in the College of Liberal Arts.

\[
P(x) = \begin{cases} 
4.50 & x > 3.50 \\
4.00 & 3.50 \geq x > 3.00 \\
3.67 & 3.00 \geq x > 2.33 \\
3.33 & 2.33 \geq x > 2.00 \\
3.00 & 2.00 \geq x > 1.67 \\
2.67 & 1.67 \geq x > 1.33 \\
2.33 & 1.33 \geq x > 1.00 \\
2.00 & 1.00 \geq x > 0.00 \\
0.00 & x < 0.00 
\end{cases}
\]

* Not used in computing grade-point averages.

Incompletes

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 internship. Students who fail in the unfinished part of the work must complete the course or be assigned a grade of F. Incomplete grades must be removed by the end of the following semester. Failure to remove the incomplete grade assignments within the specified period are transferred to the permanent record and are not to exceed 4.00.

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 internship. Students who fail in the unfinished part of the work must complete the course or be assigned a grade of F. Incomplete grades must be removed by the end of the following semester. Failure to remove the incomplete grade assignments within the specified period are transferred to the permanent record and are not to exceed 4.00.

No Grade Reported (G)

A grade of G is assigned by the Registrar when an instructor fails to report a grade of report an average grade.

No Grade assignment on a student's permanent record may be changed according to the procedures for incomplete, drop, or withdrawal grades. There is no provision to remove the G by the designated deadline; it will remain as a permanent record.

Pass/No Pass Option (P/N)

Students in the College of Liberal Arts have the option of taking elective courses on a P/N basis. Students may register for P/N before the first day of class. If the course is taught the same way to all students, a P/N grade is assigned. if the instructor and the advisor must be obtained on a P/N form, and the form must be submitted to the Registrar's Office 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.
F/N grading may be used in elective courses only. Courses used to satisfy the degree's major requirements may not be assigned a F/N grade. Course work in the major department is not available on a F/N basis, except by departmental permission for courses that are not to be applied toward the major. This restriction applies to both University of Iowa and transfer course work. Courses required for the major in cognate or related areas may be assigned a F/N grade, at the discretion of the major department. No course accepted toward the major may be taken F/N.

A maximum of 16 semester hours of F grades from all colleges is accepted toward the bachelor's degree. Transfer students admitted to the University with fewer than 60 semester hours of credit may earn the maximum of 16 semester hours of F grades. Those admitted with 60 or more semester hours are limited to 8 semester hours.

A maximum of two F/N courses may be taken in any semester.

Certain courses in the College of Liberal Arts are offered F/N and are designated in the Schedule of Classes. All students registered for these courses receive either an F or an N.

The grade of D is not used in computing grade-point averages, but the grade of F is used. Credit with the grade of F 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 honors are not necessary to register for F/N courses, since all students enrolled in such courses necessarily receive either an F or an N.

A maximum of 16 semester hours with the grade of F is accepted toward the bachelor's degree.

Second-Grade-Only Option

Students may repeat courses taken at The University of Iowa and receive credit and grade only. Students may repeat courses taken at The University of Iowa and earn grade-point averages. The grade of D is not used in computing grade-point averages, but the grade of F is used. Credit with the grade of F 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 honors are not necessary to register for F/N courses, since all students enrolled in such courses necessarily receive either an F or an N.

A maximum of 16 semester hours with the grade of F is accepted toward the bachelor's degree.

Restrictions

The second-grade-only option may be used only for University of Iowa courses, including courses in the Saturday and Evening Credit Program, Extension, and off-campus courses. A course taken at another college or university may not be repeated at The University of Iowa under the second-grade-only option, nor may a University of Iowa course be repeated at another institution.

Students may apply the option to a maximum of 20 courses. The option may be used only once per person, and it may be used only if obvious regression has occurred.

If the course was failed for the first time, it must be taken under the second-grade-only option. A course taken under the second-grade-only option must be repeated under the second-grade-only option. A course taken under the second-grade-only option must be repeated under the second-grade-only option.

A course taken under the second-grade-only option may be repeated under the second-grade-only option. A course taken under the second-grade-only option must be repeated under the second-grade-only option. A course taken under the second-grade-only option must be repeated under the second-grade-only option.

A course taken under the second-grade-only option may be repeated under the second-grade-only option. A course taken under the second-grade-only option must be repeated under the second-grade-only option. A course taken under the second-grade-only option must be repeated under the second-grade-only option.
Students who are permitted to register after the specified deadline following a decision 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 registration, however, may result in dismissal as of that semester.

Notifications and Records
Students placed on academic probation, continued on academic probation, or dismissed from the college are notified in writing of these actions by the associate dean for academic programs. Students admitted on probation have the notation “admitted on probation” entered on their permanent records. The notation “on academic probation” is placed on the permanent records of those students who have been placed or continued an 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 part-time semester or session is entered on the permanent record.

Class Attendance, Final Examinations, and Student Conduct

Class Attendance
Individual instructors, course chair, or departments determine the policy on class attendance. Students are required to observe the regulations as announced for the course. However, the instructor may excuse an absence for religious reasons, mandatory religious obligations, or other irresistible 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 the dates and times it is necessary to miss class. Excused absences are granted to members of academic boards, the marching band, debate teams, and other recognized University groups to attend meetings in University Field and in the National Guard armory, unless otherwise designated.

Students who are absent for medical or personal reasons are expected to present evidence to verify the reasons. Students report absences from class of five days or less by completing an “Explanatory Statement of Absence from Class” form, available at the Registration Center, and by presenting the forms to the instructor. Students who are absent for more than five days may request the Registration Center to send notification of the absence to each instructor.

Final Examinations
A suitable period for the administration of examinations is set aside at the end of each semester, during which all of the courses are held. With the exception of any changes authorized by the associate dean for academic programs, all final examinations must be given according to the schedule announced in the Schedule of Courses. During the summer sessions, there is no designated time for examination periods; final examinations are scheduled before the official end of the summer session, either during a regular meeting time or at a time determined by the instructor of the course in consultation with the students in the class.

For a more complete discussion of policies governing final examinations, see the college’s Classroom Manual, available in the Office of the Dean, 168 Schaffner Hall.

Student Conduct
Plagiarism and Cheating
An instructor must notify a student suspected of plagiarism or cheating as soon as possible after the incident has been observed or discovered and, before the student of the action that will be taken. The departmental executive officer may decide to reduce the student’s grade in the course, even to a grade of F.

All cases of plagiarism or cheating in the college should be reported to the Office of Academic Programs. The departmental executive officer needs a written report of the facts of the case and the action taken by the instructor to review the matter and come to a determination. A copy of this report should be sent to the student.

The associate dean or academic programs office or the Committee on Student Academic Conduct may uphold, as the case may warrant, the finding of another petitioner, or statement of disciplinary probation until graduation, expel the student from the college for a semester or longer, or recommend to the president of the University the president.

Forgery
The Code of Student Life prohibits forgery of University records, documents, or student identification cards. The Office of Academic Programs investigates students suspected of forgery and takes disciplinary action based on the interview and verification provided by the advisor or instructor.

Classroom Disruption
Students who are physically or verbally disruptive in a classroom or laboratory may be dealt with summarily by the instructor or referred to the dean of student services, 114 Heap Hall. The instructor reports in writing to the dean of student services 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 or more semester hours of graded work (excluding University of Iowa Guided Correspondence Study courses and those who have no hours of (Incompletes) or (C) (no report) are recognized by inclusion on the Dean’s List for the 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.

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 distinction” to students in the next highest three percent, and “with distinction” to the next highest five percent. Ranking is based on students’ grade-point averages for all college-level study undertaken prior to the final registration.

To be eligible for graduation with distinction, students must complete a minimum of 60 semester hours in residence in the College of Liberal Arts at the University of Iowa, of which at least 40 semester hours must have been completed before the student’s final registration.

Graduation with Honors
The director of the University Honors Program certifies to the dean of the college the names of graduating students eligible to graduate with honors. To be eligible, students must be recommended by their major department and be approved by the Honors Council and the dean of the college.

Admission Requirements
Students are admitted to the College of Liberal Arts on the basis of three criteria: completion of a set of high school requirements, high school class rank or college transfer grade-point average, and ACT/SAT results or a combination of high school grade-point average or standard scores on 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 are present fewer than 24 semester hours of transferable credit to complete either the American College Test (ACT) or the Scholastic Aptitude Test (SAT) and have their scores reported to the University before they register for classes. These examinations are used as a criterion for admission, for placement purposes, or advising, and for awarding University-administered scholarships and loans. Applicants whose native language is not English must present scores on the Test of English as a Foreign Language (TOEFL).

Unit Requirements
The faculty of the College of Liberal Arts recognizes the need for entering students to be prepared for college 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 core of high school courses in their regular classes, in addition to the water requirements listed below. These high school unit requirements, effective fall semester 1980, apply to entering freshmen who graduated from high school after 1980; transfer students with fewer than 24 semester hours of transferable credit who graduated from high school after 1980; students who entered high school after 1980; and transfer students with 24 or more semester hours of transferable credit who graduated from high school after 1991 or after.

Four years of English/language arts, with emphasis in writing, speaking, and reading as well as understanding and appreciation of literature.

Three years of mathematics (two years of algebra and one year of geometry are required).

Two years of a single foreign language.

Three years of natural science (two years must be chosen from biological sciences, chemistry, and physics).

Three years of social studies (American history, geography, economic principles, government, world history, psychology, and sociology).

The following preparation is not required but is strongly recommended for transfer students to the College of Liberal Arts.

One year of the visual arts, performing arts, and/or humanities (cinema, dance, drama, music, photography, studio art, theater, visual arts, or survey courses in the arts and humanities).

A fourth year of mathematics (algebra or geometry, trigonometry, or calculus). As an additional two years of the same foreign language.

Students whose high school curriculum did not provide the courses necessary to complete the unit requirements described above are required to demonstrate the required courses in the specified fields by transfer credit or by successful performance in the initial courses of the specified fields.

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 index requirements for admission. In both versions of their high school curriculum, these students are required to complete specified college-level courses with a passing grade. Courses taken to remove deficiencies do not count toward the General Education Requirements, with the exception of foreign and foreign language.

With prior approval of the Office of Admissions, these courses may be taken at an accredited college, university, or community college. If the courses are taken at The University of Iowa, it is normally during the summer session immediately preceding enrollment. Credits 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 curriculum did not meet the unit requirements are to submit to the University a minimum of a Satisfactory grade index, which is calculated by weighting the ACT composite score by two and adding the percentile rank in class. A comparable index is used for students who do not have SAT or ACT scores. The minimum index for admission varies from year to year. For students admitted after 1990, the minimum index was 73 and the percentile rank in class was 90. A comparable index is used for students who do not have SAT or ACT scores.

Transfer Students
Transfer students who have received an A.A. degree from an accredited community college participating in the Iowa Community College Region Articulation Agreement are considered to have fulfilled the unit requirements. (See above.)

Other transfer students may take college courses elsewhere to make up high school deficiencies. Courses must be completed with a passing grade. Courses taken to remove deficiencies do not count toward the General Education Requirements, with the exception of foreign and foreign language.

Removal of Deficiencies through Testing
Deficiency 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 science by earning acceptable scores on approved standardized tests.

Entering Freshmen
Applicants seeking admission as entering freshmen must have the high school transcript, 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 provisionally after they have completed the junior year in high school, but admission is for final until receipt of the final transcript and certification of high school graduation.

Graduates of approved Iowa high schools who enter 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 or index requirements if they meet a minimum SAT or ACT score index, which is calculated by weighting the ACT composite score by two and adding the percentile rank in class. A comparable index is used for students who do not have SAT or ACT scores. The minimum index for admission varies from year to year. For students admitted after 1990, the minimum index was 73 and the percentile rank in class was 90. A comparable index is used for students who do not have SAT or ACT scores or if the high school graduating class is small, the applicant's credentials are reviewed by the admissions review committee.

Graduates of nonapproved high schools must submit all the information required above and must take an examination that demonstrates their general competence to do college work and, where applicable, their specific competence for admission to a given curriculum.

Admission without High School Graduation
Applicants who are not high school graduates must submit all the information required above and must take an examination that demonstrates their general competence to do college work and, where applicable, their 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 transcripts must be signed by the present institution's registrar. All records must be fully documented. The American Association of Collegiate Registrars and Admissions Officers is followed for schools not regionally accredited.

Applicants must submit an official transcript from each college or university they have previously attended. Applicants also must submit a high school transcript, except for standardized tests, and any other records or letters the College of Liberal Arts may require to support applications for admission.

Transfer applicants who have a minimum of 24 semester hours of graded credit from regionally accredited
accredited colleges or universities and who have maintained a grade-point average of 2.25 (based on a 4-point system) on all college work previously attempted, are admitted.

Students with fewer than 24 acceptable hours of college credit are considered for admission based on a combination of high school and college academic records and scores on the ACT or SAT.

In general, transfer applicants under academic suspension from the last college attended are not considered for admission during the period of suspension, or if suspended for an indefinite period, are not considered until one year has passed since the last date of attendance.

Transfer applicants under disciplinary suspension are not considered for admission until a clearance and a statement of the reason for suspension from the previous college are filed. When it becomes proper to consider an application from a student under suspension, the college must take into account the previous suspension. Applicants granted admission under these circumstances are admitted on probation, and their admission is subject to cancellation.

Transfer Students from Nonaccredited Colleges

The College of Liberal Arts may refuse to recognize credit from a nonaccredited college or may restrict the application of credit from a nonaccredited college. The validation period is not less than one academic year from the date of admission. The college specifies 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 assure that non-native speakers know English well enough to study without being hindered by language problems, to understand lectures, and to participate successfully in class discussions. For this 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 application for admission and supporting academic documents. Academic elimination from this policy is granted to persons who already have received a baccalaureate or equivalent degree from a university in the United States, the United Kingdom, Canada (excluding French Quebec), Africa (English-speaking), Australia, or New Zealand.

Foreign Applicants

REGULAR ADMISSION

A minimum TOEFL score of 530 is required for regular admission and to begin study in a degree program. In rare cases, however, students whose TOEFL scores are 400 or above may begin graduate work without restrictions. Applicants whose academic credentials indicate that they should be admitted, but whose TOEFL scores fall between 530 and 599, are required to complete an English proficiency evaluation before their first registration for courses.

Based on the results of the evaluation, these students may: be allowed to take a full academic course load (including English as a Second Language courses); be required to enroll in credit-bearing English as a Second Language courses; or be required to enroll in the low-impact English Program until their language proficiency reaches an appropriate level.

CONDITIONAL ADMISSION

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

Based on the results of the evaluation, these students may: be allowed to take a full academic course load (excluding English as a Second Language courses); or be required to enroll in credit-bearing English as a Second Language courses; or be required to complete the ENF course until their language proficiency reaches an appropriate level.

Students without TOEFL scores or with scores below 450 are not considered for admission to the College of Liberal Arts. These students may enroll in the ENF. However, if they are conditionally admitted to the College of Liberal Arts does not imply or guarantee admission to an academic program at the University of Iowa.

U.S. Citizens and Permanent Residents

U.S. citizens and permanent residents whose native language is not English are required to submit scores on the TOEFL before registering for courses. Exceptions to this requirement are made in the cases of graduates of Iowa's high schools whose ACT composite score is 24 or above (SAT combined score of 1020 or above) and whose ACT English subscore is 21 or above (SAT 490); and enrollees in Iowa's high schools whose ACT composite score is 25 or above (SAT combined score of 1100 or above) and whose ACT English subscore is 21 or above (SAT 490)

Admitted applicants whose TOEFL scores are 400 or above may begin graduate work without restrictions. Those whose TOEFL scores fall below 400 are required to complete additional English language proficiency testing before they register for courses.

Applicants seeking exceptions are directed to the coordinator of English as Second Language.

English Proficiency Evaluations

On-campus proficiency evaluations are conducted by the Department of English. If such evaluation evidence, students are required to enroll either in credit-bearing courses in English as a Second Language or in the noncredit Iowa Intensive English Program until their language proficiency reaches the appropriate level. Once such proficiency has been established, students are allowed to take a full academic course load, excluding 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 "Uncolleges" in the Catalog.)

Special (Nondegree) Students

Students may be admitted to the college as nondegree candidates. These students are classified as special students (SP) and may enroll in courses for personal enrichment, to prepare for admission to professional or graduate colleges, 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 must, before applying for re-entry, they should report directly to the Registrar's Center to begin the registration process.

Students who have been expelled in another college or university after being The University of Iowa are required to submit official transcripts along with their application for re-entry.

Completed application materials must be received two weeks before the opening of classes. Applications received after that date are considered on an individual basis.

Students who have been dismissed from the college for unsatisfactory scholarship have earlier deadlines and must complete an interview with the Office of Academic Programs. See "Academic Standards" in this section of the catalog.

Credit for Military Service

The admissions officer is authorized to evaluate transcripts from the military services according to the recommendations contained in the American Council on Educator's Guide to the
Evaluation of Experiences in the Armed Forces, with the understanding that no accommodations between such recommendations and the standards of the College of Liberal Arts will be referred to the Office of Academic Programs. Armed forces credit programs are accepted for credit. Credit awarded through APP may be applied to the General Education Requirements. Credit awarded through APP may be accepted for credit under appropriate circumstances.

Credit by Examination
A maximum of 32 semester hours of credit by examination from all approved sources is acceptable toward the 124 semester hours required for graduation. Credit by examination may be given on an elective credit or it may be applied toward the General Education Requirements or requirements in the major or minor. Credit awarded through the Foreign Language immersion Program is considered credit by examination.

A student must have earned 12 semester hours of graded, classroom credit at The University of Iowa below credit by examination is granted and placed on the permanent record. Hours of F, I, N, O, R, and W do not count toward the 12 semester hours earned.

Placement and Examination Examinations for General Education
Full or partial exemption from the requirements in History, mathematics, physical education, or foreign language may be awarded for satisfactory performance on tests administered at The University of Iowa. In addition, examinations in art, music, and academic credit may be awarded in most music programs by 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 16 semester hours. Credit toward graduation is not awarded for language majors only for passing examinations covering the third and fourth semesters or level above.

Credit by examination may be applied to the 12 semester hours of advanced courses required for the minor.

Advanced Placement Program (APP)
Students who pursue college-level learning while still in high school may use the APP testing program to demonstrate their level of achievement. This program was designed by the College Board to provide a method for colleges and universities to evaluate the college-level preparation of participating students and to provide credit for college level courses taken while still in high school.

Scores earned by students are evaluated to determine whether course or advanced placement is warranted. Credit awarded through APP may be applied to the General Education Requirements, to requirements in the major or minor, or to elective credit. Specific credit policies and further information is available from the University's Evaluation and Examination Service.

College-Level Examination Program (CLEP)
CLEP is an achievement testing program offered by the College Board that allows students to demonstrate college-level competence may they have achieved outside of formal college or university programs. General examinations cover broad content areas such as natural sciences and social sciences/historic; subject examinations cover more narrow ranges of content, 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 areas covered by the examination) taken. Those who earn a high enough score on a subject examination are eligible to receive credit for the corresponding University course.

The CLEP program is administered by The University of Iowa Evaluation and Examination Service. Students who wish to participate in CLEP are encouraged to do so prior to their first enrollment so that test results can be used to plan their first semester schedules.

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

Transfer Credit by Examination
The College of Liberal Arts accepts transfer credit that includes APP and CLEP credit awarded by 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
000102 Conditioning for Competition 2 s.h.
000211 Intermediate Athletic Participation 1 s.h.
000212 Intermediate Athletic Participation 1 s.h.
000116 Irish Life and Culture 3 s.h.
000116 Introduction to Geology, Geo., Environ.

Students, cross-cultural experiences in India, Spain, Mexico, China, Africa, Australia, and South America are required.

AEROSPACE MILITARY STUDIES (AIR FORCE ROTC)

Head: Lt. Col. Joseph Casebeer
Professor: Lt. Col. Joseph Casebeer
Assistant professor: Capt. Allen Brown, Capt. Calhoun Collins

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 United States Air Force.

AFROTC is entirely voluntary, with courses open to all undergraduate and graduate students. The amount of AFROTC academic credit that may be applied toward a degree varies from college to college at the university. The College of Liberal Arts, for example, accepts a maximum of 20 semester hours.

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 mathematical reasoning. Cadeus on AFROTC mathematics also must complete a course in English composition and two semesters of a major Indo-European or Arabic language. The College of Liberal Arts General Education Requirements must meet these requirements.

AFROTC offers two-, three-, and four-year programs. During the program the student gains the experience in AFROTC without obligations. It also gives them an advantage in the selection process for scholarships and POC membership.

There are three 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 semesters of AFROTC classes. Students accepted into the POC make a commitment to serve a minimum of four years in the U.S. Air Force. To enter the POC, students must be selected to attend and must successfully complete field training. Students generally take the POC during their last two years.

Leadership Laboratory
Leadership laboratory is designed and conducted by AFROTC cadets. It provides leadership training that improves a cadet's ability to lead and to work as a U.S. Air Force officer. To be considered, a cadet must have completed an academic year as in a 23A course titled Leadership laboratory.
Field Training

All APOC applicants must successfully complete basic training at a U.S. Air Force base during summer, usually between the sophomore and junior years. There are two types of field training: a four-week course for cadets who have applied to the four-year and three-year programs and a six-week course for two-year program applicants.

Field training includes survival, seamanship, career, and survival orientation; junior officer training; professional training; small arms training; human relations education; and physical fitness training. The six-week field training prepares a cadet for 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 semestre-hour course and a 2 AOC course titled Leadership Laboratories during each semester of the development and sophomore years. Any student who meets AROC qualifications and is in good academic standing with the University is eligible to participate in the GMC.

Special Activities

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

Cadets can join the Army Air Corps, a national professional honor society dedicated to developing leadership qualities and to serving the community.

The advanced training program is a voluntary program in which selected cadets may go on active duty for two or three weeks during the summer following their junior year. Cadets get hands-on experience in the military environment.

Selected APOC cadets may attend employment training and upon completion wear the parade uniform. Each cadet will be assigned a mentor from the faculty or cadet leadership.

Financial Aid

Scholarships are available, based on merit, for one, two, and three years of study. They provide full tuition, a stipend for books, laboratory fees, and $150 per month, tax-free. Application is restricted to both subjective and subjective factors. Students should apply directly to the professor of aerospace military studies.

All cadets in the last two years of AROC receive $100 per month, tax-free. AROC books and uniforms are furnished.

Education Delay

Cadets may extend an education delay to postpone entry to active duty until after completion of an advanced degree or professional training program.

Courses

221.3 The Air Force Today At 100 1.5 h. Introduction to U.S. air force heritage, culture, and operations; basic and advanced communication techniques; careers available in the air forces officer. Offered every fall semester. Compulsory. Class size: 125.

221.4 AROC Leadership Laboratory (LAR) 100 1 h. AROC leadership laboratory (LAR) is an event to develop leadership skills in the class officer. Each section will be divided into groups of 30-40 cadets and 2 instructors. The cadets are required to attend all sessions. Offered every fall semester. Compulsory. Class size: 125.

221.4 The Air Force Today At 100 1.5 h. AROC leadership laboratory (LAR) is an event to develop leadership skills in the class officer. Each section will be divided into groups of 30-40 cadets and 2 instructors. The cadets are required to attend all sessions. Offered every fall semester. Compulsory. Class size: 125.

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African-American World Studies

Chair: Frederick Woodward
Professor: Zorn Knight (English/African-American World Studies)
Associate professor: Alan Batey

African-American World Studies is a multidisciplinary program that seeks to provide students with a deeper understanding of African-American history and culture. It offers courses that explore the social, political, economic, and cultural dimensions of African-American life from the pre-Civil War period to the present. The program is open to students of all majors and backgrounds.

Bachelor of Arts

Students earning a Bachelor of Arts with a major in African-American World Studies will complete a minimum of 83 hours of coursework, including a minimum of 24 hours in African-American studies. The program requires a minimum of 124 hours of coursework, including at least 36 hours in the major. The program is open to students of all majors and backgrounds.

The African-American World Studies Program is committed to providing a diverse and inclusive curriculum that is responsive to the needs of students from all racial and ethnic backgrounds. The program is committed to promoting a greater understanding of African-American history and culture, and to fostering a greater appreciation of African-American contributions to the world.

Admission requirements for the African-American World Studies program include a minimum of 124 hours of coursework, including at least 36 hours in the major. The program is open to students of all majors and backgrounds.
The African-American studies option focuses onBlack's life in the United States and on the unique attention to their culture and history in relation to other cultures and cultures in the world. The African-American world studies option places greater emphasis on the interrelationships of Black culture with cultures in various places in the world. The African-American studies option emphasize on Africa. Students must earn a grade point average of 2.0 or higher to be offered in their major program.

African-American Studies Option

REQUISITE COURSES
- 120:60 Introduction to African-American Society 3 s.h.
- 120:61 Introduction to African-American Culture 3 s.h.
- 120:116 African-American Literature I 3 s.h.
- 120:117 African-American Literature II 3 s.h.
- 120:163 African-American History I 3 s.h.
- Before 1865 3 s.h.
- 120:166 African-American History II 3 s.h.
- 1865 to Present 3 s.h.
- 120:80 Critical Skills Seminar 3 s.h.
- 120:99 Senior Seminar 3 s.h.

ELECTIVES
- Students must take 6 semester hours of electives in 120:60 or 120:61. Of these 6 semester hours, 3 must be in cultural studies and hour of Black culture, and 3 of Black culture, not in cultural studies. These courses in African-American world studies option are courses offered in African-American world studies option or in the College of Liberal Arts.

African-American World Studies Option

REQUISITE COURSES
- 120:8 Literature of the African People 3 s.h.
- 120:60 Introduction to African-American Culture 3 s.h.
- 120:61 Introduction to African-American Culture 3 s.h.
- 120:71 Social Science Perspectives on Contemporary Africa 3 s.h.
- For majors, these four courses are prerequisite to advanced required courses in history and literature and to the Senior Seminar.
- 120:116 African-American Literature I 3 s.h.
- 120:117 African-American Literature II 3 s.h.
- 120:19 African Literature 3 s.h.
- 120:163 History of Pre-Colonial Africa 3 s.h.
- 120:164 History of Colonial Africa 3 s.h.
- 120:80 Critical Skills Seminar 3 s.h.
- 120:99 Advanced Undergraduate Seminar in African Studies (usually taken during the senior year) 3 s.h.

LANGUAGE REQUIREMENT
- Currently Swahili is the only African language offered at the University of Iowa.
- 120:10-106 Elementary Swahili I 1 s.h.
- 120:106 Elementary Swahili II 1 s.h.
- 120:118 Intermediate Swahili I 3 s.h.
- Students also may fulfill the language requirement by demonstrating competence in another African language. Students who declared the African studies option before fall semester 1990, and who already had achieved sophistication level by that time, may fulfill the requirement by doing four semester hours or the equivalent in French, Portuguese, or Spanish.

HUMANITIES ELECTIVES
- Two courses (6 semester hours) are required. The following lists the humanities courses that count toward the requirement:
- 141:50 Introduction to African Art 3 s.h.
- 141:507 Art of West Africa 3 s.h.
- 141:108 Art of Central Africa 3 s.h.
- 141:202 Seminar: Problems in African Art 3 s.h.
- 141:103 Topics: Modern African History 3 s.h.
- 141:154 Women in African History 3 s.h.
- 141:14 Literature of the African People 3 s.h.
- 141:144 African Drama 3 s.h.
- 141:199 African Literature 3 s.h.
- 141:199 Medicinal Plant lore of the African Diaspora 3 s.h.
- 141:199 Plant lore of African Cultures 3 s.h.
- 141:227 Three African Writers 3 s.h.
- 141:240 Studies in African Francophone Literature 3 s.h.

SOCIAL SCIENCE ELECTIVES
- Two courses (6 semester hours) are required. The following, 141:71 Social Science Perspectives on Contemporary Africa 3 s.h.
- 141:140 African Development 3 s.h.
- 141:148 The Politics of Southern Africa 3 s.h.
- 141:157 Peoples and Cultures of Africa 3 s.h.
- 141:158 Myth, Magic, and Morbid 3 s.h.
- 141:150 Anthropology of African Art 3 s.h.

AFRICAN CONTENT ELECTIVE
- One course (3 semester hours) in an African studies or having a significant African content, chosen from the following:
- 17:2 African Art, Oceania, and Pre-Columbian America 3 s.h.
- 30:150 The Political Economy of the Third World 3 s.h.
- 30:171 Political Economy and Public Policy in Developing Countries 3 s.h.
- 40:223 Women and Social Change: International Development Perspectives (same as 131:223) 3 s.h.
- 40:225 World Cities 3 s.h.
- 40:230 Urban Geography: Health Services 3 s.h.
- 40:231 Urban Sociology: Development Support (same as 150:157) 3 s.h.
- 40:245 Planning and Geography of Underdevelopment (same as 120:162) 3 s.h.
- 40:260 Political Economy of Regional Development 3 s.h.
- 40:264 Agrarian Change and Rural Development of the Third World 3 s.h.

DIAGNOSTIC ELECTIVE
- One course (3 semester hours) in African studies or having a significant African content, chosen from the following, 141:103 Topics: Modern African History 3 s.h.

HONORS
- The African-American world studies honors program often awards students the opportunity to pursue special interests in individual, in-depth research. Students candidate in African-American world studies must be members of the University Honors Program.
Under the guidance of the undergraduate honors advisor, the honors candidate defines a research project using primary sources. Project proposals are made by the end of the candidate's junior year. Each candidate completes a project under the guidance of a supervising faculty member and may register for up to 3 semester hours in 120-350, 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 second and third faculty members. The candidate's committee may choose to hear an oral defense of the final project, usually in the twelfth week of the student's last semester.

Minor

The African-American Studies World Studies Program offers an undergraduate minor in African-American studies. The requirements consist of the general requirements for minors in the College of Liberal Arts. In consultation with their advisor, students select 12 semester hours (five courses) to design an African-American world studies course. These courses are among the many courses that count toward the minor.

Students must earn a grade-point average of at least 2.00 in all courses in the minor program. Courses numbered 100 and above may be selected from 120- credits in the list at the end of this section of the Catalog that total 120.173 and 120.175-176, as counted toward the minor.

Students who wish to pursue a minor in American studies should consult with an advisor in the American Studies World Studies Program as early as possible. It is recommended that they select an interdisciplinary course from the following: 120.128, 120.111, 120.060, 120.061. Advisors also recommend that they choose 120.111, 120.128 or 120.150 as two of their upper-level courses.

Graduate Programs

Master of Arts

The interdisciplinary curriculum leading to a Master of Arts in African Studies provides an interdisciplinary, organized, graduate-level examination of the African continent and experience. Such a program especially benefits individuals preparing for community outreach, teaching, work with community service organizations, or other avenues in which an understanding of African-Americans may be necessary or helpful.

Curriculum Requirements

The Master of Arts Program is an interdisciplinary program requiring 36 postbaccalaureate semester hours. Requirements include 129-211 Introduction to African American Culture (3 semester hours), 120-312 Advanced Research in African Culture (Saints-phenix, 4 semester hours), and 12 semester hours of required courses in African-American studies.

Most students will be required to earn 12 semester hours in literature/unity by taking 120-116 and 120-117 African-American Literature I and II and 120-155 and 120-166. African-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/unity requirement by studying advanced African-American studies courses approved by their advisor.

To complete the curriculum, students select 15 semester hours of electives in consultation with their advisor. Recommended are courses in African-American music, African-American art, or African culture. 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 their M.A.

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 prepare for doctoral education in disciplines outside African-American world studies. Possible fields of study are American studies, anthropology, education, English, geography, history, and sociology. Students are encouraged to select at least one out of the courses in the M.A. curriculum from those numbered above 200.

Language/Tool Requirements

No foreign language or tool is required for the Master of Arts Program in African Studies, but students considering doctoral study in another field are encouraged to complete one language/tool requirement for that field while fulfilling the requirements in the program.

Comprehensive Examinations

Each student is required to pass a written comprehensive examination in African-American Studies. The comprehensive examination is prepared and evaluated by a committee of faculty members who teach courses in the African-American World Studies Program. A component of the comprehensive examination is based on a reading list prepared by the student and approved by the African-American World Studies Program. An oral examination may be required as a follow-up to the written examination.

Thesis/Project Requirements

A thesis is not required but is an option for a Master of Arts in African Studies. If a student elects to write a thesis, the thesis must explore a topic of African-American culture and/or experience and must use research from more than one discipline. The minimum credit for a thesis is 4 semester hours.

Students who do not prepare a thesis are required to develop, in cooperation with an advisor, a project relevant to African-American culture and/or experience. When completed, this project must be presented and defended before an appropriate thesis in African-American studies. Credit for the thesis project usually is earned through registration in 120-312 Advanced Research in African Culture (4 semester hours).

Admission

In addition to the general requirements of the Graduate College, and general plan of graduate admission to the African-American Studies World Studies Program, prospective students also must have an appropriate educational background in literature and the social sciences, at least 6 semester hours of collegiate credit in African-American literature and/or history courses, and a minimum grade-point average of 2.70 in previous college courses in African-American studies. Students may be admitted to take, without credit toward the master's degree, courses needed to remedy deficiencies in undergraduate preparation.

Applicants for admission are expected to provide three letters of recommendation from former professors and a sample of written scholarly work.

Recommendations for admission are made by the examination subcommittee of the African-American Studies World Studies Program.

Concentration in American Studies Ph.D.

Generally, a student seeking a Ph.D. in American studies with a concentration in African-American studies will need to take 12 semester hours of graduate study in African-American world studies. These courses are designed to provide a foundation in African-American world studies and to prepare the student for comprehensive examinations. Students who complete the requirements for this concentration will be awarded a concentration certificate.

Concentration in American Studies Ph.D.

Generally, a student seeking a Ph.D. in American studies with a concentration in African-American studies will need to take 12 semester hours of graduate study in African-American world studies. These courses are designed to provide a foundation in African-American world studies and to prepare the student for comprehensive examinations. Students who complete the requirements for this concentration will be awarded a concentration certificate.

In addition to the general requirements of the Graduate College, and the general plan of graduate admission to the African-American Studies World Studies Program, prospective students also must have an appropriate educational background in literature and the social sciences, at least 6 semester hours of collegiate credit in African-American literature and/or history courses, and a minimum grade-point average of 2.70 in previous college courses in African-American studies. Students may be admitted to take, without credit toward the master's degree, courses needed to remedy deficiencies in undergraduate preparation.

Applicants for admission are expected to provide three letters of recommendation from former professors and a sample of written scholarly work.

Recommendations for admission are made by the examination subcommittee of the African-American Studies World Studies Program.

Cognate Areas, Special Fields

It is possible for students to take concentrations of African-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 the African-American Studies World Studies Program.

Related Courses

Although there are no offered by the African-American Studies World Studies Program, the following courses are recommended for interested students. For course descriptions, see
program also integrates exchange programs with the University of Basle (Switzerland), the University of Neumarkt (Kenya), and the University of Caracas (Venezuela). For more information on the African Studies Program, contact the Center for International and Comparative Studies.

**Undergraduate Programs**

The African Studies Program gives undergraduate students two opportunities for the interdisciplinary study of Africa: a major offered as an option in the B.A. in African-American World Studies, and a certificate program.

**African Studies Option in the B.A. in African-American World Studies**

The African studies option is administered jointly by the chair of the African-American World Studies Program and the chair of the African Studies Program acting in consultation with the faculties of their respective programs. Prerequisites for this option are advised by the chair of the African-American World Studies Program acting in consultation with the chair of the African Studies Program.

**Required Courses**

The program consists of 33 semester hours of course work in addition to four seminars, or the equivalent, of instruction in African language.

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

**Core Courses**

114:17 Africanization to African Studies 3 s.h.
14:120 History of Pre-Colonial Africa 3 s.h.
14:121 History of Colonial Africa 3 s.h.
99:99 Critical Skills Seminar 3 s.h.
14:12 African Art and African Language Seminar in African Studies 1 s.h. (Credit given during the senior year)

**Languages**

Currently Swahili is the only African language offered at The University of Iowa.

14:15:16 Elementary Swahili I 8 s.h.
14:17:10 Intermediate Swahili II 8 s.h.

Students also may take the language requirement by demonstrating comparative proficiency in another African language. Students who declared the African studies option before fall semester 1992, and who already had acquired at least one hour by that time, may fulfill the requirement by taking four semester hours or the equivalent in French, Portuguese, or Spanish.

**Humanities Electives**

Two courses (6 semester hours) focused on Africa, chosen from the following, are listed as Humanities courses.

14:30 Introduction to African Art 3 s.h.
14:107 Art of West Africa 3 s.h.
14:108 Art of Central Africa 3 s.h.

14:205 Seminar: Problems in African Art 3 s.h.
14:123 Topics: Modern African History 3 s.h.
14:124 Women in African History 3 s.h.
14:14 Literature of the African Peoples 3 s.h.
14:152 African Drama 3 s.h.
14:150 African Literature 3 s.h.
14:153 Popular African Literature of the African Diaspora 3 s.h.
14:152 Modern African Culture 3 s.h.
14:157 Three African Writers 3 s.h.
14:204 African Studies 3 s.h.
14:159 Francophone Literature 3 s.h.

**Social Science Electives**

Two courses (6 semester hours) focused on Africa, chosen from the following:

14:71 Social Science Perspectives on Contemporary Africa 3 s.h.
14:14 African Development 3 s.h.
14:148 The Politics of Southern Africa 3 s.h.
14:157 Peoples and Cultures of Africa 3 s.h.
14:156 Myth, Magic, and Mind 3 s.h.
14:159 Anthropology of African Art 3 s.h.

**African Content Elective**

African content course (3 semester hours) in African studies or having a significant African content, chosen from the following:

112:2 Art of Africa, Oceania, and Pre-Columbian America 3 s.h.
30:130 The Political Economy of the Third World 3 s.h.
36:307 Women's Studies in the Third World 3 s.h.
36:309 Women and Social Change: International Development Perspectives (same as 151:227) 3 s.h.
46:35 West Africa (same as 46:237) 3 s.h.
46:43 Medical Geography: Health Services 1-3 s.h.
46:45 Third World Development Support (same as 46:157) 3 s.h.
46:53 Planning and Geography of Urban Development (same as 46:120-160) 3 s.h.
46:52 Political Economy of Regional Development 3 s.h.
46:204 Agrarian Change and Rural Development of the Third World 3 s.h.
112:21 Law in Differently African Cultures 3 s.h.

**Diaspora Elective**

One course (3 semester hours) focused on the experience of African in the Diaspora, courses in an course offered by the African-American World Studies Program (see "African-American World Studies" in this section of the Catalog.

**Members**

Students enrolled in the African studies option in the B.A. in African-American World Studies may earn the degree with honors by completing an appropriate honors project.

**Certificate Program**

The certificate program in African studies complements a dissertation major and helps prepare students for graduate study or careers related to Africa. The curriculum for the undergraduate certificate consists of 21 semester hours of courses on Africa, divided into three levels of study: introductory, intermediate, and advanced. There are also the foreign language requirement.

**Required Courses**

Select course descriptions, see the appropriate departmental sections of the Catalog.

**Foreign Language**

Certificate students must take four semester, or the equivalent, of any foreign language spoken in Africa. Language courses taught at the University of Iowa that meet this requirement are French, Portuguese, Spanish, and Swahili.

**Introductory Course**

Certificate students take 14:11 Introduction to African Studies (3 semester hours) as an introduction to the continent and its history, art, literature, politics, and peoples, as an introduction to the African faculty of Iowa.

**Intermediate Course**

Students take the courses, with at least one from each of areas: art, history, literature, and social science—for a total of 15 semester hours.

**Art**

14:1107 Art of East Africa 3 s.h.
14:1108 Art of Central Africa 3 s.h.
14:1109 Anthropology of African Art 3 s.h.
14:1109 African Art (same as 46:98) 3 s.h.
14:1123 History of Colonial Africa 3 s.h.
14:1122 Modern African History 3 s.h.

**Literature**

129:32 Modern African Novels 3 s.h.
14:11 Literature of the African Peoples 3 s.h.
14:1103 African Drama 3 s.h.
14:1153 Francophone Literature of the African Diaspora 3 s.h.

**Social Sciences**

46:120 Planning and Geography of Urban Development 3 s.h.
13:11 Special Topics in Anthropology 3 s.h.
14:1150 African Development 3 s.h.
14:1148 The Politics of Southern Africa 3 s.h.
14:1157 Peoples and Cultures of Africa 3 s.h.

**Advanced Seminar/Course**

Senior students complete the course of study with a seminar or an advanced course (3 semester hours) in any of the four areas listed above. Advanced courses include the following:
### AGING STUDIES PROGRAM

**Coordinator:** Vernon Mccain  
Advisory committee: Lorraine Duykam (Social Work)

#### Advisory committee:  
- Patricia Adams (Lifelong Arts), Jo Fem Carse (Law), Lorenzo Bordon (Social Work)  
- Gary Gath (Business Administration), Jeff Head (Drama), Charles Menes (Art History), Aimee Shuster (Dance), Sandra D. Schmell (Psychology), Bernard Storfer (Pharmacology), Martin Tiry (Social Work), Thomas R. W. Wood (Social Work)

#### Requirements:  
- Coursework: 15 semester hours  
- Comprehensive Examinations:  
- Research Paper:  
- Thesis:  
- Field Experience:  
- Internship:  
- Service Learning:  
- Capstone Experience:  

#### Programs  

**Certificate**  
The certificate in aging studies requires 18 approved semester hours of course work.  

**Majors**  
The major in aging studies requires 18 approved semester hours of course work.  

### Course Requirements

For full descriptions of each of the courses listed below, see the listings in the respective 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 for the program include:

3: 218 Basic Aspects of Aging
3: 230 Aging and Society
3: 242 Multidisciplinary Perspectives on Aging
9: 280 Introduction to Gerontology

PRACTICUM AND RESEARCH COURSES
At least 3 semester hours in a practicum and/or research course are required and no more than 6 are accepted to meet the requirements of the Aging Studies Program. Practicum and research courses include the following:

4: 520 Field Work in Gerontology
9: 133 Practicum in Clinical Issues
9: 143 Practicum in dysfunctional Aging Issues
7: 180 Research Methods in Aging
6: 143 Internship: Research Internship

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

ELECTIVE COURSES
Students may select elective courses to meet their particular needs and interests. Additional courses that fulfill the requirements for the program may be selected from the following:

Anthropology

11: 116 Aging: A Cross-Cultural Perspective
11: 117 Women, Men, and Aging
11: 147 Special Topics in Anthropology: Juvenile Delinquency, Exploratory, and Education in Late Life

Ecological Sciences

2: 272 Seminar in Cell Physiology: Biology of Aging

Counselor Education

7: 180 Topical Seminar in Counseling Education

Dentistry

12: 115 Introduction to Geriatric Dentistry

Health and Hospital Administration

6: 308 Long-Term Care Administration

Internal Medicine

7: 805 Geriatric Seminars

Leisure Studies

104: 102 Special Programs for Special Populations
104: 110 Contemporary Issues in Recreation and Leisure
104: 122 Aging and Leisure
104: 165 Health Promotion and Wellness for Older Adults

Nursing

9: 305 Human Development and Behavior
9: 315 and 405 in Clinical Nursing Praxis

9: 130 Normative and pathophysiologic Aspects of Aging
9: 230 Gerontological Nursing
9: 231 Gerontological Nursing II

Physical Education and Sports Studies

28: 165 Health Promotion and Aging

Religion

32: 153 Introduction to Biblical Ethics
32: 190 Suffering, Death, and Faith

Social Work

42: 185 Social Policy and the Elderly
42: 190 Selected Agencies of Social Work and Social Welfare
42: 212 Social Policy in Health Care
42: 280 Human Behavior Selected Aspects

Sociology

34: 115 Social Psychology of Aging
34: 230 Sociology of the Elderly
34: 233 Aging and Human Development

Speech Pathology

3: 165 Communication Disorders and Aging
3: 330 Seminar: Communication Disorders and Aging

*Some, but not all, of the material in these courses deals with aging. Only a portion of the course fulfills the major requirements for the Aging Studies Program. See program office for details.

AMERICAN STUDIES PROGRAM

Chair: Vernon Steffy

Professor: Vernie Steffy (American Studies/Rhetoric)
Professor: Robert F. Howard (American Studies)
Professor: Virginia A. Eakle (American Studies/Rhetoric)
Professor: John Evans (American Studies/Rhetoric)
Professor: A. C. Stahl (American Studies)

Assistant Professor: Lila, W. Riddick (American Studies/Communication Studies)

Undergraduate degree: MA in American Studies, minor in American Studies


The American Studies Program provides an interdisciplinary introduction to American culture, past and present. It helps students understand the diverse culture and economics of the United States, as well as popular and fine art institutions, values, gender and ethnic relations, art, and the everyday life of a diverse citizens.

Undergraduate Program

Bachelor of Arts

The B.A. program in American Studies stresses broad training in cultural analysis and literary criticism. Although there is no explicit vocational training, the program prepares students for a career in business, education, government, journalism, or social service. For knowledge in the humanities, the social sciences, theology, or business, or for professional studies in law or medicine.

Internships can be arranged.

Plan of Study

American studies majors develop individual plans of study that combine courses from degree departments with an American Studies Program offering. Proposed plans of study are reviewed by the American Studies Program faculty to ensure that they are manageable and feasible.

Prospective American Studies majors are required to submit a preliminary one to two-page plan of study, which must be approved before they can be considered for admission to the major. Each plan of study should indicate why the prospective student wishes to undertake the American Studies major and outline an 18 semester-hour area of specialization in American studies. The area of specialization should be interdisciplinary and should focus on a theme, problem, body of materials, group of people, or time period in American life. It should also include a variable approach to the chosen topic as represented by relevant courses from multiple disciplines.

Plans of study may be submitted for approval to the director. Students of undergraduate status in the American Studies Program may carry the plan of study as long as they are reviewed regularly each semester.

If the director of undergraduate study does not approve a plan of study, the student may revise and resubmit the plan at any time. In some cases, student may be referred to a more appropriate departmental major. Students who wish to appeal the director's decision may submit the plan of study and an accompanying letter of appeal to the American Studies Steering Committee.

Required Courses

The major usually consists of 12 courses totaling 36 semester hours. Students are especially encouraged to complete courses in women's studies and Africana-American world studies. Courses in American studies include:

45: 1 American Values and 45: 18 Seminar in American Studies. Requirements are as follows:

American studies core (12 courses, including 45: 1 and 45: 8)

American History (2 courses)
Area of concentration (6 courses in American studies or other department) 18 s.h.

General education courses in historical perspectives, humanities, literature, and social sciences provide relevant preparation for the American studies major. NU's American Love is especially recommended.

Honors

The American studies honors program offers students the opportunity to pursue special interests in individual, in-depth research. Honors candidates in American studies must be members of the University Honors Program. Under the guidance of the undergraduate honors advisor, the honors candidate defines a research project using primary sources. Proposals should be made by the end of the student's junior year. Each candidate must write a paper under the guidance of a supervising faculty member and pass an oral examination for 30 semester hours or 34-45 honors projects.

Results of the research project are presented in a seminar paper 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. Within the honors advisor is the supervising faculty member, the candidate may select second and third faculty members. The candidate's committee may choose to locate in one of the first three days of the major, usually in the third week of the student's last semester.

Minor

Students interested in a minor in American studies should consult program faculty members. The minor requires a minimum of 15 semester hours of credit in American studies with a minimum grade point average of 2.00. At least 12 of the 15 semester hours must be taken at The University of Iowa in courses numbered 45-100 or above, but 45-00 may count toward this requirement.

Graduate Programs

Master of Arts

The M.A. in American studies may be a terminal degree or a degree in preparation for 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:

- 45-202 (3 hrs.) Theory and Practice in American Studies I (5 semester hours) but at least two courses in 18 semester hours or in seminars in American Studies. Free to eight additional courses selected in relation to the topic or period in cultural history; these courses may be grouped to address more than one topic, and they must be chosen from more than one discipline; they usually include at least two courses in American history and one work in African-American world studies and women's studies; and satisfactory performance in 45-400 Masters Preparation (3 s.h.), which includes a comprehensive examination on course work and basic concepts.

The M.A. may also be taken with thesis, in which case a student may receive up to 6 semester hours of their credit. Students should consult this program plan for details.

A joint program leading to the M.A. in American studies and the J.D. from the College of Law provides a four-year cultural context for the study and practice of law. Similar joint programs can be arranged in other professional fields, including journalism and social work.

Doctor of Philosophy

The Ph.D. program in American studies requires a minimum of 72 semester hours of course work that provides a core of American studies courses, courses in interdisciplinary methods and advanced coursework in three major fields. Course requirements are as follows:

45-202 (3) Theory and Practice in American Studies I 6 s.h.
First Field 6 (courses) 18 s.h.
Second Field 5 (courses) 18 s.h.
Third Field 6 (courses) 18 s.h.
Electives

Although permitted considerable flexibility in planning a program, American studies Ph.D. candidates must complete certain basic requirements. One is that through course work and reading, all students address the cultural diversity of American life. Since race and gender are specifically identified on the whole, the experience of the comprehensive examination, and one of the above courses is required in African-American world studies and women's studies. Students also have the option of a plan that emphasizes a particular period of American cultural history. Hence, a minor is considered either background or of the core of all doctoral programs.

Finally, students must complete significant course work in American studies. During the semester students normally must take one or two courses in 18 semester hours or seminars in American Studies. Each minor 45-202 (3) Theory and Practice in American Studies I is required 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 carefully with advisors to be sure each major field is a well-designed coherent chain of study.

Admission to Ph.D. Candidacy

A student's plan of study and evaluation by instructors must be presented to the American studies faculty for review after at least 20 semester hours of course work have been completed. Students who have been accepted to Ph.D. candidacy should finish the course work required in the plan of study and prepare for comprehensive examinations.

Comprehensive Examinations

The Ph.D. degree includes at least 5 courses (18 semester hours), including seminars. In defining a field, students should consider covering no more than the breadth of material, time range, interpretive theory, comparative studies, or a thesis and seminars in students' studies and African-American world studies, but also in foreign language, media production skills (e.g., photography, video), and other seminars.

Comprehensive examination of two of the fields in the Ph.D. program is designed to examine the component of the comprehensive examination for the purpose of the oral portion or the written examination of the thesis. A student may petition to present such a thesis in the study of American studies.

Theses

The final requirement for the Ph.D. in American studies is presentation of an acceptable thesis or a job whose investigation involves more than one field or discipline. The candidate may petition to present a creative thesis, such as a fiction, autobiography, or film, combined with a critical analysis of the cultural experiences the thesis reflects. Permission to undertake such a thesis is granted only by the American Studies Steering Committee.

Internships

Graduate students in American studies can arrange internships with a number of local agencies, including the National Historical Society of Iowa, the Iowa Historical Preservation, The University of Iowa Museum of Art, the Iowa Humanities council, the Herbert Hoover National Historic Site, and the Putnam Museum, Internships in Chicago can be arranged with Hull House, Newberry Library, Chicago Museum of Science, Institute of Humane Studies, and other local agencies. Students interested in in-service training. The school's social agencies, government, or business may be arranged.

Courses

Primarily for Undergraduates

45-000 Comparative Education Internship 3 s.h.
45-1 American Values 3 s.h.

45-20 American Studies 3 s.h.
45-30 American Studies 3 s.h.
45-40 African American Culture 3 s.h.
45-50 African American Culture 3 s.h.
45-60 African American Culture 3 s.h.

45-70 African American Culture 3 s.h.
45-80 African American Culture 3 s.h.
45-90 African American Culture 3 s.h.
45-100 African American Culture 3 s.h.
45-110 African American Culture 3 s.h.
45-120 African American Culture 3 s.h.
45-130 African American Culture 3 s.h.
45-140 African American Culture 3 s.h.
45-150 African American Culture 3 s.h.
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45-170 African American Culture 3 s.h.
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45-650 African American Culture 3 s.h.
and course, medical anthropology, religious activity in field and lab settings, gender, biological anthropology, expressive culture (art, literature, music, dance), human evolution, environment and culture, and urban anthropology. Department faculty members offer electives courses on Africa, China, Oceania, Southeast Asia, Latin America, the Caribbean, Japan, and Native America.

Specialization is discouraged in the undergraduate program, which is designed to give students the broadest possible cross-cultural background. Course work is encouraged in related disciplines such as sociology, linguistics, geography, geology, history, art history, psychology, biological sciences, and foreign languages. Students also are encouraged to participate in archaeological field and laboratory research and in biological and linguistic anthropology research projects.

Honors

The honors program in anthropology is open to students with a minimum cumulative grade-point average of 3.20 (both overall and in anthropology). In addition to the regular requirements for a major in anthropology, honors students complete an honors seminar or graduate-level course and an honors research project. Consult the department honors advisor for more information.

Minor

To minor in anthropology, students must complete one course in each of three areas of anthropology and one course in biology or sociology, with a minimum grade-point average of 2.00. At least 12 semester hours must be taken at The University of Iowa in courses numbered 113:100 and above.

Graduate Programs

Master of Arts

The M.A. program consists of four program tracks: general anthropology (thesis or nonthesis), sociocultural anthropology, archaeological anthropology, and economic and political development. The number of semester hours of credit required for the M.A. varies from 30 to 40, depending on the student's previous anthropological training. The nonthesis program requires a minimum of 40 semester hours of graduate work. The thesis program also requires a minimum of 40 semester hours of graduate work with a thesis in anthropology. A total of 12 semester hours of courses outside of anthropology and no more than 1 semester hour of independent study may be applied toward the M.A. requirements in anthropology.

Students, with previous training in anthropology, whatever their undergraduate major, may petition for permission to waive any part of the distribution requirements listed below. The following are the requirements for each M.A. program track.

**General Anthropology**

(The thesis or nonthesis)

113:102 Anthropological Data Analysis 3 s.h.
113:171 Ethnographic Data Analysis 3 s.h.
113:240 Seminar: Sociocultural Anthropology 3 s.h.
113:268 Seminar: Archaeological Theory and Method 3 s.h.
113:265 Seminar: Biological Anthropology 3 s.h.

Students also must take one additional course in each of the following subject areas, for an additional 6 semester hours.

Sociocultural anthropology (courses listed under Social Institutions)

Anthropology (excluding appropriate courses in the Department of Linguistics)

Archaeology (excluding field and laboratory methods courses)

Biological anthropology (excluding laboratory courses)

**Economic Anthropology**

(The thesis only)

113:102 Anthropological Data Analysis 3 s.h.
113:240 Seminar: Sociocultural Anthropology 3 s.h.
113:268 Seminar: Archaeological Theory and Method 3 s.h.

Students also must take one course from each of the following three groups, for an additional 9 semester hours.

113:135 Work and Society 3 s.h.
113:141 Economic Anthropology 3 s.h.
113:138 Economic and Political Development: Women's Roles 3 s.h.
113:275 Development Policy and Planning in the Third World 3 s.h.
113:143 Environment and Culture 3 s.h.
113:160 Environmental Anthropology 3 s.h.
113:164 Comparative Peasantry 3 s.h.

**Feminist Anthropology**

(The thesis only)

113:190 Feminist Perspectives on Biology and Culture 3 s.h.
113:220 Seminar: Feminist Anthropology 3 s.h.
113:240 Seminar: Sociocultural Anthropology 3 s.h.

Students also must take three courses from the following three groups, for an additional 9 semester hours.

113:138 Economic and Political Development: Women's Roles 3 s.h.
113:150 Women's Roles in Cross-Cultural Perspective 3 s.h.
113:221 Seminar: Feminist Thought 3 s.h.

113:171 Anthropological Linguistics 3 s.h.
113:172 Language and Culture 3 s.h.
113:201 Seminar: Archaeological Theory and Method 3 s.h.
113:206 Seminar: Archaeological Theory and Method 3 s.h.
113:207 Seminar: Biological Anthropology 3 s.h.

**M.A. in Anthropology with a Concentration in Museum Studies**

In cooperation with the Program in Museum Studies, the Department of Anthropology offers a nine-credit program of study leading to an M.A. in anthropology with a concentration in museum studies. Students are required to complete at least one course in art history and one course in conservation and a seminar course in museum studies. Students are also encouraged to take additional courses in museum studies. The program is designed to prepare students for careers in museum administration, education, and public relations.

**Required Courses**

**Anthropology**

113:540 Seminar: Sociocultural Anthropology 3 s.h.
113:545 Seminar: Biological Anthropology 3 s.h.
113:568 Seminar: Archaeological Theory and Method 3 s.h.

**Museum Studies**

24:102 Introduction to Museology 3 s.h.
24:104 Principles of Exhibit Design 2 s.h.
24:106 Museum Laboratory Methods 2 s.h.
24:113 Introduction to Conservation of Museum Objects 2 s.h.
24:119 Internship and Organizations of Materials 1 s.h.
24:150 Directed Studies and Projects 1-3 s.h.
24:180 Museum Internship 1-3 s.h.

**Graduate Electives**

24:102 Introduction to Museology 3 s.h.
24:104 Principles of Exhibit Design 2 s.h.
24:106 Museum Laboratory Methods 2 s.h.
24:113 Introduction to Conservation of Museum Objects 2 s.h.
24:119 Internship and Organizations of Materials 1 s.h.
24:150 Directed Studies and Projects 1 s.h.
24:180 Museum Internship 1-3 s.h.

**Other Courses in Museum Studies, Science Education, Conservation, and Specialized Training**

Doctor of Philosophy

Graduate training in anthropology or the Ph.D. level is designed to lead to professional competence in scholarly research and teaching. Students at The University of Iowa currently may select specializations in all four subfields of anthropology: archaeology, biological anthropology, linguistic anthropology, and sociocultural anthropology. Training in a specialization is guided by a Ph.D. committee composed of appropriate faculty members. Students work closely with their committee to plan a program consistent with their scholarly interests.
The requirements are:

- at least 72 semester hours of graduate course work; students specializing in archaeological science must take 113:201 Seminar: Anthropology at least once. Students planning to write a thesis must fulfill the major requirement of six credits in anthropology at an acceptable institution. An acceptable institution must have a graduate program in anthropology and must have a minimum of 24 credits in anthropology.

Courses for Undergraduates

11:004 Cooperative Education Internship

11:005 Introduction to the Study of Culture and Society

11:16 Anthropology and Contemporary World

Selected world problems from an anthropological perspective. Options are available for all students in the major. 3 credits.
requirements above, for a total of 4 semester hours. Beginning courses in area not listed above are as follows:

12-21 Fiddler's in Design I—Form and Structure 2 s.h.
12-22 Principles in Design II—Form and Function 2 s.h.
12-25 Lettering II 2 s.h.
12-26 Color/Design I 2 s.h.
12-27 Life Drawing I 2 s.h.
12-29 Painting I 2 s.h.
12-36 Beginning Photography 2 s.h.
1M21 Undergraduate Engraving and Relief I 2 s.h.

Electives, selected only from courses that originate in the School of Art and Art History, must bring the total number of credits in art history, studio, or art education to a minimum of 36 semester hours. No more than 50 semester hours of credit in the combined art history, studio, or art education combined may be counted toward the 124 semester hours required for the degree.

Transfer students majoring in studio must complete at The University of Iowa a minimum of 23 semester hours in art history and 12 semester hours in studio, in addition to the six basic studio courses required above and including at least two different studio areas.

Undergraduate transfer students majoring in studio must, at their first semester, secure a portfolio to a faculty review committee, which will determine the student's placement in an exemption from the sequence of basic studio courses.

Art History Emphasis

Major requirements for the B.A. in art with an emphasis in art history are as follows:

studio courses 9-12 s.h.

Two courses chosen from:
1H1-11 Understanding the Visual Arts 3 s.h.
1H3-21 Western Art and Culture before 1400 3 s.h.
Hot Western Art and Culture after 1400 3 s.h.
1H1-20 Asian Art and Art History 3 s.h.
1H1-22 Middle Eastern Art 3 s.h.
1H3-28 North West Asian Art 3 s.h.

Intermediate and advanced art history 18 s.h.

Electives, selected only from courses that originate in the School of Art and Art History, must bring the total number of credits in art history, studio, or art education combined to a minimum of 36 semester hours. No more than 50 semester hours of credit in the combined art history, studio, or art education courses may be counted toward the 124 semester hours required for the degree.

Art history majors must take at least 12 semester hours in at least three disciplines, including two of the following: anthropology, classics, drama, history, language, literature, music, philosophy, religion, or sociology.

Transfer students planning to major in art history should meet with the professor in charge of art history to discuss the student's required minimum registration for courses in art history and studio.

Art Education

Students seeking (insecure or creditable in art education may choose either the studio or art history emphasis (with additional studio work). Electives used to bring the total combined credits in art history, studio, or art education to the required minimum of 36 semester hours or the maximum 50 semester hours must be selected from courses that originate in the School of Art and Art History. In addition to the general requirements for teacher certification (see the College of Education section of the Catalog), students must satisfy the following requirements:

18-102 Concepts in Art Education 3 s.h.
1E-108 Art Education Studio 3 s.h.
75-143 Methods of Art 3 s.h.
75-055 Advanced Methods: Art 3 s.h.
75-077 Seminar: Ceramics and Student Teaching 3 s.h.
75-103 Special Area Student Teaching 6 s.h.
75-100 Observation and Laboratory Practice in the Secondary School 6 s.h.

Students may elect to take 1E20 Art Education and the Museum, for 1 semester hours.

Bachelor of Arts in Art History

The B.A. in art history requires the following courses and credits, for a total of 42-44 semester hours:

115 Western Art and Culture before 1400 3 s.h.
115 Western Art and Culture after 1400 3 s.h.

One course chosen from:
1H3-20 Art of Africa, Oceania, and Pre-Columbian America 3 s.h.
1E-101 Weaving and African Textiles: Tutorial: Introduction to the History of Art 4 s.h.
1E-123 Islamic Art and Civilization 3 s.h.
1E-121 Asian Art and Culture 3 s.h.
Four courses chosen from:
1H2-20 Introduction to African Art 3 s.h.
1H2-21 Introduction to Ancient Art 3 s.h.
1H2-20 Introduction to Medieval Art 3 s.h.
1H2-24 Introduction to Renaissance Art 3 s.h.
1H2-23 Introduction to Baroque Art 3 s.h.
1H2-24 Introduction to 18th Century Art 3 s.h.
1H2-23 Introduction to 19th Century Art 3 s.h.
1H2-20 Introduction to 20th Century Art 3 s.h.
1H2-20 Introduction to American Art 3 s.h.
Four courses chosen from: 1H1-103 (through 1896) 12 s.h.
1H2-198 Themes in Art History 3 s.h.
1H2-100 Undergraduate Seminar in the History of Art (normally in junior or senior year) 3 s.h.

Studio courses 3-6 s.h.

Electives within the School of Art and Art History must bring the total number of semester hours to a maximum of 42. No more than 50 semester hours of credit in this combined area may be counted toward the 124 semester hours required for the degree. Art history majors may not take 1H1-18 and 1H4.

Non-Art History Credit

Students may elect for 1-12 semester hours in at least three of the following disciplines: art history, art and Art History courses in philosophy, religion, sociology, political science, or as advised.

As part of the College of Liberal Arts General Education Requirements, all art history students must complete the equivalent of two years of one foreign language at the college level.

Transfer Students

Transfer students planning to major in art history should meet with the faculty undergraduate advisor in charge of art history to discuss required minimum registration for courses in art history.

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 56 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 in the School of Art and Art History and 62 semester hours in studio courses.

In addition to the General Education Requirements (see the College of Liberal Arts section of the Catalog), major requirements listed above for the B.A. degree with studio emphasis, the B.F.A. candidate must complete three courses in a studio area of concentration beyond the fundamental course, and must complete at least the second semester of course work in each of two additional studio areas.

Art education majors in the B.F.A. program must meet the same teacher certification requirements as do students in the B.A. program. B.F.A. candidates may waive 6 semester hours of the General Education Requirement in historical perspectives.

Honors

Art majors who are eligible to enroll in the University Honors Program may enroll in the honors program of 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 a seminar or supervised seminar beyond the 18 semester hours of intermediate and advanced art history.

The undergraduate seminar requirement may be met by participation in a graduate seminar or supervised course of directed studies. The thesis
requirement may be met by a research paper given in a graduate seminar or a course for graduate students of directed studies judged to be comparable in quality to graduate degree work.

Hence student in studio course must maintain a minimum grade point average of 3.50 in studio courses, hold an exhibition of their studio work, and present a statement of their course of the exhibited studio work. The assessment may be based on the history of art, history of ideas, philosophy, and as forth written under the supervision of faculty in the student's studio concentration area. Registration for the course of individual instruction that leads to the exhibition and related statement may be for 3 semester hours of credit.

Minor

A minor in art requires 15 semester hours in art courses with a minimum grade point average of 2.00. At least 12 of these hours must be in advanced-level art courses taken at The University of Iowa (those numbered 100 and above plus 14.49, 14.52, and 14.71).

Graduate Programs

Master of Arts in Art History

M.A. students in art history are expected to acquire a broad general knowledge of art history as an academic and humanistic discipline, to become familiar with the major periods and monuments of world art, and gain proficiency in research techniques 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 resident requirement for the M.A. degree is 24 semester hours; and
- A grade of A or B in at least one semester-long course in each of five of the following areas of art history: the courses must be at a level equivalent to University of Iowa courses numbered 100 or above, and must be taken after receiving the B.A. or B.F.A. degree.

Requirements for admission to the M.A. program in art history are the same as those for advanced-level art courses taken at The University of Iowa.

Revised Jan. 1991

Specialized Area Studies Programs

The school also offers a specialized area studies program on the M.A. level. Formal approval to enter this program based on the student's background, interest, and areas of expertise. The student must demonstrate potential for outstanding work in the area of his or her specialization.

To encourage in-depth work, students are expected to complete 12 semester hours of course work in their major area of focus. Acceptance into the area studies program does not change students' obligations to the methodology, language, seminar, and research paper/dissertation requirements. Students consult with their faculty advisors to choose appropriate courses in related areas offered by other departments. Faculty supervising work in the specific areas evaluate the students annually.

Master of Arts in Studio

The school offers the M.A. in studio with a major in one combination with the metalworking and weld, multimedia and video art, painting, photography, printmaking, or sculpture. The degree requires:
- A B.A. or B.F.A. in an equivalent to that offered at The University of Iowa in undergraduate studies. If any art, any may be made up concurrently, but are in addition to, graduate requirements.
- A minimum of 36 semester hours of graduate work, including at least 12 semester hours in a major studio subject, with a total of at least 21 semester hours in studio courses; 9 semester hours in the history and theory of art, excluding readings and directed studios; and up to 8 semester hours of courses outside an end of art history.
- Satisfactory performance in the M.A. candidacy by faculty review.
- Studio and written Thesis.
- Studio thesis may be taken in art history courses on a satisfactory-unsatisfactory basis.
- Graduate students who have not had studio at The University of Iowa must take at least one drawing course during the first year.
- Students preparing to teach in both studio and art history areas may complete an art history course of 15 semester hours, including 15.32 Seminar, Methodologies of Art History and Criticism and one other seminar. These hours are in addition to the University's undergraduate requirement for an art history subject. In addition, the student must satisfy the studio requirement for an art history course.

Master of Arts in Art Education

Requirements for the M.A. in art education are:
- A B.A. or B.F.A. in an equivalent to that offered at The University of Iowa, teaching certification in art, completion of 38 semester hours of graduate credit, including 16 semester hours of studio and art history in a ratio of two to one (either 12 semester hours of graduate credit in studio and 6 in art history, or 6 in studio and 12 in art history); 8 semester hours in graduate seminars in art education, and 12 semester hours to be specified after the student begins the program; and
- A written thesis based on research in art education or art history, or a studio thesis accompanied by a brief statement of the student's theoretical, aesthetic, and/or psychological approach, and clearance for M.A. candidacy by faculty review.

Art education majors who elect to do a studio thesis and who have not had studio at The University of Iowa are required to take at least one drawing course, selected from the school's regular and directed drawing courses, during the first year in residence.

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Art education majors may elect to take art history courses on a satisfactorily-constitutional basis.

Master of Fine Arts in Studio
The school offers the M.F.A. with a major in ceramics, design, drawing, metalworking and jewelry, multimedia and video art, painting, photography, printmaking, or sculpture. M.F.A. candidates must have an M.A. degree in art equivalent to that offered at the University of Iowa, a minimum of 60 semester hours of graduate work, including at least 12 semester hours in a major studio subject, at least 6 semester hours in a minor studio field selected from the fields listed above, 9 semester hours in art history and theory of art, and 8 semester hours in courses originating outside the school.

Certificate for M.F.A. Candidate by faculty review, and studio and written thesis. Theiss credits earned in an M.A. program are not applicable toward the M.F.A. credit requirement.

Doctor of Philosophy in Art History
Ph.D. students must have a broad general knowledge of art history and acquire detailed knowledge of seven areas, an understanding of art criticism, and a knowledge of research methods within certain specialized areas of world art selected by each student in conjunction with appropriate faculty members. The Ph.D. in art history is intended only for students who can effectively demonstrate scholarship potential in the field. Students may apply for a rapid track to the Ph.D., bypassing the M.A., (see "Direct Entry Into Ph.D. Program"). All students must meet the following requirements for the Ph.D.:

- formal application for admission to the art history faculty; a grade point average of at least 3.0 is required for admission and continuation in the program;
- submissions of an art history research paper that meets the approval of a three faculty members of the graduate art history faculty;
- a minimum of 72 semester hours of graduate level course work; a maximum of 30 semester hours of work taken for the M.A. degree may be applied to this goal, and
- dissertation, written in the first 21 semester hours of graduate work beyond the M.A., of ability to read art history writings in two appropriate foreign languages (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 take, at the graduate level, the dissertation requirement for the M.A., or must complete The University of Iowa M.A. comprehensive examination. They also must submit a research paper in art history, which must be approved by three faculty of the graduate art history faculty; complete two semesters in two different areas; and meet the requirements for two foreign languages. The residency requirement for the dissertation must be met at the University of Iowa. Students must write their thesis in accordance with the regulations of the M.A. program. Additional course work requirements for the M.A. program are as follows:

Two art history seminars (with two different instructors) 5 s.h.

Additional art history courses 18-30 s.h.

Courses outside the school 0-12 s.h.

Students must successfully complete a comprehensive examination of six hours in one major field and three hours in one related field, selected by the student in consultation with the advisor and approved by the art history faculty. The minor field may be in a discipline or disciplines outside the school, for example, religion, history, literature, or philosophy.

Students must prepare a written dissertation that constitutes an original scholarly contribution to the field. 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. Students are given a final oral examination on the dissertation.

Direct Entry Into Ph.D. Program
A graduate student may, at any time, apply to the Ph.D. program directly, without first acquiring an M.A. degree; students who want to receive this award must submit a comprehensive research paper that meets the approval of three faculty members of the graduate art history faculty. Students may apply for this option only twice; if the second application fails, they must complete the M.A. before applying for admission into the Ph.D. program. The M.A. distribution requirement is waived, but foreign language and seminar requirements remain the same.

Doctor of Philosophy in Art Education
The Ph.D. in art education gives college teachers and researchers in art education and art supervisors in school departments of education and school systems an opportunity to continue their inquiry and creative work in art history, and in studio art. The program is administered by the College of Education in cooperation with the School of Art and Art History. Students must apply for admission to the College of Education.

Degree Requirements
Students must complete at least 60 semester hours of graduate work beyond the M.A. The curriculum must be selected with the advisor and must include at least 15 semester hours in the School of Art and Art History, 15 semester hours in art education graduate seminars, 15 semester hours in a related area (e.g., aesthetics, anthropology, higher education, psychology, sociology), and 15 semester hours in thesis and field course (725-306 or 736-306 Introduction to Research in Art Education). Students must take both oral and written comprehensive examinations. A comprehensive examination consists of an in-depth research problem to be completed within 14 days, after which an oral examination on the project is held. The research problem is assigned by the examining committee, and the written portion of the examination is not intended to relate directly to the student's dissertation proposal. Students also must complete a written dissertation for at least 12 semester hours and are expected to prepare a dissertation proposal and defend it before the dissertation committee. An oral examination on the dissertation is the Ph.D. final examination.

Admission
Studio
Admission procedures for graduate studio programs include a committee review of applications and all of the applicant's relevant materials. Studio applicants must include a resume with their application. Applicants should consult the school for deadlines and meeting dates.

Ceramics, design, drawing, metalworking, or jewelry, multimedia or video art, painting, or sculpture majors must submit slides and/or photographs of their work in their color field. Preparing majors must submit slides to the department of art history for initial screening. Drawing majors must submit sketches of 20 to 30 slides or prints. Studio applicants also must submit two slides showing samples of their work in one other area, and three letters of recommendation. Newly admitted students who do not register within two semesters of admission must reapply. Students who attend for a limited time, then register in a period of 26 months, must apply for readmission.

Art History and Art Education
Applicants to the graduate program in art history must submit a term paper or other example of ability to write in the field and a one-page, single-spaced statement of their purpose in pursuing graduate studies. Applicants to the M.A. graduate program in art education must submit a term paper or other example of ability to write in the field, and a selection of slides or photographs of their creative work in two studio areas. All applicants must submit three letters of recommendation and GRE scores with their applications. A summer seminar in art history must be on file in the School of Art and Art History by the following deadlines.

Art education applicants: April 15 for summer seminar, August 15 for fall semester. November 15 for spring semester.

Art history applicants: February 1 for all applicants who wish to be considered for
Drawing
13.17 Life Drawing I 1 credit
13.18 Life Drawing II 1 credit
13.19 Advanced Life Drawing 1 credit

Metalworking Jewellery
13.04 Introduction to Metalworking Jewellery 1 credit
13.15 Advanced Metalworking Jewellery 1 credit

Multimedia, Video Art
13.10 Multimedia I 2 credits
13.11 Multimedia II 2 credits

Painting
13.10 Painting I 2 credits
13.11 Painting II 3 credits

Photography
13.20 Beginning Photography 1 credit
13.21 Intermediate Photography 1 credit
13.22 Advanced Photography 1 credit
13.23 Photography Workshop 1 credit

Printmaking
13.20 Undergraduate Intaglio and Relief 1 credit
13.21 Undergraduate Intaglio and Relief 1 credit

Sculpture
13.15 Undergraduate Sculpture I 2 credits
13.16 Undergraduate Sculpture II 2 credits
13.17 Undergraduate Sculpture Workshop 3 credits
13.18 Undergraduate Sculpture in Cast Metal 2 credits
13.19 ushort Sculpture 2 credits
13.20 Short Sculpture Workshop 2 credits

13.11 Mixed Media Workshop 2 credits
13.12 Mixed Media Workshop 2 credits

13.21 Individual instruction in Multidisciplines and Video

13.21 Individual instruction in Multidisciplines and Video

13.20 Undergraduate Intaglio and Relief

13.21 Undergraduate Intaglio and Relief

13.21 Undergraduate Intaglio and Relief

13.20 Undergraduate Intaglio and Relief
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Undergraduate Programs

The Department of Asian Languages and Literatures offers two programs leading to the Bachelor of Arts degree. The major in Asian languages and literature is intended for students who want to concentrate on one of the language and literature programs offered by the department. The major in Asian Studies is primarily for those interested in studying the cultures and civilizations of traditional and modern Asia through the many courses offered in the department and related departments.

Both programs offer students the opportunity to develop advanced skills in an Asian language while they study the peoples, literatures, and cultures of Asia.

Conditions of both programs have found courses in education, government, communications, business, and other fields in the United States and Asia. Students also provide excellent background for advanced study in a variety of fields in the humanities and social sciences, and for professional schools such as law and business.

The department encourages its undergraduate majors to participate in study abroad programs in Asia and has entered into exchange agreements with several universities there. Every effort is made to secure transfer of credits for students studying abroad so as not to hamper progress toward completion of the degree.

B.A. in Asian Languages and Literature (Chinese, Hindi, Japanese, Sanskrit)

Majors are required to complete 30 semester hours of advanced courses, as follows:

STUDENTS OF CHINESE

39-101 Second Year Chinese 12 s.h.
39-105-106 Third Year Chinese 12 s.h.
39-144 Chinese Literature: Prose 3 s.h.
39-142 Chinese Literature: Prose 3 s.h.
39-180 Modern Chinese Writings 3 s.h.

STUDENTS OF HINDI

39-33-34 Second Year Hindi 8 s.h.
39-184-185 Third Year Hindi 6 s.h.
39-135-136 Indian Literature 6 s.h.
39-137 Indian Devotional Literature & Traditions 3 s.h.

With the approval of the major advisor, students may substitute 6 semester hours of 100-level courses in South Asian studies for third-year Hindi.

STUDENTS OF JAPANESE

39-101-11 Second Year Japanese 12 s.h.
39-105-106 Third Year Japanese 12 s.h.
39-141 Traditional Japanese Literature 3 s.h.
39-142 Modern Japanese Fiction 3 s.h.

STUDENTS OF SANSKRIT

39-23-24 Second Year Sanskrit 6 s.h.
39-186-187 Third Year Sanskrit 6 s.h.
39-155-156 Indian Literature 12 s.h.
39-163 Indian Religious Texts 3 s.h.

With the approval of the major advisor, students may substitute 6 semester hours of 100-level courses in South Asian studies for third-year Sanskrit.

Students are urged to fulfill the General Education Requirement in historical perspectives by completing 6-12 credits in Civilization of Asia.

B.A. in Asian Studies

Students majoring in Asian studies must complete 30 semester hours of courses in Asian, as follows:

39-101-11 Second Year Chinese 12 s.h.
39-105-106 Third Year Chinese 12 s.h.
39-141 Traditional Chinese Literature 3 s.h.
39-142 Modern Chinese Writings 3 s.h.

At least one course on the history of the area about which you are studying, chosen from the following:

39-153-154 Studies of Ancient and Traditional India
39-156-157 Japanese and Modern India
39-153-154 Modern China
39-153-154 Present China
39-172 Japan 1800 to 1900
39-173 Japan 1900 to 1965
39-174 Japan 1945 to Present

Other courses on Asia, 100 level or above:

For those taking Chinese or Japanese: 15 s.h.
For those taking Hindi: 15 s.h.
For those taking Sanskrit: 21 s.h.

Many students find that they can conveniently combine an Asian studies major with a major in political science, art history, religion, sociology, anthropology, or other disciplines.

Honor

Students with a grade-point average of 3.20 or above are encouraged to enroll in the University Honors Program. With the permission of the departmental chair and a faculty sponsor selected from Asian specialists in any department, students register for 39:19 Honors...
Tutor and 19:105 Senior Honors Thesis. To receive a B.A. with honors, students must complete an acceptable thesis based on original research in an appropriate area of Asian studies.

Minor in Asian Languages

A minor in Asian languages requires a minimum of 15 semester hours with a grade-point average of 2.00. Of the 15 semester hours, at least 12 must be taken at The University of Iowa in advanced courses. Students may earn minors in Chinese, Hindi, Japanese, or Sanskrit. The following courses are considered advanced for the minor.

CHINESE
3:10 Second-Year Chinese: 5 cr.
3:11 Second-Year Chinese: 5 cr.

HINDI
Students of Hindi are permitted to complete the advanced course requirement with 11 semester hours.

3:22 Second-Year Hindi: 4 cr.
3:34 Second-Year Hindi: 4 cr.
3:18 First-Year Hindi: 3 cr.

JAPANESE
3:10 Second-Year Japanese: 6 cr.

SANSKRIT
3:32 First-Year Sanskrit: 5 cr.
3:32 Second-Year Sanskrit: 5 cr.
3:34 Third-Year Sanskrit: 5 cr.

Students who begin work in minors in fall semester 1989 or earlier may choose to meet old requirements. Please see an advisor in the Department of Asian Languages and Literatures.

Minor in Asian Studies

A minor in Asian studies requires a minimum of 18 semester hours with a grade-point average of 2.00. Of the 15 semester hours, at least 12 must be taken at The University of Iowa in advanced courses. Courses numbered 330-100 or 330-110 and above are considered advanced for the minor. Students are encouraged to take 330-15, 330-15, 330-15, Asian Studies (China, Tibet, Tibet, Tibet, Tibet), as their lower-level course. Students who begin work in minors in fall semester 1989 or earlier may choose to meet old requirements. Please see an advisor in the Department of Asian Languages and Literatures.

Certificate in International Business

Students of Chinese, Japanese, and Hindi may participate in a program leading to a Certificate in International Business, offered jointly by the College of Business Administration and the College of Liberal Arts. The wide range of electives in the program permits an individual student to tailor it to his or her special interests and to concentrate major in the Colleges of Business Administration and Liberal Arts and the College of Business Administration section of the College.

Elementary and Secondary Teaching Certification in Chinese and Japanese

Chinese and Japanese majors interested in certification to teach in elementary- or secondary schools must successfully complete the requirements for a major, or the equivalent, plus designated courses on pedagogy in the Department of Asian Languages and Literatures. In addition, students must be admitted to the College of Education's Teacher Education Program. Students in the College of Education's Teacher Education Program must meet all the requirements for a major or the equivalent. All students must also be admitted to the College of Education's Division of Curriculum and Instruction for more information. Students who plan to use a Chinese or Japanese minor to teach at the elementary- or secondary level must enroll the College of Education concerning requirements.

Graduate Programs

Master of Arts in Asian Civilizations

The graduate program in Asian civilizations provides preparation for doctoral study in a variety of disciplines. It is a size to students with nonacademic career plans for whom graduate-level work in an Asian language and culture would be useful. Students in professional programs are encouraged to consider working toward a concurrent degree in Asian civilizations.

The Master of Arts in Asian civilizations requires a minimum of 30 semester hours of approved coursework, 24 of which must be taken in residence at The University of Iowa. By the end of the first semester in residence, students propose a plan of study developed in consultation with the adviser. The course of study must conform to one of the following four specialized master's programs: Chinese literature, Chinese linguistics, Chinese language teaching, interdisciplinary studies in Chinese, Japanese literature, Japanese language and pedagogy, interdisciplinary studies in Japanese, Sanskrit language and literature, Hindi language and literature, and South Asian studies. All students must maintain a 3.00 overall grade-point average. Credits taken in more than one degree programs may be used in all requirements to students. By the end of the first semester in residence, students are expected to demonstrate, either by departmental examination or the successful completion of courses at the appropriate level, or advanced competence in Chinese, Japanese, Hindi, or Sanskrit, defined generally as corresponding to the fourth-year level of language course work in Chinese and the third-year level in Hindi and Sanskrit.

Admission

Applicants to graduate admission must meet the general admission requirements of the Graduate College, except that a minimum grade-point average of 2.75 is required for conditional admission. In addition, applicants must submit a writing sample in English—such as a term paper, seminar paper, or graduation thesis—to the Department of Asian Languages and Literatures.

Both foreign and nonforeign graduate applicants requesting financial support for the following academic year are due February 1. Nonforeign applicants 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 fall semester and October 1 for the spring semester. Students should check the Graduate Record Exam (GRE) General Test early, since an admission decision cannot be made until scores are received.

Financial Aid

The Department of Asian Languages and Literatures offers two types of support for graduate students in Asian civilizations: teaching assistantships and research assistantships. At the time of applications, students should request information about special requirements for teaching assistantships.

Currently enrolled undergraduate and graduate students are eligible to compete for summer scholarship aid except for nonresident graduate students, who are provided by the University of Iowa. Scholarships consist of a cash grant for use in an approved summer course. Information about approved courses is available in the department.

Students who plan to participate in the Iowa Critical Languages Program receive special financial support. All students of Asian languages have available support from two special sources.

- Presidential Scholarship for Study Abroad in the amount of $4,000 may be used to help students in the study abroad. A limited number of scholarships are awarded each year, and the program for study abroad in non-European countries is especially encouraged.
- Stanley Scholarships for International Research and Study, available from the Center for International and Comparative Studies (CICS) support summer study projects and activities away from The University of Iowa campus. Consult the CICS office for more information.

Graduate students who combine work in Asian languages at an advanced level with interdisciplinary or professional study are encouraged to apply for Graduate Fellowships in Foreign Language Study awarded by the Center for International and Comparative Studies. The fellowships offer academic year and summer study stipends as well as full or partial tuition.
Japanese Language House, Student Association
The Foreign Language House in Hilgard Residence Hall includes a Japanese House that is a focal point for activities among both resident and nonresident students and the Japanese Student Association, including weekly dinners.

Library Facilities
Since 1966, the Main Library has routinely acquired more American titles in Asian studies and selected overseas scholarship publications in English and other Western languages. The Library's Asian collection includes approximately 88,000 volumes in Asian languages and about 120,000 Western-language volumes on Asian subjects. The Universe is a member of the Library of Congress Foreign Currency Exchange Program for Indian books and periodicals. The library's computer media collection includes a growing number of Asian feature films. A Chinese Japanese Korean computer terminal gives students and faculty access to the growing Research Libraries Information Network database in Asian languages.

Courses
Undergraduate Language
39-000 Cooperative Education Internship

CHINESE
31-20 Chinese I
4.0
Intermediate school writing, conversational, written, and oral Chinese.
31-11 Chinese II
4.0
Conversational Chinese (C11-Chinese II), reading, conversational, written, and oral Chinese.
31-30 Chinese III
4.0
Conversational Chinese (C30-Chinese III), reading, conversational, written, and oral Chinese.
31-40 Chinese IV
4.0
Conversational Chinese (C40-Chinese IV), reading, conversational, written, and oral Chinese.
31-50 Chinese V
4.0
Conversational Chinese (C50-Chinese V), reading, conversational, written, and oral Chinese.
31-60 Chinese VI
4.0
Conversational Chinese (C60-Chinese VI), reading, conversational, written, and oral Chinese.
31-125 Third-year Chinese
6.0
Advanced Chinese (C125-Chinese), reading, conversational, written, and oral Chinese.

HINDI
31-21 Hindi I
4.0
Intermediate school writing, conversational, written, and oral Hindi.
31-22 Hindi II
4.0
Conversational Hindi (C22-Hindi II), reading, conversational, written, and oral Hindi.
31-32 Hindi III
4.0
Conversational Hindi (C32-Hindi III), reading, conversational, written, and oral Hindi.
31-42 Hindi IV
4.0
Conversational Hindi (C42-Hindi IV), reading, conversational, written, and oral Hindi.

JAPANESE
31-20 Japanese I
4.0
Introductory Japanese, reading, listening, writing, conversational, and conversational Japanese.
31-21 Japanese II
4.0
Intermediate Japanese, reading, listening, writing, conversational, and conversational Japanese.
31-32 Japanese III
4.0
Conversational Japanese, reading, conversational, written, and oral Japanese.
31-42 Japanese IV
4.0
Conversational Japanese, reading, conversational, written, and oral Japanese.

KOREAN
31-20 Korean I
4.0
Introductory Korean, reading, listening, writing, conversational, and conversational Korean.
31-21 Korean II
4.0
Intermediate Korean, reading, listening, writing, conversational, and conversational Korean.
31-31 Korean III
4.0
Conversational Korean, reading, conversational, written, and oral Korean.
31-41 Korean IV
4.0
Conversational Korean, reading, conversational, written, and oral Korean.

Sanskrit
31-20 Sanskrit I
4.0
Introductory Sanskrit, reading, writing, and oral Sanskrit.
31-30 Sanskrit II
4.0
Conversational Sanskrit, reading, written, and oral Sanskrit.
31-151 First-year Sanskrit
5.0
Conversational Sanskrit (C151-Sanskrit), reading, written, and oral Sanskrit.

OTHER LANGUAGES
31-201 First-year Turkish
6.0
Introductory Turkish, reading, written, and oral Turkish.
31-401 First-year French
6.0
Introductory French, reading, written, and oral French.
31-402 First-year Italian
6.0
Introductory Italian, reading, written, and oral Italian.
31-403 First-year Spanish
6.0
Introductory Spanish, reading, written, and oral Spanish.
31-153 First-year Arabic
6.0
Conversational Arabic (C153-Arabic), reading, written, and oral Arabic.
31-154 First-year Swahili
6.0
Conversational Swahili (C154-Swahili), reading, written, and oral Swahili.

Graduate Language
31-001 Chinese I for Graduate Students
3.0
Introductory Chinese I for graduate students.
31-002 Chinese II for Graduate Students
3.0
Intermediate Chinese II for graduate students.

JAPANESE
31-01 Japanese I
3.0
Introductory Japanese I, reading, listening, writing, conversational, and conversational Japanese.
31-02 Japanese II
3.0
31-03 Japanese III
3.0
31-04 Japanese IV
3.0

KOREAN
31-01 Korean I
3.0
Introductory Korean I, reading, listening, writing, conversational, and conversational Korean.
31-02 Korean II
3.0
Intermediate Korean II, reading, listening, writing, conversational, and conversational Korean.
31-03 Korean III
3.0
Conversational Korean III, reading, written, and oral Korean.
31-04 Korean IV
3.0
Conversational Korean IV, reading, written, and oral Korean.

Sanskrit
31-01 Sanskrit I
3.0
Introductory Sanskrit I, reading, writing, and oral Sanskrit.
31-02 Sanskrit II
3.0
Conversational Sanskrit II, reading, written, and oral Sanskrit.

Support. They may be held only by American citizens.

Special Programs and Activities
The Iowa Critical Language Program prepares students to teach in Iowa's public schools and other educational institutions in Iowa's high schools. Students selected for the program work toward a bachelor's degree with a major in the language and Iowa certification at the secondary level. Applicants must be U.S. citizens or permanent residents of the United States. They may already hold a bachelor's degree and be teaching certification.

Participating students receive partial scholarships for a year of study abroad and two summers of intensive language study in programs recognized for their excellence in foreign language training. Participants in the program are obliged to teach in a cooperating Iowa school district for at least three years after graduation. Connect the College of Education for more information.

Summer and Study Abroad Programs
The department strongly urges its students to seek opportunities for summer study language and study abroad in order to accelerate the process of language acquisition, and many of the financial aid programs described above are designed to help make such learning experiences possible. Both the department and the Office of International Education and Services maintain extensive files of information about study abroad opportunities.

The University's memberships in the American Institute of Indian Studies and the China Cooperative Language and Study Programs connect students with study abroad opportunities for students. The China programs provide opportunities to study language and culture in universities in Beijing, Shanghai, and Nanjing. Of special note is the Chinese Business and Society Program at the University of International Business and Economics in Beijing, in which students may study Chinese business practices and language and arrange short-term internships in Chinese and foreign enterprises.

The UI-Nissan Exchange allows students to participate in the University of Nissan through the University of Niigata, Japan. The center offers both semester-long programs and short term in all levels and courses in a wide variety of disciplines in Japanese studies taught in English. Host family stays may be arranged for students who wish to experience life in a Japanese family.

Internships
Students are encouraged to enrich their programs of study through internships designed to combine work experience in Asia with the United States with study or research projects.
Graduates with bachelor's degrees may enter research or service careers at the technical level in educational, governmental, and industrial institutions of foundations. The programs also prepare students for teaching at all levels, for certification or advanced degree programs leading to independent research in biological fields, and for work in the health professions, such as medicine, dentistry, veterinary medicine, pharmacology, public health, medical psychology, lower life science education, and many related fields. Students majoring in biology have also prepared to work in fields related to the plant sciences, such as agriculture, forestry, horticulture, plant pathology, and physiology of plants.

Courses required for the majors emphasize structures and processes common to living integral plants, animals, microorganisms, and populations levels. Students also may tailor their own interests by concentrating elective courses in areas such as genetics, development, physiology, ecology, molecular biology, or area and related systems. Students interested primarily in field biology have opportunity for this emphasis through the program in ecology and evolutionary biology and use of the Madrona Nature Recreation Areas. Various courses emphasizing field biology are offered during the summer at the Lewis Lick Observatory at Lake Union.

Students seeking the B.S. in ecology are required to complete the following courses:

**BIOLOGICAL SCOPES**

1. **Introduction to Botany**
2. **Principles of Animal Behavior**
3. **Fundamentals of Genetics**
4. **Molecular Genetics of Yeast**
5. **Evolution in Biology, botany, microbeology, or geology**
6. **Total**

The 11 elective semester hours in biology must be in courses numbered 100 or above and included primarily for electron studies. Also, the elective credit must not include more than 3 semester hours in biology and botany biology courses, 2-155 Special Topics, and 2-199.
Biological Sciences • Liberal Arts

Introduction to Research. The elective courses can include up to 4 semester hours of advanced course work in the physical sciences (physics, chemistry, geology), in specified approved courses in the basic science departments of the College of Medicine, or in mathematics courses that have first-semester calculus as prerequisite.

Appropriate electives should carry elementary course prerequisites, be taught primarily for science majors, and not include the required courses in cognate sciences listed below.

Students should choose elective courses in consultation with their advisors.

**BILOGICAL SCIENCES**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:1 Introduction to Botany</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>2:3 Principles of Animal Biology</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>2:128 Fundamental Genetics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>2:131 Evolution</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>Electives in biology sciences, botany, microbiology, or paleontology, at the 100-level or higher, including at least one biology laboratory course or biology course with laboratory.</td>
<td>13 s.h.</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>29 s.h.</strong></td>
</tr>
</tbody>
</table>

Of the 13 semester hours of elective credit, up to 6 may be taken in other natural sciences or mathematics. 3 of these 6 semester hours in nonbiological science may be in 201:04 Introduction to Philosophy of Science, or 16:132 The Scientific Revolution, or 16:133 Science in the Modern Age. Other restrictions and limitations in courses to satisfy the elective credit requirement apply as for the B.S. degree.

**SUGGESTED FRESHMAN YEAR SCHEDULE**

The following first-year schedule is recommended for students seeking either the B.S. or B.A. degree in biology.

**First Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:11-10:15 Principles of Chemistry</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>14:47 Chemistry (4-15)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>15:12 Botany (2-1)</td>
<td>4 s.h.</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16 s.h.</strong></td>
</tr>
</tbody>
</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:102 Algebra and Fungi</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>2:136 Field Mycology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>17 s.h.</strong></td>
</tr>
</tbody>
</table>

**SUGGESTED FRESHMAN YEAR SCHEDULE**

See "Bachelor of Science in Biology."
Ecology and evolution—one of these:
2:111 Plant Ecology 4 s.h.
2:118 Field Ecology 4 s.h.
2:151 Evolution 4 s.h.
2:154 History of Life 4 s.h.
Biology of nervous system—one of these:
2:102 Algae and Fungi 4 s.h.
2:106 Physiological Botany 4 s.h.
2:190 Field Mycology 3 s.h.
One additional 100-level course in botany or
cognate sciences

Other Disciplines
4:151 Principles of Chemistry I (lab) 6 s.h.
4:16 Principles of Chemistry Lab 2 s.h.
4:123 Organic Chemistry I 3 s.h.
4:122 Organic Chemistry II 3 s.h.
49:110 Biochemistry 3 s.h.
49:120 Biochemistry and Molecular Biology I 4 s.h.

One of these:
222:15 Mathematics for the Biological Sciences 4 s.h.
222:16 Calculus for the Biological Sciences 3 s.h.
222:19 Elementary Functions 3 s.h.
222:25 Calculus 4 s.h.

Honors in Biology or Botany

The honors program in biology or botany gives superior students membership in a small, active group of undergraduates with common interests. Honors students gain an introduction to the pursuits of practicing scientists by associating with one of the department’s research groups or by participating in independent research projects guided by faculty members.

Students in the University Honors Program may graduate with honors in biology or botany by completing the following requirements, in addition to the regular requirements for the B.S. or B.A. All honors students must maintain a grade-point average of at least 3.20 (on a 4.0 scale) in biology courses and maintain a grade-point average of at least 3.20 both overall and in all biology course work. Those majoring in biology must complete at least 3.0 semester hours of honors course work in biology, including at least 2 semester hours in 2:196 Honors Laboratory Research, at least 1 in 2:197 Honors Research, and at least 1 in 2:198 Honors Seminar in Biology or a graduate-student seminar. (Biology honors majors may count 3 of the 6 semester hours of honors course work toward the 11-semester-hour core requirement for the B.S. or B.A. in biology.) Biology honors majors must complete 4.6 semester hours of honors course work, of which at least 4 must be in 2:196 Honors Laboratory Research.

All honors candidates must write a research proposal and a final research paper (honors thesis). Both must be approved by the student’s research supervisor and must be submitted to the department by the first week of the program’s registration congress. Honors majors defend the honors thesis before a committee of the honors research advisors, the student’s research supervisor, and a third faculty member chosen by the student and the honors advisor.

Minor in Biology

Students majoring in other subjects may earn a minor in biology. The biology minor requires 15 semester hours of credit in biology, microbiology, and/or premedical courses, including at least 12 semester hours in 100-level courses taken in The University of Iowa, with a minimum grade-point average of 2.00, and excluding those designated primarily for nonbiology students. Biology courses taken on a pass/no credit basis do not apply toward the requirements for the biology minor. Biology courses taken at other institutions do not apply toward the required 12 semester hours of biology 100-level courses.

Teacher Certification

Students preparing to teach in secondary schools should consult the “College of Education” section of the Catalog regarding requirements for teacher certification.

Introduction to Research

The department offers 2:155 Special Topics and 2:196 Introduction to Research to acquaint students majoring in the biological sciences with the nature of practicing scientific work—through association with one of the department’s research groups in experiments, discussion of current research, study of specialized texts, and attendance at research lectures.

Graduate Programs

The graduate programs of the department are designed to train scientists who can participate in research in private, educational, or governmental environments, and who are experienced in the use of modern techniques of teaching biology. In the last few decades, some Ph.D. graduates of the department have subsequently been appointed to college or university faculties, while others are now in research positions. A substantial number of students completing their training with an M.S. degree have obtained technical or professional positions. Other graduates are teaching in the secondary schools or working in colleges.

Prior to registration in August, all new graduate students take a one-semester-hour examination consisting of true-false questions in areas of biology: developmental biology, genetics, cell physiology, or animal physiology, and evolution or ecology. On the basis of examination results, students may be excused from further work in one or all of these fields, or may be advised to take specific courses to enhance their backgrounds in these areas. Students must make up any undergraduate deficiencies in mathematics, chemistry, or physics during the first year. A student with a bachelor’s degree outside of the biological sciences may require modification of certain list requirements, the student’s degree committee will decide whether portions of the requirements may be waivered.

All members of the biological sciences faculty engage in research using fundamental questions about many biological problems. Areas of departmental research include oil biotechnology, developmental biology, genetics, molecular biology, neurobiology, ecology, phylogeny, anatomy, histology, histophysiology, palynology, plant biomechanics, taxonomy, and parasitology. Of special note, projects can involve work in other departments; graduate students sometimes are advised jointly by faculty in those departments.

On admission, each new graduate student is assigned a advisory advisor to complement the research interests of the student. The advisory advisor guides the student through initial requirements and acts as the student’s advocate. For purposes of graduate student evaluation, research training is categorized by four designations: developmental biology, ecology and evolution, genetics, and physiology. The department expects new students to do research in three laboratories in a rotating basis during their first year. A graduate student advisory committee and advisor students initially. After the first two semesters, students choose a permanent sponsor (adviser) and a Ph.D. advisory committee. Alternately, responsibility for research evaluation is shared by the dissertation committee and the sponsor’s advisory committee.

Master of Science in Biology

Although the department emphasizes the Ph.D. degree, Master’s degrees are available with and without thesis.

With Thesis

The M.S. in biology with thesis requires 30 semester hours of credit, including a thesis and a dissertation based on original research. Ordinarily, 6 semester hours are assigned to thesis research and writing. The remaining hours are selected in consultation with the student’s advisory committee. The dissertation committee may be limited to students’ background and career goals. Students receiving academic credit for courses they are required to take, but credit awarded for courses required by the dissertation committee to make up undergraduate deficiencies does not count toward the 30-semester-hour requirement. After the thesis is accepted, candidates must pass an oral examination based on the thesis and related subjects.

Without Thesis

The M.S. in biology without thesis requires 34 semester hours of graduate credit, including courses that make up undergraduate deficiencies and a comprehensive oral examination. 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 500 level or above—where the exception to courses in biology required to make up deficiencies (see above)—may be included in the
The program culminates in students' preparation of a dissertation based on original, independent research. Students must take a final examination, which covers the topics and the specialized field the thesis represents, before the department can accept the thesis.

Doctor of Philosophy in Botany

The Ph.D. is primarily a research degree. The student must conduct original research of sufficient magnitude and value to be able to achieve a thesis and defend it successfully before the final examination committee. In addition, the student must complete 72 semester hours of graduate course work and research as prescribed by the committee (hours earned for the master's degree may be counted toward the 72-semester-hour minimum).

The guidance committee also may require that course work beyond the 72 semester hours be taken to meet specific proficiency requirements (e.g., language or statistical) or to make up for background deficiencies (e.g., chemistry or general botany course work.

During the first semester to residence as Ph.D. candidate, students must submit a program of study for approval by the guidance committee. Students must fulfill all course work requirements of the program of study, with changes made only with the formal (written) approval of the guidance committee.

Students complete an initial research proposal within two or three semesters after admission to the Ph.D. program (post M.S.). The proposal, which should outline the specific objectives, significance, methodology and the chosen research project, must gain written acceptance from members of the guidance committee and copies of it must be distributed. An oral presentation of the proposed research must follow acceptance of the initial research proposal within six months.

Once early formed work has been completed of nearly completed, candidates pass approximately one or two preliminary examinations. They submit a doctoral thesis based on original research to the final examination committee for review; present the results of the thesis research in a dissertation oral examination before the thesis defense; and pass the final doctoral examination, which is primarily a defense of the thesis, methodology, and significance of the completed thesis.

Financial Aid

All graduate students making satisfactory progress in the department receive support from teaching assistantships, fellowships, or research assistantships provided by the University or by individuals or groups contacted by the department. Fellowships. First-year students ordinarily are supported by assistantships in the fall, however during the research rotation period. Subsequently, students may be considered for any of the following:

Teaching assistantship: Appointments to an assistantship require that the student provide approximately 20 hours of work per week.

Apprentices may receive resident tuition rates.

Summer research assistantships: These are available for outstanding graduate students. Students are expected to do full-time research for any two-month period between mid-May and mid-August, and are to enroll for at least 2 semester hours of credit in 2301 Research Biology. Awards are made on a competitive basis.

Summer appointments: These depend on available summer session budgets. Summer session internships are offered for half-time service or 50 hours of time per week for the eight-week summer session. Selection of teaching assistants for the summer is made by the instructor in charge of the course to be served.

Faculty members with individual grants-in-aid. Faculty members may employ part-time and/or graduate research assistants. These awards are made by the principal investigator in charge of the grant and carry stipends similar to those available from departmental sources. Graduate College and departmental regulations and standards apply to these appointments.

Contact the Graduate College for lists of students. The Graduate College also provides information regarding grants available to graduate students.

Students who apply for one departmental award also may be considered for others.

Admission

An application form for admission to the Graduate College must be completed and sent to the director of admissions. Official transcripts from each undergraduate and graduate institution attended and scores on the Graduate Record Examination (GRE: General Test [verbal and quantitative parts] and subject test in botany) are required by February 1. Applications should be accompanied by a nonrefundable application fee.

Applicants for graduate admission should have a grade-point average of 3.0 or better on the Graduate Record Examination (GRE: General Test [verbal and quantitative parts] and subject test in botany) are required by February 1. Applications should be submitted by February 1.
Facilities

The department is housed in four separate buildings, with facilities for the care of many kinds of animals and for research with viruses, DNA sequencing and synthesis, electron microscopy, molecular biology, plant, and marine organisms. It has numerous walk-in and movable environmental chambers for special cell culture or plant and animal care needs.

The department is equipped to carry out research in all areas of research chemistry in addition to research teaching research. Modern equipment including microscopes, fluorescent microscopes, controlled environment rooms, and automation controls is available for graduate student research.

A number of members of the faculty seek graduate students with standard training as well as those with advanced training in the area of education growth regulation, plant biochemistry, plant molecular biology, and environmental systems, cytogenetics, ecotoxicology, plant physiology, and molecular biology. 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 greenhouse is available.

2.06 Cooperative Education Internship 4 cr.

2.06: Introduction to Biology 4 cr.

2.06: Advanced Biology 4 cr.

2.06: Principles of Animal Physiology 5 cr.

2.06: Basic Medical Physiology 5 cr.

2.06: Medical Physiology 5 cr.

2.06: Basic Medical Physiology 5 cr.

2.06: Medical Physiology 5 cr.

2.06: Principles of Animal Physiology 5 cr.

2.06: Basic Medical Physiology 5 cr.

2.06: Medical Physiology 5 cr.

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2.06: Basic Medical Physiology 5 cr.

2.06: Medical Physiology 5 cr.

2.06: Principles of Animal Physiology 5 cr.

2.06: Basic Medical Physiology 5 cr.

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Undergraduate Programs

Bachelor of Science

Posets and projected demand for chemists with a B.S. degree is excellent in research and in chemical and process development work. The B.S. program also provides all the prerequisites for graduate work in chemistry or biochemistry. The major course requirements for the B.S. degree vary as follows. Specific semester hours are required for the B.S., 45 of which must be in chemistry courses.

- Total of 14 principles of Chemistry I & II.
- 4.16 Principles of Chemistry Lab I & II
- 2.17 Basic Measurements
- 2.11-112 Analytical Chemistry I & II
- 2.121-122 Organic Chemistry I & II
- 2.123 Inorganic Chemistry
- 2.124 - 132 Physical Chemistry I & II
- 2.145 Organic Chemistry Laboratory
- 2.147 Advanced Inorganic Chemistry
- 2.157 Advanced Inorganic Chemistry Laboratory
- 2.153 Introductory Physics (190-118)
- 2.145 Introductory Physics I & II
- 2.165 Introductory Physics I & II
- 2.167 Advanced Introductory Physics I & II
- 2.168 Introductory Chemistry Laboratory I & II

Credit earned in advanced science elective courses and in 4.182 Undergraduate Research must total at least 5 semester hours. Advanced science electives may be chosen in the areas of chemistry, mathematics, computer science, astronomy, physics, engineering, materials science, biochemistry, microbiology, pharmacology, physics, biology, biological sciences, genetics, or physiology.

Bachelor of Arts

The B.A. curriculum in chemistry provides a general education with some concentration in fundamental chemistry, but with a wide choice of electives than the B.S. curriculum includes. Students who elect this program may qualify to be high school teachers. In addition, biologists, organic, and physical chemistry and in chemical physics. Candidates for the M.S. must demonstrate minimal proficiency in analytical, inorganic, and organic and physical chemistry by passing specific examinations or by enrolling in suitable core courses. This requirement must be completed by the end of the second year of enrollment. At least 30 semester hours of graduate work are required for the M.S. A minimum grade-point average of 3.0 is required for admission to the master's examination.

Teaching Certification

Course requirements for the B.S. or B.A. satisfy the major requirements for teaching in secondary schools. A minor in chemistry satisfies the requirements for a minor emphasis in chemistry ("Science Education") in the majors of liberal arts sections of the catalog.

Graduate Programs

Master of Science

The department offers the M.S., with or without a thesis, in analytical, bioinorganic, organic, and physical chemistry and in chemical physics. Candidates for the M.S. must demonstrate minimal proficiency in analytical, inorganic, and organic and physical chemistry by passing specific examinations or by enrolling in suitable core courses. This requirement must be completed by the end of the second year of enrollment. At least 30 semester hours of graduate work are required for the M.S. A minimum grade-point average of 3.0 is required for admission to the master's examination.

Doctor of Philosophy

A program of study for the Ph.D. in the area listed for the M.S. includes the minimal proficiency examinations, core courses, electives, seminars, and research. In addition, the student's progress must be reviewed by the graduate committee at least once a year. The program requires at least 75 semester hours of course work, and research.

Introductory physics (2017-18)

Advanced courses in chemistry, biochemistry, mathematics, physics, or other sciences are required for a major. The department requires 30 semester hours for the Bachelor of Arts, 36 of which must be in chemistry courses.

Honors

To graduate with honors in chemistry, a student must enroll in the University Honors Program, take 4.182 Undergraduate Research, complete a research project acceptable to his or her research advisor, and write a thesis on research based on that research. Students are encouraged, but not required, to present their research at local and regional meetings and to publish their results in professional journals.

Minor

The minimum requirements for a minor in chemistry are 15 semester hours, including 3 semester hours in introductory-level courses and 12 semester hours taken at The University of Iowa in advanced chemistry courses numbered 400 and above; (4-134) Principles of Chemistry I & II and (4-146) Principles of Chemistry Lab are prerequisites for upper level courses in chemistry.

Research


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Major in Ancient Civilization

This major is sponsored by the School of Art and Art History, and the Department of Classics and History. The major concentrations on the ancient civilization of the Mediterranean world and drawn on course offerings by various departments of the University. It is not primarily a program for a graduate degree program in classics; nevertheless, it provides a broad base for students preparing to teach at secondary schools and junior college levels. In addition to the normal college requirements for the B.A., the following are specific requirements of the major:

- Ancient art
- Ancient history
- Ancient philosophy or religion
- Classics (either "classics in English" courses, or Latin or Greek language courses)
- Appropriate courses in art, history, philosophy, religion, or linguistics
- 14-14 Seminar in Ancient Civilization

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 English reading, one each semester of the senior year, for 1 semester hour of credit each. The reading and discussion are on an ancient author or a field in ancient history or literature chosen by the student and the instructor. During the first semester students present an essay on their weekly work; at the end of the second semester they present a long paper, which is to be read by two members of the department.

Minors

A minor requires a minimum of 15 semester hours in classics courses with a minimum grade-point average of 2.00. Of the 15 semester hours, 12 must be in advanced courses taken at the University of Indiana. Students may select a minor from the department in four areas: Greek, Latin, classics, and ancient civilization. The following courses are considered advanced for the minor.

Greek
14:11-12 2nd Year Greek I 6 s.h.
All courses numbered 14:11 or higher
Courses numbered 14:10-12 do not count toward the minor because they are not courses in the Greek language.

Latin
20:16-17 2nd Year Latin I 6 s.h.
20:81 Age of Cicero 3 s.h.
20:82 Age of Augustus 3 s.h.
All courses numbered 20:12 or higher
Courses numbered 20:10-12 do not count toward the minor because they are not courses in the Latin language.

Classics

- 14:11-12 2nd Year Greek I 6 s.h.
- 20:16-17 2nd Year Latin I 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 both Greek and Latin.

Ancient Civilization

All courses in Greek numbered 14:10 or above
All courses in Latin numbered 20:10 or above
Appropriate courses from the School of Arts and Humanities and Religion and the Department of History and Philosophy, as selected by the Undergraduate Committee on the major in ancient civilization.

14:10 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 wish to satisfy the College of Liberal Arts "foreign language" requirement for the B.A. by studying Greek should take 14:12 Elementary Greek I and 14:11-12 Second Year Greek II. Students who wish to meet the requirements by studying Latin may elect 20:12 Elementary Latin I or 20:13-14 Accelerated Latin I and 20:16-17 Second Year Latin II.

Graduate Programs

For 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 100-199.

Master of Arts

The department offers the M.A. in Latin, Greek, or classics. Candidates must earn a minimum of 33 semester hours of credit in the major by taking courses numbered 199 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

Requirements for the Ph.D. include course work as listed below, precomprehensio comprehensive and comprehensive examinations, and a dissertation.

- Required courses
- Greek and Latin readings, one semester
- Greek or Latin readings, one semester
- Ancient Greek composition or equivalent
- Advanced Latin composition or equivalent
- Survey of Ancient Near East and Orient
- The "Theoretic" World and Rome

Any two of:
- Classical and Medieval
- Greek Paleography
- Greek Literature
- Greek History
- Classical and Medieval Literature
- Latin Literature
- Latin Literature
- Latin Literature
- Special field or author (3-hour) courses
- Special field or author (6-hour) courses

Facilities

Extensive collection of classical texts and periodicals in the Main Library and the Art and Architecture Library include research in the major areas of Greek and Roman civilization. The department has a variety of collections of classics, literature, and the classics collection in the graduate student office, containing a valuable collection of Greek, Latin, and Romance literature from America, Europe, and the Middle East.

The University is supporting the institution of the Graduate College section of the Catalog.

American Academy in Rome, and the

Greek—Undergraduates

14:1 Elementary Greek

14:2 Elementary Greek

14:11-12 Second Year Greek I

14:12 Second Year Greek II

15:1 Advanced Greek

15:2 Advanced Greek

16:1 Advanced Latin

16:2 Advanced Latin

17:1 Latin Composition

17:2 Latin Composition

18:1 Latin Literature

18:2 Latin Literature

19:1 Ancient Near East and Orient

19:2 Ancient Near East and Orient

20:16-17 2nd Year Latin I

20:81 Age of Cicero

20:82 Age of Augustus

14:11 Introduction to Ancient Art

Any two of:

14:11 14:12
15:1 15:2
16:1 16:2
17:1 17:2
18:1 18:2
19:1 19:2


All courses numbered 14:11 or higher
Courses numbered 14:10-12 do not count toward the minor because they are not courses in the Greek language.
COMMUNICATION STUDIES

COMMUNICATION EDUCATION, below. In all of these 
undergraduate programs, all majors take at least 
four core courses across the following areas: 
film, interpersonal communications, media 
print, and rhetoric. The core courses are as 
follows:

Film
366-42 Introduction to Film Analysis
3 s.h.
368-51 Survey of Film
3 s.h.

Interpersonal Communication
366-50 Communication Theory in Everyday Life
3 s.h.

Media Studies
365-20 Mass Media and Mass Society
3 s.h.

Rhetic
360-20 Persuasion in Society
3 s.h.
360-20 Communication and Contemporary Culture
3 s.h.

Admission
To be eligible for admission to the department’s 
B.A. programs, applicants must complete, by the 
end of the semester in which application is 
made, at least 30 semester hours of approved 
undergraduate credits; they also must have at 
least a 2.0 cumulative grade-point average.

Students who do not meet the minimum 
criteria may petition the undergraduate 
administration to be admitted, providing any 
additional evidence of their qualifications.

Honor
A degree with honors in communication studies 
requires maintenance of a 2.0 grade-point 
average, membership in the University Honors 
Program, and completion of an honors thesis in 
the senior year. The honors thesis, which may 
be taken for 3-5 semester hours of credit over 
two semesters, offers an opportunity for 
students to develop expertise and contribute 
to knowledge in a specific area. As 
researchers in the honors program, 
candidates must choose a faculty mentor to 
supervise the project, then propose a 
project approved by the faculty advisor and 
the departmental honors advisor. The 
completeness of the thesis is 
determined before a committee consisting 
of one 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 Course Schedule and to add an honors 
designation to any other departmental course 
by completing an agreement with the 
course instructor for special work in that course. 
Forms providing instructions are available from 
the honors advisor.

Minor
A minor in communication studies requires 15 
semester hours of credit in communication 
study with a minimum grade-point average of 
2.00. Of the 15 semester hours, at least 12 


GRADUATE PROGRAMS

Master of Arts
A student may earn a general M.A. in the 
department or a more specialized degree in 
one of the divisions, or a combination of both.

Departmental requirements for the Master of 
Arts degree are:

- A minimum of 30 semester hours, including 
  at least two courses numbered 500 or above 
  (the requirements for some programs in the 
department are greater than this minimum);
- A research thesis or, for the nonthesis degree, 
a graduate seminar paper involving significant 
  original research;
- Successful completion of a satisfactory 
  written examination, the scope of which is 
determined by the student’s division and 
graduate committee, and
- At least a 3.0 cumulative grade-point average in 
  all courses in the plan of study.

Applicants for nonthesis or thesis degree 
programs are normally required to have 
the basic core for admission and financial aid.

The minimum cumulative undergraduate 
grade-point average required for admission in 
good standing is 3.75.

Educational Specialist for Junior College Teaching

Departmental requirements for the Educational 
Specialist are:

- A minimum of 60 semester hours, including 
  at least one introduction to research; a course in 
teaching communication; an approved 
  writing course; and at least 10 semester hours 
  completed in the College of Education’s 
  graduate program in higher education;
- Successful completion of a research project;
- A semester internship in an assigned 
  teaching position;
- Satisfactory performance on a 4-hour 
  writing examination covering areas of 
  learning agreed upon by the student and 
  his or her graduate committee; and
- Successful completion of such additional 
  requirements as specified by the 
  departmental divisions in which the student’s 
  work is concentrated.

Doctor of Philosophy

Departmental requirements for the Doctor of 
Philosophy degree are:

- A minimum of 84 semester hours of graduate 
  credit, including dissertation, including a 
  12-hour sequence in an approved 
  research area; and
- At least 12 semester hours of dissertation 
  credit.
Communication

Communication

The communication teaching major requires a minimum of 33 semester hours of course work in the Department of Communication Studies. Students must take four foundation courses across four core areas, four state required communication courses, two elective courses, and any other communication studies course, with the approval of a communication education adviser.

Teaching Minor Certification in Communication Studies

Completion of 23 semester hours of course work in communication and three area is required. These hours must be approved by an adviser.

Communication Research

The program in communication research leads to the M.A. or the Ph.D. 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 theoretical requirements, students relate social sciences and select appropriate courses in the division.

Media Studies and Film

Undergraduate Program

This program is 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 should not only acquire technical expertise but also should gain a broad understanding of mass media's place in personal and cultural experience. Consequently, it affirms that no one can understand the history, theory, and criticism of the electronic or film media totally apart from experience and knowledge of production. As study area, theories of aesthetics, culture, and communication all come together in this program, making it an excellent choice for those who want to study people and their mediated creations.

Students emphasizing production learn to write, plan, shoot, edit, and present film, audio, and television programs. In addition, students obtain a background in the history of the mass media so that they understand reasons for the industries' present state and possible alternatives. A grounding in media theory and criticism teaches students to appreciate what goes into creating a successful work and to understand its impact that creative and economic/political decisions may have on audiences and society at large.

To graduate with a specialization in media studies and film, minors must complete 30 semester hours in the requirements, including the following:

- Four core courses across the four areas of film, interpersonal communication, media studies, and theatre
- At least four additional 300-level courses, including at least one course above 300-level
- A minimum of 6 semester hours of additional department course work

The department and division sponsor an internship program that provides outside work experience and a more interdepartmental experience program, the Kvas Forensic Union, located in the International Center. Internships provide students an opportunity to be exposed to entertainment, broadcast, journalism, public relations, organizational development, politics, public opinion, research, and training. In the forensic programs, students have an opportunity to work on campus and with professional programs designed to improve speech activities in the state, and as needed, to prepare for intercollegiate debate and individual events. Forensic scholarships are available.

Graduate Programs

Three programs lead to the Master of Arts in media studies. Film studies, and production studies. Candidates for media studies emphasize critical, theoretical, historical, scientific, and economic/political issues during their course of study. Candidates in film studies develop broad knowledge of the discipline through a 12-semester-hour course of study, while candidates in television and historical topics. Production studies candidates develop significant knowledge in their specialty areas in addition to their creative work in film, television, or audio.

The Ph.D. programs in both media studies and film are individually tailored by each candidate and an advisory committee to develop expertise in research.

Rhetorical Studies

The programs in rhetorical studies lead to the M.A. or the Ph.D. It is built on foundational courses in the history of rhetorical practice, the criticism of rhetorical discourse, and theoretical relationships between rhetorical activity and other institutions of society. Some foundational courses in history and criticism are offered in the 100 and 200 level. Foundation courses in rhetorical theory, designed to survey bodies of academic writing about rhetoric, are offered at the 300 level. Advanced courses in specialized areas of rhetorical theory are offered at the 400 level. Prospective MA's (300 level) and semester 300 level allow students to develop expertise in various historical, critical, and theoretical approaches to rhetoric and communication.

Master of Arts

The M.A. program in rhetorical studies stresses basic knowledge of rhetorical history, criticism, and theory. That goal usually is met by work in the division and 400-level parts of the department and University. The degree is intended to build a solid foundation for teaching at a high school level and for providing the knowledge. Efforts are made to value individual programs of study that students need and career goals.

Initial requirements for the M.A. in rhetorical studies include:

- 33-36 introduction to Research;
36.160 Methods: Communication
Perspective, goals, context, purpose, objectives, technological methods and materials, roles and constraints, theory, evidence, social and cultural implications of communication, development and development, research. Prerequisites: 2.30 cumulative average or above in 150.5; all 360.160 Methods: Communication
36.161-Cultural Communication: Teaching Rhetoric
Constructions of the cultural context, meaning making, constructing sequences, speaking, writing, reading. Prerequisites: all 361.161-Cultural Communication: Teaching Rhetoric
36.202 Contemporary Communication Education 4.5-4.5
Teaching strategies for college instruction, teaching strategies for secondary schools, teaching strategies for elementary schools, teaching strategies for special education, teaching strategies for non-native speakers, teaching strategies for multicultural education. Prerequisites: all 362.202 Contemporary Communication Education
36.323 Research Methods in Communication
Designing and conducting communication research. Prerequisites: all 363.323 Research Methods in Communication
36.324 Communication Research
Survey, analysis, execution from sociocultural perspective. Prerequisites: all 364.324 Communication Research
36.325 Interdisciplinary Communication Theory and Research
Human interaction. Prerequisites: all 365.325 Interdisciplinary Communication Theory and Research
36.326 Acquisition of Communication Behavior
Symbolic language behaviors. Prerequisites: all 366.326 Acquisition of Communication Behavior
36.337 Psycholinguistics and Research from a scientific perspective. Prerequisites: all 367.337 Psycholinguistics and Research from a scientific perspective. Prerequisites: all 368.343 Advanced Communication Theory and Research
36.345 Seminar: Social Processes and Research
Social processes and research. Prerequisites: all 369.345 Seminar: Social Processes and Research
36.355 Seminar: Ethnomethodology and Communication Theory
Communication theory. Prerequisites: all 369.355 Seminar: Ethnomethodology and Communication Theory
36.365 Seminar: Media and Communication
Communication and media. Prerequisites: all 369.365 Seminar: Media and Communication
36.375 Seminar: Cultural Studies
Communication and cultural studies. Prerequisites: all 369.375 Seminar: Cultural Studies
36.385 Seminar: Interdisciplinary Communication Studies
Communication and interdisciplinary studies. Prerequisites: all 369.385 Seminar: Interdisciplinary Communication Studies
36.395 Seminar: Social Processes and Research
Social processes and research. Prerequisites: all 369.395 Seminar: Social Processes and Research
36.405 Media and Society
Communication and society. Prerequisites: all 369.405 Media and Society
36.415 Mass Communication: Process and Effects
Sociocultural contexts, research on processes, behavior, environment and cultural context for communication. Prerequisites: all 369.415 Mass Communication: Process and Effects
36.425 Media and Communication
Media communications, development of media, mass media and society. Prerequisites: all 369.425 Media and Communication
36.435 Film Studies
Film studies. Prerequisites: 360.435 Film Studies
36.445 Media Workshop
Creative writing workshop. Prerequisites: all 369.445 Media Workshop
36.455 Advancement in Audio Production
Audio production, recording, editing, audio production techniques, audio production, audio production, audio production. Prerequisites: 360.455 Advancement in Audio Production
36.460 Television Production I
Television production, television studio, television studio production, television studio production, television studio production, television studio production. Prerequisites: all 360.460 Television Production I
36.470 Television Production II
Television production, television studio, television studio production, television studio production, television studio production, television studio production. Prerequisites: all 360.470 Television Production II
36.480 Television Production: Selected Topics
Television production, television studio, television studio production, television studio production, television studio production, television studio production. Prerequisites: all 360.480 Television Production: Selected Topics
36.490 Film Editing
Film editing, film editing, film editing, film editing, film editing, film editing. Prerequisites: all 360.490 Film Editing
36.500 Film Production: Selected Topics
Film production, film production, film production, film production, film production, film production. Prerequisites: all 360.500 Film Production: Selected Topics
36.510 Digital Video Production
Digital video production, digital video production, digital video production, digital video production, digital video production, digital video production. Prerequisites: all 360.510 Digital Video Production
36.520 Filmmaking
Filmmaking, filmmaking, filmmaking, filmmaking, filmmaking, filmmaking. Prerequisites: all 360.520 Filmmaking
36.530 Departmental Council
Departmental council, departmental council, departmental council, departmental council, departmental council, departmental council. Prerequisites: all 360.530 Departmental Council
36.550 Creative Writing
Creative writing, creative writing, creative writing, creative writing, creative writing, creative writing. Prerequisites: all 360.550 Creative Writing
36.560 English Composition: Selected Topics
English composition, selected topics, selected topics, selected topics, selected topics, selected topics. Prerequisites: all 360.560 English Composition: Selected Topics
36.570 English Writing: Selected Topics
English writing, selected topics, selected topics, selected topics, selected topics, selected topics. Prerequisites: all 360.570 English Writing: Selected Topics
36.580 English Language: Selected Topics
English language, selected topics, selected topics, selected topics, selected topics, selected topics. Prerequisites: all 360.580 English Language: Selected Topics
36.590 English Studies: Selected Topics
English studies, selected topics, selected topics, selected topics, selected topics, selected topics. Prerequisites: all 360.590 English Studies: Selected Topics
36.600 Introduction to Radio and TV Production
Introduction to radio and TV production, introduction to radio and TV production, introduction to radio and TV production, introduction to radio and TV production. Prerequisites: all 360.600 Introduction to Radio and TV Production
36.610 Television Production I
Television production, television studio, television studio production, television studio production, television studio production, television studio production. Prerequisites: all 360.610 Television Production I
36.615 Television Production II
Television production, television studio, television studio production, television studio production, television studio production, television studio production. Prerequisites: all 360.615 Television Production II
36.620 Television Production: Selected Topics
Television production, television studio, television studio production, television studio production, television studio production, television studio production. Prerequisites: all 360.620 Television Production: Selected Topics
36.630 Radio Production
Radio production, radio production, radio production, radio production, radio production, radio production. Prerequisites: all 360.630 Radio Production
36.640 Audio Production
Audio production, audio production, audio production, audio production, audio production, audio production. Prerequisites: all 360.640 Audio Production
36.650 Film Production
Film production, film production, film production, film production, film production, film production. Prerequisites: all 360.650 Film Production
36.660 Film Production I
Film production, film production, film production, film production, film production, film production. Prerequisites: all 360.660 Film Production I
36.670 Filmmaking
Filmmaking, filmmaking, filmmaking, filmmaking, filmmaking, filmmaking. Prerequisites: all 360.670 Filmmaking
36.680 Digital Video Production
Digital video production, digital video production, digital video production, digital video production, digital video production, digital video production. Prerequisites: all 360.680 Digital Video Production
36.690 Film Production: Selected Topics
Film production, film production, film production, film production, film production, film production. Prerequisites: all 360.690 Film Production: Selected Topics
36.700 Filmmaking
Filmmaking, filmmaking, filmmaking, filmmaking, filmmaking, filmmaking. Prerequisites: all 360.700 Filmmaking
36.710 English Composition: Selected Topics
English composition, selected topics, selected topics, selected topics, selected topics, selected topics. Prerequisites: all 360.710 English Composition: Selected Topics
36.720 English Writing: Selected Topics
English writing, selected topics, selected topics, selected topics, selected topics, selected topics. Prerequisites: all 360.720 English Writing: Selected Topics
36.730 English Language: Selected Topics
English language, selected topics, selected topics, selected topics, selected topics, selected topics. Prerequisites: all 360.730 English Language: Selected Topics
36.740 English Studies: Selected Topics
English studies, selected topics, selected topics, selected topics, selected topics, selected topics. Prerequisites: all 360.740 English Studies: Selected Topics
36.750 Introduction to Radio and TV Production
Introduction to radio and TV production, introduction to radio and TV production, introduction to radio and TV production, introduction to radio and TV production. Prerequisites: all 360.750 Introduction to Radio and TV Production
36.760 Television Production I
Television production, television studio, television studio production, television studio production, television studio production, television studio production. Prerequisites: all 360.760 Television Production I
36.770 Television Production II
Television production, television studio, television studio production, television studio production, television studio production, television studio production. Prerequisites: all 360.770 Television Production II
36.780 Television Production: Selected Topics
Television production, television studio, television studio production, television studio production, television studio production, television studio production. Prerequisites: all 360.780 Television Production: Selected Topics
36.790 Radio Production
Radio production, radio production, radio production, radio production, radio production, radio production. Prerequisites: all 360.790 Radio Production
36.800 Audio Production
Audio production, audio production, audio production, audio production, audio production, audio production. Prerequisites: all 360.800 Audio Production
36.810 Film Production
Film production, film production, film production, film production, film production, film production. Prerequisites: all 360.810 Film Production
36.820 Filmmaking
Filmmaking, filmmaking, filmmaking, filmmaking, filmmaking, filmmaking. Prerequisites: all 360.820 Filmmaking
36.830 Digital Video Production
Digital video production, digital video production, digital video production, digital video production, digital video production, digital video production. Prerequisites: all 360.830 Digital Video Production
36.840 Film Production: Selected Topics
Film production, film production, film production, film production, film production, film production. Prerequisites: all 360.840 Film Production: Selected Topics
36.850 Filmmaking
Filmmaking, filmmaking, filmmaking, filmmaking, filmmaking, filmmaking. Prerequisites: all 360.850 Filmmaking
36.860 English Composition: Selected Topics
English composition, selected topics, selected topics, selected topics, selected topics, selected topics. Prerequisites: all 360.860 English Composition: Selected Topics
36.870 English Writing: Selected Topics
English writing, selected topics, selected topics, selected topics, selected topics, selected topics. Prerequisites: all 360.870 English Writing: Selected Topics
36.880 English Language: Selected Topics
English language, selected topics, selected topics, selected topics, selected topics, selected topics. Prerequisites: all 360.880 English Language: Selected Topics
36.890 English Studies: Selected Topics
English studies, selected topics, selected topics, selected topics, selected topics, selected topics. Prerequisites: all 360.890 English Studies: Selected Topics
COMPARATIVE LITERATURE

Chair: Hiromasa Nakagawa
Professor: Judy L. Ahrens, Barry Pugacz, Steven J. Robinson, Cartoon Fine, John A. McCarthy, Professor Emeritus: Norman G. Thomas
Assistant professor: Mireille Mathieu-Thomas

Undergraduate degree: M.A. in Comparative Literature, M.A. in Interdisciplinary Studies, M.A. in Translation

The Program in Comparative Literature presents literature as the subject of international and interdisciplinary study and provides a basis for innovative work in literature, literary theory, and cultural studies.

In addition to our own faculty, the program calls upon faculty members in other areas, including classics, Asian languages and literature, communication studies, English, film, French and German, Italian, German, history, Spanish and Portuguese, Russian, and theater arts.

Undergraduate Program

The undergraduate major in comparative literature provides an integrated approach to literature and interdisciplinary study designed to promote cultural awareness, to increase speaking and writing skills, and to develop capacities for transnational reading. Students majoring in comparative literature must acquire substantial training in foreign language, gain an international perspective on literature, and become acquainted with interdisciplinarity. The program offers courses in the French, German, and Russian languages and literatures, which are offered in a number of different courses. The program requires a minimum of 36 semester hours in courses distributed across three areas as follows:

COMPARATIVE LITERATURE
Students should take the following courses, for a total of 21 semester hours.
48:60:41 Major Terms in World Literature 3 s.h.
48:60:50/52 Comparative Literature 3 s.h.
48:60:54 Undergraduate seminar 3 s.h.
48:60:80 Introduction to Critical Perspectives 3 s.h.
48:60:100 Creative comparison course work 2 the 1st year 6 s.h.

The program requires a minimum of 36 semester hours in courses distributed across three areas as follows:

1. French, German, and Russian languages and literatures, which are offered in a number of different courses.

2. Cultural history, their utility in assessing the communication process.

3. Modern trends in literature, philosophy, history, or courses is a second foreign literature.

Honors

To graduate with honors in Comparative Literature, students must meet the following standards listed in "Guide to Honors," published by the University Honors Program. They must identify an area that extends beyond regularly offered course work and must complete a project in conjunction with one or two faculty members, including the major advisor. Information is available from the Program in Comparative Literature office.

Minor

Students majoring in other disciplines may earn a minor in comparative literature by completing 14 semester hours of course work in comparative literature, with a minimum grade point average of 3.0. Of these 15 semester hours, at least 12 must be in University of Iowa courses numbered 48:60 and above.

Graduate Programs

Master of Arts

The Master of Arts degree in comparative literature requires 37 semester hours of course work. The focus is on literature in its international context, with concentration on two or more national literatures and on the theory and study of literature in general. In conjunction with faculty advisors, students choose courses in comparative literature and in the national and cultural traditions in which literature is produced. Formal degree requirements may be satisfied by a written examination on reading lists agreed upon by student and advisor, or by a written thesis and an oral examination on the thesis and on problems and issues in comparative literature. The M.A. may also be awarded upon successful completion of the comprehensive examinations for the Ph.D.

Master of Fine Arts in Translation

The program in translation promotes creative performance and understanding of literature, literature, literature, and cultural history. The aim of the program to encourage the practice of literary translation and to bring about greater awareness of its traditions, its contributions, and its possibilities. The Iowa Translation Workshop is the central course in the program. Admission to the program is based on the basis of a submitted portfolio, including translations into and original writing in English, as well as supporting evidence of competence. Degree requirements include a thesis (usually a book-length introduction or poems or stories, or a novel), written in the foreign language that was learned and accompanied by a critical introduction. A total of 45 semester hours of graduate study is required, 24 of which must be taken at The University of Iowa. Beyond workshop hours,
DANCE ELECTIVES
Seven semester hours from the following:

137-86 The Art of Dance in Contemporary Society 3 s.h.
137-105 Workshop: Artistry in Residence 1-4 s.h.
137-160 Dance Performance I 9 s.h.
137-107 Repertory Dance Company 1-6 s.h.
137-133 Ballet I 3 s.h.
137-134 Improvisation 2 s.h.
137-140 Honors Project in Dance arr.
137-143 Elementary Ballet Pedagogy 3 s.h.
137-144 Teaching of Modern Dance arr.
137-149 Honors Studies in Dance arr.
137-151 Intermediate Labanotation 3 s.h.
137-172 Independent Choreography arr.
137-190 Independent Study arr.
137-191 Readings in Dance arr.

STUDIO TECHNIQUE
Twenty semester hours from the following:

137-1 Beginning Tap 2 s.h.
137-2 Beginning Jazz 2 s.h.
137-3 Beginning Ballet 2 s.h.
137-4 Beginning Modern Dance 2 s.h.
137-111 Contemporary Tap 2 s.h.
137-122 Contemporary Jazz 2 s.h.
137-133 Contemporary Ballet 2 s.h.
137-134 Contemporary Modern Dance 2 s.h.
137-21 Intermediate Tap 2 s.h.
137-22 Intermediate Jazz 2 s.h.
137-23 Intermediate Ballet 2 s.h.
137-24 Intermediate Modern Dance 2 s.h.
137-33 Intermediate Tap and Jazz 3 s.h.
137-34 Intermediate Modern Dance 3 s.h.
137-103 Intermediate Tap I 2 s.h.
137-104 Major Modern Dance I 1-2 s.h.
137-113 Major Ballet I 1-3 s.h.
137-114 Major Modern Dance II 1-2 s.h.
137-123 Major Ballet II 1-3 s.h.
137-124 Major Modern Dance III 1-3 s.h.

HOMODEPARTMENT

2753 Human Anatomy 3 s.h.
27107 Biomechanics of Physical Education 3 s.h.
27181 Kinesthetics 3 s.h.
25165 Opera Dance Theater Production (section 2) 4 s.h.

Bachelor of Fine Arts

In contract to the B.A. in dance, the B.F.A. requires 12 more semester hours in studio courses and emphasizes performance and choreography at the undergraduate level. Students must be admitted to the B.F.A. program after they have completed a minimum of 30 semester hours at The University of Iowa. Only those students who have achieved the minimums of "Major II" technique proficiency and who show academic and professional promise are admitted. B.F.A. candidates must complete three to four years in 137-123 Major Ballet III or 137-124 Major Modern Dance III with a grade of B- or higher.

B.F.A. students may waive 3 semester hours of the General Education Requirements in critical science (inclas) and 4 semester hours of the General Education Requirement in physical education.

Required Courses

DANCE THEORY
137-40 Introduction to Dance 3 s.h.
137-50 Dance Production 3 s.h.
137-80 Rhythmic Anatomy of Dance 2 s.h.
137-103 Beginning Labanotation 3 s.h.
138-160 Dance History: From Primitive Through the Nineteenth Century 3 s.h.
137-181 Twentieth-Century Dance 3 s.h.

STUDIO (NON-MEJORICHE)

137-70 Choreography I 2 s.h.
137-71 Chorography II 2 s.h.
137-190 Independent Study 2 s.h.
137-191 Readings in Dance arr.

STUDIO TECHNIQUE

137-1 Beginning Tap 2 s.h.
137-2 Beginning Jazz 2 s.h.
137-3 Beginning Ballet 2 s.h.
137-4 Beginning Modern Dance 2 s.h.
137-111 Contemporary Tap 2 s.h.
137-122 Contemporary Jazz 2 s.h.
137-133 Contemporary Ballet 2 s.h.
137-134 Contemporary Modern Dance 2 s.h.
137-21 Intermediate Tap 2 s.h.
137-22 Intermediate Jazz 2 s.h.
137-23 Intermediate Ballet 2 s.h.
137-24 Intermediate Modern Dance 2 s.h.
137-33 Intermediate Tap and Jazz 3 s.h.
137-34 Intermediate Modern Dance 3 s.h.
137-103 Intermediate Tap I 2 s.h.
137-104 Major Modern Dance I 1-2 s.h.
137-113 Major Ballet I 1-3 s.h.
137-114 Major Modern Dance II 1-2 s.h.
137-123 Major Ballet II 1-3 s.h.
137-124 Major Modern Dance III 1-3 s.h.

HONORS PROGRAM

2753 Human Anatomy 3 s.h.
27107 Biomechanics of Physical Education 3 s.h.
27181 Kinesthetics 3 s.h.
25165 Opera Dance Theater Production (section 2) 4 s.h.

Honor's Program

The 8-10 semester hour honors program is designed to serve and recognize outstanding students in the areas of performance and special projects. Honor students must maintain a 3.40 grade-point average during their junior and senior years. All honors projects must be approved by the dance department faculty. Students must be members of the University of Iowa Honors Program to graduate with honors in dance.

Minor

A minor in dance requires 15 semester hours of credit in dance department courses with a minimum grade-point average of 2.00, with at least 12 semester hours of which must be in residence. The University of Iowa honors course numbered 137-100 and above.
Graduate Program

Master of Fine Arts

Students who demonstrate exceptional ability in dance technique and choreography may apply for admission to the M.F.A. program. Admission is based on an interview, a teaching and technical audition, review of videotaped choreographic work, and letters of recommendation. The M.F.A. program is designed to be completed in three semesters in residence, but students who have completed some of the prerequisite before entering the program may complete it in five semesters.

Students select the choreography or performance track. A total of 60 semester hours is required.

Prerequisites

Advanced techniques (ballet and modern)
Demonstrated accomplishment in choreography music for dance or equivalent.

Required Courses

DANCE CORE
137.145 Elementary Ballet Pedagogy 3 s.h.
137.144 Teaching of Modern Dance 3 s.h.
137.200 Graduate Seminar in Dance 2 s.h.
137.201 Graduate Production 1 s.h.
137.202 Dance Theory 3 s.h.
137.234 Graduate Improvisation 10 s.h.
137.277 Thalid 6 s.h.

DANCE TECHNIQUE
Eligible semester hours from the following courses may be repeated:
137.213 Graduate Major Ballet II 3 s.h.
137.214 Graduate Major Modern II 3 s.h.
137.223 Graduate Major Ballet III 3 s.h.
137.224 Graduate Major Modern III 3 s.h.
Eligible students must take a minimum of 4 semester hours of modern dance. Students in modern dance must take a minimum of 4 semester hours of ballet.

EMPHASIS COURSES—CHOREOGRAPHY TRACK
137.208 Graduate Dance Performance 2 s.h.
137.250 Graduate Choreography I 2 s.h.
137.271 Graduate Choreography II 2 s.h.
137.272 Graduate Choreography III 2 s.h.
137.273 Graduate Choreography IV 2 s.h.
137.274 Graduate Independent Choreography (one semester hour for each project) 4 s.h.

EMPHASIS COURSES—PERFORMANCE TRACK
137.141 Repertoire Dance Company 8 s.h.
137.208 Graduate Dance Performance 4 s.h. (one semester hour for each performance)
137.274 Graduate Independent Choreography (one semester hour for each project) 2 s.h.

ELECTIVES
M.F.A. candidates must earn a total of 9 semester hours in elective courses numbered 100 or higher. A minimum of 5 hours must be earned in nonmodule courses; the remaining 3 may be earned in dance or nonmodule courses.

Facilities

The dance department has some of the finest facilities in the country: seven studio classrooms, two video recording and laboratory computer rooms, and the open performance theater space for informal concerts. In addition, the department makes use of the university's premier performance hall, available for formal concerts.

Courses

Primarily for Undergraduates
137.100 Cooperative Education Internship 0 s.h.
137.249 Beginning Tap 2 s.h.
137.250 Beginning Jazz 2 s.h.
137.261 Beginning Ballet 2 s.h.
137.261 Beginning Hip Hop 1 s.h.
137.262 Beginning Modern Dance 1 s.h.
137.263 Beginning Contemporary Dance 1 s.h.
137.271 Beginning Improvisation 3 s.h.
137.272 Beginning Ballet Emphasis 2 s.h.
137.273 Beginning Jazz Emphasis 2 s.h.
137.274 Beginning Hip Hop Emphasis 1 s.h.
137.275 Beginning Modern Dance Emphasis 1 s.h.
137.276 Beginning Contemporary Dance Emphasis 1 s.h.

Courses for Students in Dance
137.100 Cooperative Education Internship 0 s.h.
137.101 Beginning Tap 2 s.h.
137.102 Beginning Jazz 2 s.h.
137.103 Beginning Ballet 2 s.h.
137.104 Beginning Hip Hop 1 s.h.
137.105 Beginning Modern Dance 1 s.h.
137.106 Beginning Contemporary Dance 1 s.h.
137.107 Beginning Improvisation 3 s.h.
137.108 Beginning Ballet Emphasis 2 s.h.
137.109 Beginning Jazz Emphasis 2 s.h.
137.110 Beginning Hip Hop Emphasis 1 s.h.
137.111 Beginning Modern Dance Emphasis 1 s.h.
137.112 Beginning Contemporary Dance Emphasis 1 s.h.
137.113 Beginning Improvisation 3 s.h.
137.114 Beginning Ballet Emphasis 2 s.h.
137.115 Beginning Jazz Emphasis 2 s.h.
137.116 Beginning Hip Hop Emphasis 1 s.h.
137.117 Beginning Modern Dance Emphasis 1 s.h.
137.118 Beginning Contemporary Dance Emphasis 1 s.h.

For information on Dance in the General Education Curriculum, please see Government Portal, Students, and Services.
ECONOMICS

Chair: Robert Fornetti


Associate Professors: Michael Blaik, John Silver, Stephen Milliman, and Stephen Milliman

Assistant Professors: Andrea Blum, Spring Chmielik, Dan Conlin, Peter Higdon, and Ann Durbin

Adjunct Professors: J. Richard Zuber, and Yvonne A. M. Terhune

ECONOMICS 225: Microeconomics

Economics is the study of how societies allocate limited resources to achieve competing ends. Both empirical and deductive economic analyses analyze incentives, constraints, organizations, organizational forms, and market forces to understand patterns of production, exchange, and consumption of goods and services. It treats diverse issues such as wealth and poverty, government expenditures and taxation, property and protection, inflation and unemployment, relations between management and labor, economic growth, environmental protection, health care delivery, the war in drug abuse, free trade versus protectionism, U.S. competitiveness on international numbers, and the quality of American education.

Undergraduate Programs

The baccalaureate program in economics provides an excellent educational background for a variety of positions in business and government. Graduates find employment in banking, financial institutions, insurance firms, and trade organizations; in hospitals, state, and local government agencies dealing with economic policy, regulation, and analysis. Economists also are regarded as excellent preparation for law and for graduate study in fields such as business management, public administration, health and hospital administration, urban and regional planning, transportation, journalism, political science, and statistics. The department offers three undergraduate degrees—the Bachelor of Arts (B.A.) and the Bachelor of Science (B.S.) in the College of Liberal Arts, and the Bachelor of Business Administration (B.B.A.) in the College of Business Administration. The B.A. degree is designed to achieve a balance between economic theory, mathematical tools, and field applications. The B.S. degree maintains the balance with emphasis on developing the analytic tools; it is designed to prepare students for graduate work in economics or related business and technical fields. The B.B.A. emphasizes economic foundations of business firms: accounting, finance, marketing, human resources, and management.

Requirements for the B.A. and B.S. degrees are described here; those for the B.B.A. degree are described in the College of Business Administration section of the Catalog. In planning a program of study, students should be aware that the order in which courses are taken is important, since course prerequisites are for others. The American Economic Association (AEA) is available from the department office, often help in planning economics degree programs.

Bachelor of Arts

Requirements for the B.A. with a major in economics are as follows.

22M/25 Calculus I

225: Microeconomics

100 hours in 100 level economics courses, including the following.

225: Microeconomics

Two semester hours of credit in 100 level economics courses, including the following.

225: Microeconomics

Credit is not allowed for both 60:104 and 60:105.

225: Microeconomics

Minor

Most 100 level courses in economics have as prerequisite either 60:104 or 60:105, or both. Students should consult the departmental advisor for computer science students, or the advisor for any other major.

225: Microeconomics

Course Work for Nonmajors

Courses 60:1 Microeconomics and 60:2 Microeconomics satisfy the College of Liberal Arts General Education Requirement in social sciences and introduce the basic field of economics and the specialized

Bachelor of Science

The B.S. requires the following.

22M:05-26 Calculus II

225:120 Probability and Statistics

or

225:137/138 Introduction to Business Research Experience

Mathematics Statistics

6 hours

120-ten semester hours of credit in 100 level economics courses, including the following.

62:104 Microeconomics

62:105 Macroeconomics

62:184 Introduction to Economics

Two other field course courses numbered 62:170 through 62:199

For students planning to pursue a graduate degree in economics, 225:153 and 225:154 are recommended as a subset of 225:120.

Prerequisites

Some of the prerequisites listed under "Bachelor of Arts" apply; thus 22M:160 is prerequisite to 225:120 and 225:153, 225:120 or 225:154 is prerequisite to 62:184.

Bachelor of Business Administration

The B.B.A. program is described in the College of Business Administration section of the Catalog.

Honors

Students working toward a B.A. or B.S. with an economics major are encouraged to take part in the honors program in economics, which gives high-achieving students the opportunity to pursue a graduate research experience.

To enter the honors program, students should have completed 60:104 Microeconomics Theory and 60:105 Macroeconomics and must have an overall grade-point average of at least 3.2. Honor students enroll in honors seminars, write an honors thesis, and take one examination on two honors topics. To graduate with honors, students must maintain an overall 3.20 grade-point average. Interested students should consult the departmental advisor before the second semester of their junior year.

Minor

The minor in economics requires at least 15 semester hours of credit in economics with a minimum grade-point average of 2.00. Twelve of these semester hours must be taken in The University of Iowa in courses numbered 60:100 and above. Students cannot receive credit for both 60:103 and 60:104.

Course Work for Nonmajors

Courses 60:1 Microeconomics and 60:2 Microeconomics satisfy the College of Liberal Arts General Education Requirement in social sciences and introduce the basic field of economics and the specialized
For Advanced Undergraduates

6.017 Research Seminar in Economics
Course of instructor required.

6.021 Fall and Independent Study in Economics
Course of instructor required.

6.022 Econometrics
Introduction to the field of econometrics, emphasizing estimation, hypothesis testing, and regression analysis. Prerequisite: 18.08 or equivalent. 6.022.003, 6.022.004.

Advanced Seminars

6.016 Seminar in Economic Theory
Course of instructor required.

6.018 Seminar in Microeconomics
Course of instructor required.

6.019 Seminar in Macroeconomics
Course of instructor required.

6.019 Seminar in Macroeconomics
Course of instructor required.

6.020 Mathematical Economics
Introduction to the use of mathematics and economic theory in the formulation of economic models. Prerequisite: 18.02 or equivalent. 6.020.001, 6.020.002.

6.020 Mathematical Economics
Introduction to the use of mathematics and economic theory in the formulation of economic models. Prerequisite: 18.02 or equivalent. 6.020.001, 6.020.002.

6.021 Econometrics
Introduction to the use of mathematics and economic theory in the formulation of economic models. Prerequisite: 18.02 or equivalent. 6.020.001, 6.020.002.

6.021 Econometrics
Introduction to the use of mathematics and economic theory in the formulation of economic models. Prerequisite: 18.02 or equivalent. 6.020.001, 6.020.002.

6.022 Econometrics
Introduction to the use of mathematics and economic theory in the formulation of economic models. Prerequisite: 18.02 or equivalent. 6.020.001, 6.020.002.

6.022 Econometrics
Introduction to the use of mathematics and economic theory in the formulation of economic models. Prerequisite: 18.02 or equivalent. 6.020.001, 6.020.002.

6.023 Econometrics
Introduction to the use of mathematics and economic theory in the formulation of economic models. Prerequisite: 18.02 or equivalent. 6.020.001, 6.020.002.

6.023 Econometrics
Introduction to the use of mathematics and economic theory in the formulation of economic models. Prerequisite: 18.02 or equivalent. 6.020.001, 6.020.002.

6.024 Financial Economics
Introduction to the use of mathematics and economic theory in the formulation of economic models. Prerequisite: 18.02 or equivalent. 6.020.001, 6.020.002.

6.024 Financial Economics
Introduction to the use of mathematics and economic theory in the formulation of economic models. Prerequisite: 18.02 or equivalent. 6.020.001, 6.020.002.

6.025 International Economics
Introduction to the use of mathematics and economic theory in the formulation of economic models. Prerequisite: 18.02 or equivalent. 6.020.001, 6.020.002.

6.025 International Economics
Introduction to the use of mathematics and economic theory in the formulation of economic models. Prerequisite: 18.02 or equivalent. 6.020.001, 6.020.002.

6.026 Industrial Economics
Introduction to the use of mathematics and economic theory in the formulation of economic models. Prerequisite: 18.02 or equivalent. 6.020.001, 6.020.002.

6.026 Industrial Economics
Introduction to the use of mathematics and economic theory in the formulation of economic models. Prerequisite: 18.02 or equivalent. 6.020.001, 6.020.002.

6.027 Evolution of Organizations
Introduction to the use of mathematics and economic theory in the formulation of economic models. Prerequisite: 18.02 or equivalent. 6.020.001, 6.020.002.

6.027 Evolution of Organizations
Introduction to the use of mathematics and economic theory in the formulation of economic models. Prerequisite: 18.02 or equivalent. 6.020.001, 6.020.002.

6.028 Social Economics
Introduction to the use of mathematics and economic theory in the formulation of economic models. Prerequisite: 18.02 or equivalent. 6.020.001, 6.020.002.

6.028 Social Economics
Introduction to the use of mathematics and economic theory in the formulation of economic models. Prerequisite: 18.02 or equivalent. 6.020.001, 6.020.002.

6.031 Economics of the Environment
Introduction to the use of mathematics and economic theory in the formulation of economic models. Prerequisite: 18.02 or equivalent. 6.020.001, 6.020.002.
the opportunity to learn about and acquire methods for understanding literary forms and technique, and the crafts of fiction and nonfiction. In addition to providing these essential elements of a liberal education, the department offers courses as background for students who have specialized interests in other fields. It also participates in interdisciplinary programs such as American Studies, African-American World Studies, Comparative Literature, Literature, Science, and the Arts; and Women's Studies.

The English faculty is committed to expanding the traditional canon of literature. English faculty members devote their amenities to the study of American literature, the classics, and non-Western cultures. Some teach and write about literature and culture, supplementing the use of literary texts with paintings, photography, music, folklore, film, video, popular literature, and significant texts from many areas, including history, philosophy, physics, psychology, and sociology. The Department has a strong, long-standing commitment to teaching creative and English writing.

Although most students in the Ph.D. program are preparing for careers as teachers and scholars and most of the M.A. program are preparing for those as poets and instructors, the R.A. and M.A. programs provide valuable training for careers in many other fields. Students who have received English degrees from The University of Iowa are now writing for advertising firms, newspapers, and book publishers; teaching in primary and secondary schools; practicing law and medicine; working in business and industry; and participating in other professional goals. In addition, each academic program is arranged to meet students' individual needs and objectives.

Undergraduate Programs

The major in English gives students a solid core of interpretive, analytical, and writing skills, rather than a uniform view of any particular literary tradition or theory. The Department's goal is to offer an undergraduate program designed to provide students with the means to develop essential reading and communication skills, and to introduce them to the many pleasures and rewards of the study of English literature.

Bachelor of Arts

A Bachelor of Arts with a major in English requires a minimum of 33 semester hours of credit in courses offered by the Department of English, of which at least 18 must come from courses taught primarily by members of the English faculty. At least 18 must be taken at The University of Iowa. In fulfilling the above requirements, English majors must complete at least:

3 semester hours in English courses;
3 semester hours in another course of study recognized as literature or cultural studies;
3-4 semester hours in literature and culture courses; and
3 semester hours in cultural study courses.

These requirements apply to all students who declare English majors after the close of the spring 1996 semester. The Schedule of Courses for each semester specifies which English department courses fit in the above categories. The requirements of at least 9 semester hours insuring literature written before 1800 may be satisfied by courses that also satisfy other requirements of the major. Only 9 semester hours of creative writing courses may be applied toward the 33 semester-hour total for the major. Students interested in an English major should consult the director of undergraduate studies in the English department office. The Handbook for the New English Major offers a more complete view of the requirements, programs, and procedures for the English major. It is available from the director of undergraduate studies.

General Education Requirement in Humanities for English Majors

English majors may take 10-100. The Interpretation of Literature plus 6 more course hours of approved humanities courses or they may take 9 semester hours of approved courses.

No BC course can be counted toward the 33 semester hours required for the English major.

Honors

The English major with honors include designated, special students as part of their academic course of study through special courses and independent study. Each year the department offers four honors seminars covering a wide range of historical areas and topics. Students who wish to earn a degree with honors have two options. They may take:

three other 1000-level courses during the junior and senior years, and then write the three essays written as seminar papers and, with an introduction, present them as the honors project, or

one of the seminars, preferably in the senior year, but as 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 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 members of the department's and the office hours are available in the English department office. A handbook, Guidelines and Deadlines, which describes both the honors projects in general detail and specific deadlines for turning in the prospectus and the final honors project, also is available in the English office.

Minor

Students seeking a minor in English must first complete 1000. The Interpretation of Literature. Since 1000 courses toward the General

Education Requirement in humanities, that requirement may be satisfied by a minimum of 6 additional semester hours of course work selected from approved offerings in the humanities.

The minor in English requires 15 semester courses of work in Department of English courses, with a grade-point average of 2.0. At least 12 of the 15 semester hours must be taken on campus, in the English courses 250, 350, and above, all 497 courses, 498 courses, and 598 courses. Courses designated 80-400 do not count toward the minor in English. Teachers who lead students to be literature classes to be literature students are acceptable toward the 12 semester hours of approved work.

No course in the minor may be taken pass/uncognizable.

The minor is first officially acknowledged and recorded only after the student has completed the application for graduation.

Creative Writing

Many undergraduate programs come to The University of Iowa because of the excellence of its creative writing program. With the consent of its director, any student may enter the undergraduate course in this program. These are 1835: Writing, 1842: Fiction Writing, and 1843: Poetry Writing. The University Admission to the Graduate Studio in fiction and poetry offers (1853: Undergraduate Writing Workshop: Fiction and (1854: Undergraduate Writing Workshop: Poetry) appears in the list of prerequisites. Students who wish to take part in these workshops must intend to study both fiction or poetry to the Writers' Workshop no earlier than a week before registration and no later than the last day of registration.

English and Education

The department offers a flexible undergraduate program for students planning to teach English in elementary or secondary schools. Students who complete this program satisfy the requirements for a general major in English and for 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 language Arts through through twelve.

Literary study for students planning to teach English should emphasize a range of close reading experiences in different kinds of literature (e.g., literature of the ancient world, Shakespeare, British literature of the nineteenth and twentieth centuries, American literature, literature for children, literature of American ethnic groups, literature by women, film literature) as well as a variety of methods for exploring a literary text.

Students planning courses that will help them in their first teaching experiences should remember that they will have to work with a variety of methods in English. They will need advanced training in teaching reading and writing in and out. Workshops, poetry, and
Graduate Programs

Master of Arts (Literary Studies)
The M.A. in literary studies is a program for students who want to understand what it means to study literature professionally. Those who seek an M.A. in literary studies may include students who would like more exposure to graduate study before deciding whether to continue toward a Ph.D. or who may be interested in taking secondary school who want to gain extra credit and background; or independent readers and writers seeking individualized guidance related to a specific career objective.

All M.A. students must participate in the community of the department and may enroll in any of its graduate courses or seminars. The requirements for the degree are designed to give students a general knowledge of the periods, movements, and major works of English and American literary history, to develop modern sensitivity to verbal language and expression, and to introduce some critical methods of literary study. Each of the requirements allows a wide choice of courses within the specified areas.

Elective courses, which constitute about half of the course work toward the degree, may be chosen from graduate courses both inside and outside the English department. The program's flexibility enables students, consulting closely with their advisors, to tailor their plans of study to their interests. Depending on whether the student takes an examination or writes a thesis, the program requires either 30 or 33 semester hours of graduate-level credit. 24 of which must be earned in residence with a grade-point average no lower than 3.00.

COURSE REQUIREMENTS

Students must take one course in each of the following areas: British literature to 1700, British literature 1700-1914, American literature to 1914, twentieth-century literature in English, and literary theory. Three of these courses must be numbered 200 and above.

THESIS OR COMPREHENSIVE EXAMINATION

There are two ways to complete the program:

- The usual conclusion is a 30-40 page essay based on comprehensive examination involving writing and discussion drawn from the various periods of literature in English. Students may elect any current reading list from the graduate committee.

- Students with strong academic records, solid writing skills, and a desire to explore a research topic in depth may petition the Graduate Studies Committee for permission to write an M.A. thesis in literary studies. The thesis is either a critical or scholarly work of about 10,000 words (approximately 40 pages), written under the supervision of a thesis director and requiring the 30-hour minimum. At least 18 of these hours must be beyond the 30 hours of required course work. Students willing to complete the program must assemble a thesis committee, gain the committee's approval of the thesis prospectus, and pass an oral defense of the completed thesis.

Master of Arts (Nonfiction)

This program is designed for persons wishing to become newspaper, magazine writers, editors, or writing teachers. To qualify for the M.A. with emphasis in nonfiction writing, students must complete 16 semester hours of graduate work with a grade-point average no lower than 3.00. At least 24 semester hours must be earned in residence at The University of Iowa, including 6 semester hours of work in nonfiction writing with a grade of A or B. In addition to the 30 semester hours of course work, students are required to complete at least 2 and not more than 6 semester hours of credit for the thesis.

In consultation with an advisor, each student designs a program of courses suited to his or her professional interests. Thus, each student's year of study is highly individualized and may include courses from widely different areas and departments of the university.

Each student must produce a thesis, which may be an extended essay, a collection of essays, or a project involving some other form of nonfiction writing. The student must take an oral examination covering the project, and must pass final approval for the finished thesis from his or her thesis committee.

Students interested in this program should consult the director of the M.A. with emphasis in nonfiction writing.

Master of Fine Arts

The purpose of the M.F.A. program is to provide the guided and stimulating environment for students with previous achievement or notable promise in writing poetry or fiction. The flexible requirements include 48 semester hours of graduate credit, earn credit by the Writers' Workshop, a collection of poems or short stories, or a novel, and a major research project or an examination covering modern poetry or fiction.

Doctor of Philosophy

The Ph.D. program is designed as preparation for the teaching, publishing, and administrative service required of college and university faculty members. The candidate requires 72 semester hours of graduate credit, at least 30 of which must be earned in residence at The University of Iowa.

Concentrations are offered in areas such as literary history, literary theory, cultural studies, and critical literature, gender studies, and writing theory and pedagogy.

Requirements for the Ph.D. include:
- formal admission to candidacy by a vote of the full faculty of the department, usually during the third term of study; demonstration of competence in two foreign languages or mastery of a single foreign language and its literature;
three semesters taken at The University of Iowa;  
a comprehensive examination that consists of the  
following: written responses to questions in a period of  
American literature and in a special  
American literature and in a special area, presentation of an "examination paper," and a  
and a subsequent oral examination;  
a dissertation, usually a scholarly work on  
a topic of the student's choice, with special permission, it may be a novel or a collection of poems or short  
and a final examination in defense of the  
thesis.

All doctoral candidates are encouraged to gain  
teaching experience, preferably in the College of  
Liberal Arts programs in rhetoric and in the  
Literature General Education Requirement.  
Application forms and a complete description of the  
program are available from the graduate  
secretary of the department.

Financial Aid  
Aid is available to graduate students in the form of  
scholarships, fellowships, and teaching and research assistantships.  
It is awarded on the basis of  
competitive basis. Since sources are limited,  
unusually fewer than half of new doctoral students  
receive aid. Many, but not all, advanced  
advanced doctoral students receive support.

Financial aid applications are considered only  
from students who have applied or been  
accepted to a degree program in the Graduate  
College. Applications and all necessary  
supporting material must be submitted by  
February 1. By March 1, financial aid  
Forms are available from the English department and  
the University's Office of Admissions.

Admission  
Admission requirements are stated in Special  
Requirements and Information/Graduate-  
Admissions, which is available from the English  
department graduate office.

Writing Programs  
For the past 50 years, The University of Iowa  
has been known as a leader in the field of creative writing.  
It is ranked among the top programs in the nation and is  
the largest program of its kind in the United States.  
Focusing on creative writing, the  
Writing Programs emphasize the development of  
writing skills, the exploration of various  
writing forms, and the cultivation of  
originality and creativity.

Courses  
Courses in the Writing Programs are designed to  
meet the needs of both incoming and returning students.  
The curriculum includes workshops, seminars,  
and individualized instruction.  
Students are encouraged to explore a variety of  
writing forms and to develop their own  
unique voice and style.

General Education  
General Education courses are designed to  
provide a broad and balanced education for  
graduate students.  
These courses cover a wide range of  
subjects, including history, literature,  
art, and philosophy.  
Students are required to take a certain number of  
General Education courses as part of their degree program.

Primarily for  
Undergraduates  
English department courses are open to all  
undergraduates who have satisfied the  
minimum requirements. However, it is  
strongly recommended that students  
complete one or more departmental courses  
in the 100-level before attempting  
100-level courses.  
English majors are required to take at least one course from  
the first four categories.

Readings  
These specialized discussion courses are  
designed to deepen students' understanding of  
specific literary works.  
Students are encouraged to read and discuss  
the texts in preparation for class  
settings.  
Readings are selected from a variety of  
authors and time periods, offering a diverse  
range of perspectives and insights.
Nonfiction Writing

The following courses may be repeated: BW-10, BW-100, BW-123, BW-150, BW-209, and BW-350. Others may be repeated with consent of both the instructor and either the director of undergraduate studies or the director of graduate studies.

PRACTICAL WRITING

Intensive practice in elements of composition and limits of expression.

BR-01A Expository Writing 3.0 cr.
BR-15 Technical and Scientific Writing 2.5 cr.
BW-100 Grammar for Writers 3 cr.
BW-101 Greek and Latin for Vocabulary Building 3 cr.
BR-102 Grammar and Style 2.5 cr.
BW-104 Personal Writing 3 cr.
BR-105 Advanced Writing 2.5 cr.
BW-112 Writing for the Sciences 3 cr.
BW-113 Writing for Business and Industry 3 cr.
BW-115 Writing for the Arts 3 cr.
BR-133 Extended Paper: New Journalistic Writing 3 cr.
BR-17 Forms of Writing 3 cr.
BW-150 Undergraduate Essay Workshop 3 cr.
BW-209 Advanced Writing 3 cr.
BW-216 Writing Workshop for Editors 3 cr.
BW-290 Critical Writing 3 cr.
BW-295 Essay Writing Workshop 3 cr.

THEORY AND PRACTICE OF WRITING

Thoretical and practical experience in fiction, combined with practical experimentation in writing for people who intend to practice, criticize, and/or teach creative writing.

BR-137 Techniques of the Essay 3 cr.
BR-138 Art of the Essay 3 cr.

EXERCISE SCIENCE

Cherie M. Jay, M.A., Ph.D.
Assistant professor of Exercise Science

The Department of Exercise Science offers Bachelor of Science degree programs in both the general and pre-professional education. The graduate program includes the Master of Science without thesis, the Master of Science with thesis, and the Ph.D. Students may select from the following areas of specialization for the M.S. with thesis and from three for the Ph.D.

Undergraduate Programs

Candidates for the B.S. degree in physical education are expected to satisfy the College of Liberal Arts General Education Requirements in natural sciences by taking 4.5 General Chemistry I and 2.5 Biopsychology Animal Behavior. Part of the 40-credit General Education Requirements should be satisfied by taking 3.0 Elementary Psychology.

Bachelor of Science in Exercise Science

The Bachelor of Science degree program provides a base in physical education at the graduate level in exercise science; exercise physiology, anabolic training, and athletic testing: and (2) career in athletic training or exercise science. Candidates for the B.S. degree in exercise science are expected to satisfy the College of Liberal Arts General Education Requirements in natural sciences by taking 4.5 General Chemistry I and 2.5 Principles of Animal Behavior. Part of the 40-credit General Education Requirements. The requirement should be satisfied by taking 3.0 Elementary Psychology.

The exercise science major includes the following courses: an introduction to anatomy, biomechanics, exercise physiology, motor control, and anabolic training. The core courses are designed to build a solid foundation in the fundamental principles of exercise science and to prepare students for advanced courses in exercise science specialization or to seek admission to a professional program (e.g., medicine, dentistry, or physical therapy). Qualification for admission to these tracks includes completion of a minimum of 60 credit hours, with a cumulative grade point average of 2.5 or higher, and a minimum of 30 credit hours in advanced courses with a cumulative grade point average of 3.0 or higher for the following courses: 10.1 and 10.2, or 10.3, 11.2, 11.3, or 11.4, 11.5, 11.6, 11.7, 11.8; 12.1, 12.2, 12.3, 12.4, 12.5, 12.6, 12.7; and 12.8.
Exercise science majors must complete the following core courses plus 17 semester hours in their elected subdiscipline.

4/14 Principles of Chemistry II 3 s.h.
79:143 Introduction to Statistical Methods 3 s.h.
or
226:102 Introduction to Statistical Methods 3 s.h.
or
226:101 Biostatistics 3 s.h.
226:7 Introduction to Computation with FORTRAN 3 s.h.
or
49:70 Computer Analysis 3 s.h.
or
57:17 Computers in Engineering 3 s.h.
29:11 College Physics I 4 s.h.
or
29:17 Introduction to Science I 3-4 s.h.
or
29:12 College Physics II 4 s.h.
or
29:18 Introduction to Physics II 4 s.h.
or
2:3 Principles of Animal Biology 5 s.h.
72:130 Human Physiology 4 s.h.
or
72:150 Intermediate Physiology 4 s.h.
The following courses should be completed prior to the senior year.

27:141 Exercise Physiology 3 s.h.
27:142 Exercise Physiology Laboratory 1 s.h.
27:150 Exercise Science Seminar 2 s.h.
27:151 Exercise Science Laboratory 2 s.h.
27:150 Motor Control I 3 s.h.
27:190 Biomechanics 3 s.h.
27:191 Biomechanics of Human Motion 4 s.h.

Elective courses for the 17 semester hours in the subdisciplinary in exercise science are listed below.

ANATOMY
2:112 Cell, Tissue and Organ Biology 5 s.h.
27:153 Advanced Anatomy and Physiology 3 s.h.
27:155 Skeletal Muscle Biology 3 s.h.
27:157 The Cardiovascular System of Human Motion 3 s.h.
27:194 Exercise Science Seminar 2-3 s.h.
27:253 Laboratory in Advanced Anatomy 6 s.h.

Preprofessional training should take the following courses in place of 27:253 Laboratory in Advanced Anatomy.

2:150 Introductory Biomechanics 2 s.h.
2:152 Biomechanics Laboratory 2 s.h.

BIOCHEMISTRY
226:26 Calculus II 4 s.h.
or
226:36 Engineering Calculus II 4 s.h.
27:155 Skeletal Muscle Biology 3 s.h.
27:157 The Ornithology Analysis of Human Motion 3 s.h.
27:190 Exercise Science Seminar 3 s.h.
27:57 Anatomy 3 s.h.
57:70 Kinesiology 3 s.h.
57:199 Mechanics of Deformable Bodies 3 s.h.

GERIATRIC PHYSIOLOGY
2:150 Introductory Biomechanics 2 s.h.
2:152 Biomechanics Laboratory 2 s.h.
4:122 Organic Chemistry I 4 s.h.
4:122 Organic Chemistry II 4 s.h.
3:25 Skeletal Muscle Biology 3 s.h.
27:190 Exercise Science Seminar 2-3 s.h.
99:110 Biomechanics 3 s.h.
99:120 Biomechanics and Molecular Biology I 4 s.h.
99:130 Biomechanics and Molecular Biology II 4 s.h.

MOTOR CONTROL
2:40 Biology of the Brain 3 s.h.
2:112 Cell, Tissue, and Organ Biology 5 s.h.
2:143 Animal Behavior 4 s.h.
2:155 Cell Physiology 4 s.h.
2:190 Endocrinology, Neuroendocrinology 3 s.h.
2:181 Neurophysiology 4 s.h.
2:155 Advanced Anatomy and Kinesiology 3 s.h.
2:155 Skeletal Muscle Biology 3 s.h.
27:157 The Cardiovascular System of Human Motion 3 s.h.
27:190 Exercise Science Seminar 2-3 s.h.
3:120 Physiological Psychology and Psychobiology 3 s.h.

Bachelor of Science in Physical Education
The B.S. degree in physical education is offered as a general major or as a specialization in athletic training.

GENERAL MAJOR
Students who elect the general major in physical education must complete the following courses:

27:53 Human Anatomy 3 s.h.
27:56 First Aid and CPR 3 s.h.
28:71 Human Growth and Motor Development 2 s.h.
28:75 Contemporary Issues in Health Promotion 3 s.h.
27:107 Biomechanics of Physical Education 3 s.h.
27:108 Motor Learning and Motor Control 3 s.h.
27:140 Exercise Physiology for Athletes 3 s.h.
28:82 Psycho-Social Dimensions of Physical Activity 3 s.h.
28:105 Physical Education for the Handicapped 2 s.h.
27:17 Measurement and Evaluation in Physical Education 3 s.h.
72:130 Human Physiology 4 s.h.

ATHLETIC TRAINING PROGRAM
The athletic training program provides training leading to the National Athletic Training Association certification in athletic training. Employment opportunities for graduates include serving as health care professionals for sports medicine clinics and professional sports teams as well as universities, colleges, 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 enrolling in the University of Iowa should talk to an athletic training advisor or their college advisor upon entering the University. Early admission should be sought for course counseling since prerequisite courses and sequential skill development must be completed along with general education coursework.

College of Liberal Arts instructors are formally admitted into the program and begin clinical experience as sophomores. Application is made between January 1 and March 1 of the freshman year. To be considered for separation, students must complete prerequisite experiences and at least one college-level course in a minimum of two of the following areas: animal behavior, chemistry, anthropology, mathematics, physics, introductory psychology, human anatomy, human growth and development, health, and introductory athletic training.

Program requirements include the following:
27:107/107 Biomechanics 3 s.h.
27:140/141 Exercise Physiology 3 s.h.
27:108 Motor Learning and Motor Control 3 s.h.
27:171 Administration of Athletic Training Programs 3 s.h.
27:172 Clinical Science I 3 s.h.
27:173 Clinical Science II 3 s.h.
27:174 Clinical Science III 3 s.h.
27:175 Clinical Science IV 3 s.h.
27:184 Seminar in Athletic Training 5 s.h.
27:185 Practicum in EMMA for comparable emergency care 2 s.h.
27:253 Laboratory in Advanced Anatomy 6 s.h.
72:109 Counseling for Athletic Training 3 s.h.
72:120 Drugs: Their Nature, Actions, and Use 2 s.h.
72:130 Human Physiology 4 s.h.
104:100 Introductory Nutrition 1 s.h.
104:101 Introductory Nutrition 1 s.h.
09:100 Introduction to Exercise Science 2 s.h.

Graduate Programs
Master of Science without Thesis
The program leading to the M.S. without thesis is a formalized course of study for athletic trainers and students in the combined physician assistant-exercise science program.
Athletic Training Emphasis

The nonthesis program in athletic training is designed for students interested in an advanced area of study in clinical education and research for the graduate athletic trainer. Emphasis is on developing and applying research and education bases to the knowledge and skills of the entry-level athletic trainer. The program focuses on a health care team approach to sports medicine, professional preparation, and sports epidemiology.

The following undergraduate course work (total of 32 semester hours) is required background for the nonthesis M.S. program in athletic training.

- Cadet anatomy 4 s.h.
- Human physiology 3 s.h.
- Athletic Training Core:
  - Prevention 3 s.h.
  - Evaluation & Repetition 3 s.h.
  - Rehabilitation 3 s.h.
  - Administration 2 s.h.
- Exercise Science Core:
  - Neural Control 3 s.h.
  - Exercise Physiology 3 s.h.
  - Biomechanics 3 s.h.
- Electives in Related Areas 3 s.h.

Current emergency certification NATA certification or eligibility

**Course Requirements**

For the M.S. without thesis, students must complete 32 semester hours, at least 20 of which must be in exercise science, including 27:141 and 27:142.

The following courses are required for the M.S. without thesis in athletic training.

**Exercise Science**

Three courses from the following:

- 27:141 Exercise Physiology 3 s.h.
- 27:142 Exercise Physiology Laboratory 1 s.h.
- 27:155 Skeletal Muscle Biology 3 s.h.
- 27:157 The Qualitative Analysis of Human Motion 3 s.h.
- 27:160 Motor Control I 3 s.h.
- Nervous System Physiology 3 s.h.

**Clinical Research Tools**

Two courses from the following:

- 79:143 Introduction to Statistical Methods 3 s.h.
- 65:161 Introduction to Biostatistics 3 s.h.

An approved data processing or an equivalent course in computer science 2-4 s.h.

**Athletic Training**

- 27:309 Non-Thesis Seminar 3 s.h.
- 27:184 Senior in Athletic Training (3 registrations) 6 s.h.

**Electives**

A total of 4 semester hours.

**Physician Assistant-Exercise Science Emphasis**

For the M.S. without thesis physiology-exercise science combined program, see "Physician Assistant Program in the College of Medicine section of the Catalog."**Master of Science with Thesis**

The thesis program leading to the M.S. in exercise science is designed primarily as a first step in graduate study leading to the Doctor of Philosophy. As such, it is a research-oriented program that introduces students to the nature and extent of research in exercise science and gives them an opportunity to specialize in an area of interest.

Because the M.S. with thesis is regarded as the first step toward the Ph.D., in one of five areas of specialization, the undergraduate premedical course requirements depend 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.S. advisor and the professor in charge of the emphasis area selected by the candidate.

The following courses are required for the M.S. with thesis.

Two courses outside the area of specialization, from the following:

- 27:141 Exercise Physiology 3 s.h.
- 27:142 Exercise Physiology Laboratory 1 s.h.
- 27:156 Motor Control I 3 s.h.
- Nervous System Physiology 3 s.h.
- 27:160 Biomechanics of Human Motion 4 s.h.

Three courses from the following:

- 79:143 Introduction to Statistical Methods 3 s.h.
- 65:161 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 Areas**

- 27:404 Thesis: M.S. 4 s.h.
- Electives approved by advisor 5-7 s.h.
- Total 30 s.h.

**Doctor of Philosophy**

Admission

Admission to the Ph.D. program is based on the applicants' grade-point average on work completed for the M.A. or M.S. 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 3.0 in the graduate work.

For the M.S. program in athletic training, applicants must be graduates of an approved premedical program in physical therapy and must hold a4-year degree, which need not be in physical therapy. Deadlines for admission applications are October 15, March 15, and May 15; notification is made approximately two months after the respective application deadline.

**Requirements**

Ph.D. candidates should have a general knowledge of all areas in exercise science, a working knowledge of research techniques applicable to problems in the field, and an in-depth knowledge in at least one area of specialization in exercise science. Specialization areas offered include anatomy, biomechanics, exercise physiology, motor control, and therapeutics.

The thesis program for the M.S. together with the Ph.D. core courses, provides the background required for the Ph.D. candidate's specialization. Candidates must complete a minimum of 72 semester hours beyond the M.S. or B.S. 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 in an approved refereed professional journal for publication.

Many of the courses in the specialization areas are offered by departments other than the Department of Exercise Science. Professors from these departments frequently serve on comprehensive examination committees and on the final oral examination to which the candidate defends the dissertation.

**General Requirements**

Ph.D. candidates must fulfill the following requirements.

Completion of the M.A. or M.S. with thesis for a minimum of 10 semester hours of independent research exclusive of the thesis requirement (provides students with additional opportunities to conduct research, the results of which may be submitted for publication).

At least 72 semester hours of graduate credits beyond the B.A. (typically more than 40 semester hours)

**Core Course Requirements**

Two approved courses in statistics

Two approved computer science courses

**79:301 Research (minimum of 10 s.h.)**
27.203 Practicum in College Teaching - minimum of 3 s.h.  
27.405 Thesis: Ph.D. (12 s.h.)  

**SCIENTIFIC AREA COURSES**  
In order to ensure that exercise science doctoral candidates obtain a 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 second level courses. Students specializing in therapeutics must select one course from each of the four areas below. Two must be second level courses. They may select a formal minor in the exercise science faculty to substitute specific courses from their program for the scientific area courses listed below, provided the substitute courses contain both a lecture and a laboratory format.

**Anatomy**  
First-level: 27.150 and 27.151 (4 s.h.)  
Second-level: 27.253 (4 s.h.)

**Biomechanics**  
First-level: 27.107 (3 s.h.)  
Second-level: 27.197 (4 s.h.)

**Motor Control**  
First-level: 27.108 (3 s.h.)  
Second-level: 27.100 (2 s.h.)

**Exercise Physiology**  
First-level: 27.141 and 27.142 (4 s.h.)  
Second-level: 27.274 and 27.302, or 27.275 and 27.304, or 27.276 and 27.305 (3 s.h.)

**QUALIFYING AND COMPREHENSIVE EXAMINATIONS**  
To assure general background knowledge, all Ph.D. candidates must pass a total qualifying examination, which should be taken prior to the third semester of graduate study (prior to the fifth semester if the student entered with an already baccalaureate degree). Ph.D. candidates also must pass a comprehensive examination, which should be taken following the completion of the fourth semester of graduate study (prior to the fifth semester of study with the baccalaureate degree). Candidates specializing in exercise physiology who wish to write a research proposal in physiology may write a separate comprehensive examination prepared and evaluated by faculty members of the Department of Physiology and Biophysics in the College of Medicine.

**Specializations**  
Candidates are expected to obtain a broad knowledge base within their area of specialization. The following should be taken as a guide to the areas of specialization and are intended to be flexible:

**ANATOMY**  
27.112 Cell, Tissue, and Organ Biology 5 s.h.  
27.153 Advanced Anatomy and Histology 2 s.h.  
27.253 Laboratory in Advanced Anatomy 6 s.h.

**BIOCHEMISTRY**  
27.269 Electromyography in Kinematics and Biomechanics 3 s.h.  
27.270 Developmental Anatomy 4 s.h.  
27.294 Medical Neuroanatomy 4 s.h.  
77.100 Introduction to Radiobiology and Radiology 4 s.h.  
77.244 Biostatistics in Biological Research 4 s.h.  
95.130 Biochemistry of Molecular Biology I 4 s.h.  
95.131 Biochemistry of Molecular Biology II 4 s.h.  
97.100 Biochemistry 5 s.h.

**BIOMECHANICS**  
27.253 Laboratory in Advanced Anatomy 0 s.h.  
27.269 Electromyography in Kinematics and Biomechanics 3 s.h.  
27.357 Research Techniques in Biomechanics 3 s.h.  
57.19 Mechanics of Deformable Bodies 3 s.h.  
57.20 Mechanics of Fluids and Thermal Processes 3 s.h.  
57.31 Principles of Design I 3 s.h.  
58.153 Intermediate Dynamics 3 s.h.  
63.162 Design and Analysis of Experiments in the Biomedical Sciences 3 s.h.  
101.312 Biomedical Instrumentation 3 s.h.

**EXERCISE PHYSIOLOGY**  
27.112 Cell, Tissue, and Organ Biology 5 s.h.  
60.305 General Physiology for Graduate Students 4 s.h.  
27.150 Introduction to Electrophysiology 3 s.h.  
27.152 Electrocardiography Laboratory 2 s.h.  
71.105 Pharmacology for Health Sciences Medical 5 s.h.  
72.112 Medical Pharmacology 4 s.h.  
72.234 Medical Neurophysiology 4 s.h.  
72.274 Exercise Physiology Seminar 2 s.h.  
77.103 Introduction to Radiobiology and Radiology 4 s.h.  
77.244 Biostatistics in Biological Research 4 s.h.  
95.130 Biochemistry of Molecular Biology I 4 s.h.  
97.100 Biochemistry and Molecular Biology 5 s.h.

**Motor Control**  
27.200 Functional Neuromuscular Control 3 s.h.  
27.265 Electromyography in Kinematics and Biomechanics 4 s.h.  
27.314 Seminar in Motor Control 3 s.h.  
101.212 Biomedical Instrumentation 2 s.h.

**THERAPEUTICS**  
Candidates for this specialization must be accepted into the graduate program in physical therapy education as well as in exercise science. Prerequisites are listed under required courses for the Master of Arts in physical therapy under "Prerequisites for admission to the College of Medicine Section of the Campus." Students specializing in therapeutics must study the scientific area course requirements listed for the science major.

**General Core**  
22C:100 Introduction to Computer Programming 3 s.h.  
60.273 Research Data Management 3 s.h.  
77.249 Data Processing 3 s.h.  
77.405 Thesis: Ph.D. 3 s.h.  
101.214 Advanced Seminar in Physical Therapy 3 s.h.  
101.280 Teaching Practicum 3 s.h.

**Total**  
23 s.h.

**Research**  
27.201 Research 2 s.h.  
101.284 Projects in Research 3 s.h.  
101.325 Independent Study 2 s.h.  
101.327 Research in Therapeutics 2 s.h.

**Total**  
10 s.h.

**Specialty Emphasis**  
Individual plans of study are developed jointly by the graduate student and faculty adviser. Course requirements depend on the student's specific specialty area (neuropsychology, ergonomics, musculoskeletal, neuromuscular).

**Facilities**  
Classrooms and 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 adequate facilities for instruction and research at both the undergraduate and graduate levels.

**Camps**  
Cooperative efforts with other departments facilitate specialization by allowing exercise science students to use additional special facilities and research equipment in other departments on campus.

**COURSES**  
**Primarily for Undergraduates**  
27.002 Cooperative Education Internship 0 s.h.  
27.052 Human Anatomy 3 s.h.  
General Human anatomy covering all areas of the body, for students majoring in physical education and athletic training or planning career in the health professions.

27.115 Human Anatomy 3 s.h.  
Artemis and CPM. Offered fall and spring semesters. Same as 27.55.

27.116 Basic Human Anatomy 3 s.h.  
Basic anatomy, embryology, histology, physiology for persons and students of athletic or physical status, Prerequisites: 27.55.  
27.117 Human Anatomy Laboratory 3 s.h.  
Methods of study, development and evaluation of human skills. Offered during semesters.

27.110 Special Projects 3 s.h.
For Undergraduates and Graduates

21-107 Biomechanics of Physical Education 3.h.

3-124 Undergraduate Internship In Sports Management 3.h.

21-108 Motor Learning and Motor Control 3.h.

Theories of motor control related to learning and teaching skills used in movement education. Emphasis on conditioning, control, learning, performance, and learning disabilities. Prerequisites: 21-107.

21-140 Exercise Physiology for Practitioners 3.h.

Basic knowledge of exercisemediated physiological responses (e.g., lactate, oxygen, carbon dioxide, heart rate, core temperature, stroke volume, pulmonary ventilation, lymph flow, arterial blood gases, endocrine metabolism, autonomic nervous system, etc.). Prerequisites: 21-107 and consent of the instructor.

21-141 Exercise Physiology 3.h.

Musculoskeletal response for the acute and chronic effects of exercise on the different muscle groups of the body. Offered fall semester. Prerequisites: 21-135 or 21-136 or equivalent.

21-142 Exercise Physiology Laboratory 1.h.

Supplements 21-141, principles of pathophysiological determination. To demonstrate skeletal and muscle effects of exercise. Courses of interest for graduate students.

21-155 Cross Anatomy for Exercise Science 3.h.

Intricate analysis of the myofascial system in a musculoskeletal perspective with anatomical, physiological, biomechanical, and pathophysiological interrelationships. Open only to exercise science majors. Offered fall semester.

21-156 Cross Anatomy Lab for Exercise Science 1.h.

Anatomical laboratory for exercise science majors. Open only to exercise science majors. Offered fall semester.

21-159 Advanced Anatomy and Kinesiology 3.h.

In-depth analysis of muscle, ligament, joint, fascia, muscle, and its mechanical interrelationships. For muscle, ligament, joint, fascia, muscle. Open to exercise science majors. Offered spring semester.

21-155 Social Muscle Biology 3.h.

Muscular structure, function, familial, biochemical perspectives; genetics. Pre-Req: 21-142. Must be taken with 21-142 as a course of study in the same semester. Open to exercise science majors. Offered fall semester.

21-173 The Evaluation of Human Movement 6.h.

Applications of basic concepts in biomechanics to applied settings. Includes kinematic, kinetic, and energy analysis. Emphasis on mechanical manipulation of data. Pre-Req: 21-142. Must be taken with 21-142 as a course of study in the same semester. Open to exercise science majors. Offered fall semester.


Kinematic and kinetic analysis of human movement. Emphasis on basic motor skills assessment and intervention. Prerequisites: 21-142. Offered spring semester.

21-171 Administration of Athletic Training 2.5.h.

Health care, supervision, professional ethics, social issues, and legal issues associated with athletic training.

21-172 Clinical Sciences I 2.5.h.


21-173 Clinical Sciences II 2.5.h.


21-182 Clinical Science III 3.h.

An interprofessional approach to the evaluation and management of the injured athlete. Emphasis on the use of technology to assist in athletic training. Prerequisites: 21-171.

21-183 Clinical Science IV 3.h.

Continuation of comprehensive evaluation, identification of equipment, and treatment of the injured athlete. Prerequisites: 21-171.

21-184 Seminar in Athletic Training 1.h.

Student and relationship to research, education, clinical, public health, and administrative aspects. One assignment required. Offered fall semester.

21-185 Practical in Kinesiology 0.5.h.

Only for students majoring in kinesiology.

21-196 Motor Control I: Human Movement 3.h.

21-196 Exercise Science Seminar 6.h.

Interprofessional seminar on the role of exercise for the treatment of specific health conditions (e.g., diabetes, osteoporosis, cardiovascular disease). Emphasis on the role of exercise in the prevention and management of these conditions. Prerequisites: 21-107 and consent of the instructor.

21-216 Physiological Responses to Exercise and Training 3.h.

Effects of exercise and training on immunological, respiratory and metabolic systems. Prerequisites: 21-107 or consent of the instructor.

21-220 Research 3.h.

Consent of department head required.

21-222 Practicum in College Teaching 4.h.

21-235 Laboratory to Advanced Anatomy 4.h.

21-230 Seminar: Current Developments in Biomechanics 4.h.

21-234 Exercise Physiology Seminar 3.h.

21-235 Advanced Exercise Physiology 2.h.

21-236 Exercise Physiology 2.h.

21-237 Exercise Physiology and Biomechanics 2.h.

21-250 Electrocardiography in Exercise and Biomechanics 3.h.

Electrocardiography in exercise and biomechanics. Prerequisites: 21-107 and consent of the instructor.

21-253 Advanced Exercise Physiology Laboratory 1.h.

21-255 Exercise Physiology Laboratory 1.h.

21-256 Exercise Physiology Laboratory 1.h.

21-257 Exercise Physiology Laboratory 1.h.

21-258 Exercise Physiology Laboratory 1.h.

21-259 Exercise Physiology Laboratory 1.h.

21-260 Research 3.h.

Open only to graduate students. Offered spring semester.

21-270 Research 3.h.

21-271 Seminar in College Teaching 0.5.h.

21-272 Seminar in Clinical Education 0.5.h.

21-275 Research Techniques in Biomechanics 4.h.

21-276 Thematic I 3.h.

21-278 Thematic I 3.h.

21-279 Thematic I 3.h.

21-280 Thematic I 3.h.

FRENCH AND ITALIAN

Chair: Geoffrey Hope

Professor: Charles F. Hopson, Janet S. Appleman, James A. Bertram, Joseph S. Dalley, John T. Knoll, Ronald G. McFadden, Janet L. Martin

Associate professors: W. Douglas G. Cote, David K. Cote, Peter J. Cote, Mary S. Cote, William J. Cote, Thomas J. Cote

Undergraduate degrees: A.B., B.A. in French, Italian

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

Undergraduate Programs

The department introduces students to the culture of France and Italy. It promotes an understanding of these countries’ cultural and contemporary importance, and facilitates development of proficiency in the French and Italian languages. It also features critical appreciation of French and Italian literature and civilization.

Students choose from a variety of programs in French and Italian and electives for majors with pre-professional linguistic skills. They are afforded flexible means to meet the liberal arts General Education Requirement in foreign languages as well as satisfy individual interests.

Students majoring in French or Italian may combine their studies with courses in education to prepare for a job in high school teaching. They may go on to graduate study in areas such as French, comparative literature, or history as preparation for college-level teaching. Or they may continue other skills and studies with their major in French or Italian to prepare for challenging career opportunities in international government, business, finance, travel, or communications, where the knowledge of a foreign language is essential.

Bachelor of Arts in French

The undergraduate major in French may be completed with an emphasis in literature, civilization, teaching, or applied French.

Courses taught in English do not count as credit toward the Bachelor of Arts in French.

LITERATURE TRACK

The literature track is designed for students who are interested in French literature or in continuing the study of French literature with a major in another area, such as English, comparative literature, cinema, or fine arts. It offers 36 semester hours of credit in French, as follows:

9-105-106 Second-Year Composition and Conversation 8.h.

1-071-112 Third-Year Composition 6.h.

9-130 French Conversation: Third Level 2.h.

9-136 French Conversation: Fourth Level 2.h.

9-175 Advanced French Pronunciation 2.h.

9-205 French Pronunciation 2.h.

The minimum of 100-level courses in literature (at least two of which must be numbered above 100) plus a fifth 100-level course in a choice of literature, advanced language, or civilization, totaling 15 sequent hours.

CIVILIZATION TRACK

The civilization track is designed for students interested in French history, politics, and culture and is recommended for those who wish to undertake studies in French with a place in another area, such as history, political
Bachelor of Arts in Italian

Requirements for the major in Italian total 28 semester hours, as follows:

18:19-12 Introduction to Italian Literature 3 s.h.
18:19-11/11 Advanced Composition and Conversation 6 s.h.
18:19-11/12 Advanced Composition and Conversation 6 s.h.
18:19-100 Introduction to Modern Italian Literature 6 s.h.
18:19-220 Media and Renaissance Italian Literature 6 s.h.
A 100-level course taught in Italian 1 s.h.

ELEMENTARY AND SECONDARY TEACHING CERTIFICATION IN ITALIAN

Italian majors interested in teaching in elementary and/or secondary schools must successfully complete the requirements for a major in Italian, including an additional 2 semester hours in either 18:19-10 or 18:14, and must be admitted to the College of Education. Further details on certification programs are available for more information.

Students who plan to use an Italian minor to teach at the elementary and/or secondary level must contact the College of Education concerning requirements. See the College of Education section of the Catalog.

Honors

The department participates in the University Honors Program. For more information about requirements for honors in French or Italian, contact the French and Italian Honors advisor.

Minor in French

For the minor in French are 15 semester hours with a minimum grade-point average of 2.00. Twelve of these must be taken at The University of Iowa or elsewhere. Courses numbered in the 140s, 150-155, and 190 do not count toward the minor in French.

Minor in Italian

The requirements for a minor in Italian are 15 semester hours with a minimum grade-point average of 2.00. Twelve of these must be taken at The University of Iowa or elsewhere. Courses numbered in the 140s, 150-155, and 190 do not count toward the minor in French.

Summer Program in France

The department sponsors a semester program in France for students enrolled in the three Iowa State Board of Regents' universities. Eligibility for the program requires a good basic knowledge of French (two years of college-level preparation is recommended), but students need not be native speakers.

Summer Program in Quebec

The department participates in the University of Iowa's Cooperative Program in Quebec at the Université de Laval. The CIC is a nonprofit organization whose purpose is to foster cooperative educational opportunities among the Big Ten universities and the University of Iowa. Affiliated with the 'Cours d'été pour professeurs de l'Université de Laval, the program is designed to offer qualified students the opportunity to increase their command of French in a French-speaking environment and to introduce them to the heritage and cultural traditions of a unique and vital segment of North American culture.

Foreign Language House

The French and Italian department maintains close connections with the Missouri Foreign Language House at the University of Missouri. Students majoring in foreign languages who wish to combine their major in foreign language with a minor in French or Italian may apply to the program.

Graduate Programs

Master of Arts in French without Thesis

Candidates must earn a minimum of 30 semester hours of graduate credit and pass a written or oral examination. The program must include 900-200 Advanced Grammar and Lexicon, 9310 Comparative Syntax, and at least four graduate-level (200 and above) literature courses. In addition, students must pass the oral examination. The department also requires students to complete an intensive reading course in the language to be used for thesis work. Candidates must defend the thesis at the time of the comprehensive examination.

Master of Arts in French with Thesis

The requirements for the thesis program are the same as for the M.A. without thesis, except that candidates may earn up to 6 semester hours of credit for thesis work. Candidates must defend the thesis at the time of the comprehensive examination.

Master of Arts in French Education

This program is intended primarily for prospective secondary school and junior college teachers. Requirements include a total of 18 semester hours of graduate credit, of which 8
Appointments

Teaching and research assistantships and University fellowships and scholarships are available to qualified graduate students (see the Graduate College section of the Catalog). Inquiries should be addressed to the departmental office.

Exchange student agreements with the University of Haifa, Ben-Gurion, and the University of Potsdam provide one year of residence in France for a limited number of graduate students.

Courses

A detailed description of courses offered each semester is available in the department office. French courses are conducted in French and Italian courses are conducted in Italian, unless otherwise indicated. Students may not receive credit for a course that is prerequisite to, or whose equivalent is prerequisite to, a higher-level course they have already completed.

French – Primarily for Undergraduates

Courses numbered 100-199 are intended primarily for advanced undergraduates; graduate students should consult with their advisor before registering for these courses.

Courses numbered 140-169 are conducted in English and do not count toward the requirements for the major or minor in French but may be taken as electives; consultation with the advisor is recommended prior to registration. Students who have had significant experience in French or foreign languages are advised to consult with the department before enrolling.

Admission

To be considered for admission to an M.A. program in French, applicants must have completed the equivalent of The University of Iowa undergraduate major in French. Students may make up deficiencies in previous training by taking appropriate courses.

The M.A. is a pathway to admission to the Ph.D. program in French. Successful completion of the M.A. program, however, does not necessarily qualify a student for doctoral study.

Following admission to the Ph.D. program, students must be formally accepted for candidacy by a vote of the faculty, usually in the fall of the third year of doctoral study.

The Graduate Record Examination (GRE) General Test scores are required by the Graduate College.

French – For Undergraduates and Graduates

9.103 French for Reading/Research

2.6 a.

9.106 French for Reading/Research

2.6 a.

9.103 French for Reading/Research

2.6 b.

9.164 French for Reading/Research

2.6 a.

9.170 Introduction to French Literature: Medieval and Renaissance

3.6 a.

9.100 Introduction to French Fiction: Seventeenth- and Eighteenth-Century

3.6 a.

9.170 Introduction to French Literature: Twentieth Century

3.6 a.

9.111 Third Year Composition

3.6 a.

9.112 Third Year Composition

3.6 a.

9.116 French Civilization

3.6 a.

9.115 Business French

3.6 a.

9.119 Research Seminar in French

3.6 a.

9.122 Second Year in French

3.6 a.

9.126 French Composition: Second Level

3.6 a.

9.141 Language and Literature

3.6 a.

9.142 French and Francophone Literatures and Cultures

3.6 a.

9.150 Advanced French and Francophone Literature

3.6 a.

9.156 Advanced French and Francophone Literature

3.6 a.

9.158 Advanced Literature and Francophone Literature

3.6 a.
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. No more than 16 semester hours of advanced course work from any one department may be counted toward this requirement. Moreover, students who earn more than 16 semester hours in advanced course work from one department, may count the total toward the 124 semester hours needed for graduation.

Counselors take time to satisfy the General Education Requirements may not be counted toward the hours of the advanced course work requirement.

Advanced courses are those numbered 100 and above. With approval of the Office of Academic Programs, courses numbered below 100 but taught at an advanced level may be used to satisfy this requirement. See "Advanced Courses Numbered below 100" in this section of the Catalog.

The pass/nonpass grading option is not available for the 36 semester hours of advanced course work required for the degree, but it may be used for any advanced course work beyond the 36 semester hours.

Some study abroad advanced course work is considered residential work for the purposes of B.G.S. requirements and college residence requirements. Students should check in advance with the B.G.S. advisor or the B.G.S. coordinator.

Advanced courses offered through the University of Iowa Gould Center for Study Abroad may be considered for advanced course work, but the College of Liberal Arts residence requirement must be met by other UI course work.

Restrictions

No more than 40 semester hours of credit in one academic department may count toward the 124 semester hours required for graduation. This includes both upper- and intermediate course work, and both UI and transfer course work.

Students completing a B.G.S. degree may earn no more than 30 semester hours of credit toward the 124 semester 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 baccalaureate degree programs, preprofessional, satisfactory/A, and academic standards apply to B.G.S. students.

Related Considerations

All courses numbered with the prefix 7 (College of Education) are considered to be in one department. All courses numbered with the prefix 6 (College of Business Administration) except 68 and 68X (real estate) are considered to be in one department.

Advanced Courses Numbered below 100

The following courses are accepted as part of the 36 semester hours of advanced course work required under B.G.S. rules. Students must earn a grade-point average of 3.00 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

45-90 Seminar in American Cultural Studies 3 s.h.

ART AND ART HISTORY

1K-49 Advanced Painting 2.5 s.h.
1M-22 Undergraduate Painting and Relief II 3 s.h.
1M-17 Undergraduate Sculpture Workshop 3 s.h.

ASIAN LANGUAGES AND LITERATURE

50-23 Senior-Year Seminar 3 s.h.
50-25 Intermediate Chinese 3 s.h.
50-30 Non-Western Literature Traditions 3 s.h.

BIODIVERSITY SCIES

2A-15 Advanced Field Biology 2 s.h.

(accepted as advanced course work only if 2.00 or higher)

CLASSICS

14-11 Second-Year Greek I 3 s.h.
14-12 Second-Year Greek II 3 s.h.
20-81 Age of Cicero 3 s.h.
20-82 Age of Augustus 3 s.h.

COMMUNICATION STUDIES

All courses numbered 356-60 and above All courses numbered 36C-60 and above

COMPARATIVE LITERATURE

48-40 Major Texts in World Literature I 3 s.h.
48-41 Major Texts in World Literature II 3 s.h.
48-50 Non-Western Literature Traditions 3 s.h.
48-95 Undergraduate Seminar 3 s.h.

COMPUTER SCIENCE

22-21 Algorithms and Data Structures 3 s.h.
22-23 Programming Language Concepts 3 s.h.
22-21 Digital Systems and Computer Organization 3 s.h.
22-22 Introduction to Systems Software 3 s.h.
22-26C Computer Graphics 3 s.h.
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Financial support comes from research workshops, teaching appointments, 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 continue study toward an M.D. and a Ph.D. in genetics. Information about this program is available from the director of the Medical Scientist Training Program in the College of Medicine.

Departmental Ph.D. Programs

The Departments of Biochemistry, Biological Sciences, Physiology, and Microbiology offer degree programs in which students may specialize in a particular aspect of genetics. See the appropriate departmental sections in the Catalog for information about these programs.

Courses

The following genetics courses are open to graduate students. Not all courses are offered every year.

- 245 Genetics (2 s.h.)
- 246 Evolution (4 s.h.)
- 247 Genetics and Biogenesis of Cell Organelles (3 s.h.)
- 248 Plant Molecular Biology (3 s.h.)
- 249 Population Genetics and Molecular Evolution (3 s.h.)
- 250 Seminar in Plant Molecular Biology (2 s.h.)
- 251 Molecular Genetics (4 s.h.)
- 271 Topics in Molecular Genetics (2 s.h.)
- 276 Topics in Evolutionary Molecular Biology (2 s.h.)

- 272 Introduction to Development (2 s.h.)
- 273 Introduction to Molecular Evolution (as 413, 215, W215) (0-2 s.h.)
- 274 Developmental Genetics (2 s.h.)
- 61 Biocomplexity (4 s.h.)
- 65 Molecular Biology of Animal Viruses and the Lympohoid Cell (3 s.h.)
- 70-14 Human Genetics (2 s.h.)
- 92-150 Biochemistry and Molecular Biology II (4 s.h.)
- 92-223 Gene Expression (1 s.h.)
- 127-214 Literature in Science (1 s.h.)
- 127-301 Graduate Research in Genetics (1 s.h.)
- 142-215 Molecular Biology II (3 s.h.)

Geography

Chair: Michael J. McIntyre

Professors: John W. Fuller, Joel L. Horowitz, James R. Freeland, Michael J. McIntyre, E. Sapiro, David R. Families, Janet Kirkland

Associate professors: Mary F. Arnerich, Betty D. Miller, Barbara J. Wimberly, Rebecca S. Riens, John E. Warren

Assistant professor: entreprises.

Admissions Director: Daniel H. C. Cordera

Undergraduate degrees: B.A., B.S. in Geography; B.S. in Geography

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

Geography seeks to understand spatial organization and form-ination through detailed studies of significant patterns and processes. The discipline is concerned with "place" or "environment" and the forces that promote change within and between human and physical systems. Geography is a composite science, requiring a broad base of knowledge from many related disciplines. It is an analytical science that seeks answers to specific research questions from a distinctly geographical perspective.

Students of geography find that they develop insights and methods of inquiry that are particularly applicable to understanding many of the complex problems of modern societies. For instance, the distribution and consumption of natural resources, air and water pollution, the growth and development of urban areas, increasing population, transportation problems, spatial implications of location, services, and conflict between humans and some of the issues dealt with by geographers.

Studies in geography also provide students with concepts and methods for organizing such special urban as areas, marketing regions, school districts, health service areas, drainage basins, and other areas of concern. Thus, geographers can make substantial contributions toward understanding the behavior of individuals and societies and their relations with the environment.

Career opportunities for majors in geography exist in many branches of government and business. In demand are persons capable of dealing with resource management, regional development, market analysis, and problems in distribution and spatial interaction of physical, economic, social, and political phenomena.

Courses in geography are commonly required of all 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 majoring or minoring in geography, as well as those concentrating in other disciplines. We are interested in elective geography courses as part of a liberal education. The department also participates in interdepartmental programs with global, urban, and environmental components.

Bachelor's Degrees

Each student planning to graduate takes one of the following three concentration areas: urban and regional studies, international development studies, or environmental studies.

Mayors may work toward either a Bachelor of Science or a Bachelor of Arts. Students who plan advanced training or careers in geography should elect the B.S. Those with a liberal arts objective may elect either the B.A. or B.S.

General Requirements

All geography majors must complete one of the following computer programming courses.

- 220-7 Introduction to Computing (3 s.h.)
- 220-1C Introduction to Programming with Pascal (4 s.h.)

Bachelor of Science students must satisfy a mathematics requirement consisting of one of the following pairs of courses.

- 220-1M Mathematics for the Biological Sciences (4 s.h.)
- 220-16 Calculus for the Biological Sciences (4 s.h.)

- 220-1S Calculus I (4 s.h.)
- 220-1S Calculus II (4 s.h.)

- 220-15 Engineering Calculus I (4 s.h.)
- 220-15 Engineering Calculus II (4 s.h.)

- 220-16 Calculus for the Biological Sciences (4 s.h.)

With the consent of the geography faculty, students may fulfill the computer programming and mathematics requirements by taking approved computer courses with objectives similar to those listed above. In addition, all geography majors must complete one of the three course sequences described below. Students are advised to pay close attention to the prerequisites of the intermediate and advanced courses in each sequence due to develop programs of study that ensure timely satisfaction of the prerequisites of required courses.

Urban and Regional Studies

The undergraduate program in urban and regional studies is designed for students who are preparing for positions in government and private business, graduate programs in geography, or professional programs such as urban and regional planning, business administration, applied policy analysis, or regional science.

Courses cover location theories and their application to applied problems, such as locating sites for development projects, finding the best locations for public and private facilities, developing plans for regions and communities, evaluating improved transport services in a city or region, and forecasting the population of small areas.

Methods for solving applied problems are based on a thorough understanding of the processes of urban and regional development, the role of individuals and institutions in effecting change, and the processes through which policy decisions are reached. Required skills are developed in qualitative analysis, development and management of geographical information systems, and computer methods.


| Advanced Courses | 44:108 Statistical Methods of Geographical Analysis | 3 s.h.
|                  | 44:109 Computer Methods in Geographical Analysis | 1 s.h.
|                  | 44:150 Undergraduate Seminar for Geography Majors | 3 s.h. |

**Environmental Studies**

The undergraduate program in environmental studies is designed for students who have career aspirations or personal interests in resource management or environmental protection, or who are interested in physical geography. The program provides a knowledge of physical, chemical, and biological processes in landform development, atmospheric conditions, hydrology, soil development, and biotic communities. It stresses the interrelationships among these processes and helps students acquire knowledge necessary to assess the impact of human activities on physical systems.

Training in field observation, quantitative analysis, computer methods, and cartographic representation are included in this concentration. The program also provides a sound foundation for graduate or professional level studies. This undergraduate program has been designated as an introduction to the graduate-level physical geography and water resources subgroups of the Department of Geography.

Students concentrating in environmental studies are required to take the following sequence of courses.

**INTRODUCTORY COURSES**

| 44:1 Introduction to Human Geography | 4 s.h.
| 44:3 Introduction to Physical Geography | 4 s.h. |

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**INTRODUCTORY COURSES**

| 44:1 Introduction to Human Geography | 4 s.h.
| 44:3 Introduction to Physical Geography | 4 s.h. |

**INTERMEDIATE COURSES**

| 44:101 Climatology | 3 s.h.
| 44:102 Earth Surface Processes | 3 s.h.
| 44:103 Biogeography | 3 s.h.
| 44:110 Natural Resources Policy | 3 s.h.
| 44:122 Environmental Conservation in the United States | 3 s.h. |

**METHODS COURSES**

| 44:106 Spatial Methods of Geomorphological Analysis | 3 s.h.
| 44:107 Computer Methods in Geomorphological Analysis | 3 s.h.
| 44:150 Undergraduate Seminar for Geography Majors | 3 s.h. |

At least one of these:

| 44:137 Economic Theory of Location | 3 s.h. |
| 44:138 Introduction to Economics of Transportation | 3 s.h. |
| 44:135 Urban Geography | 3 s.h. |

**METHODS COURSES**

| 44:101 Climatology | 3 s.h.
| 44:102 Earth Surface Processes | 3 s.h.
| 44:103 Biogeography | 3 s.h.
| 44:110 Natural Resources Policy | 3 s.h.
| 44:122 Environmental Conservation in the United States | 3 s.h. |

**ADVANCED COURSES**

| 44:138 Natural Resource Management | 3 s.h.
| 44:139 Geographic Perspectives on Development | 3 s.h. |

At least two of these:

| 44:163 Planning and Geography of Urban Development | 3 s.h.
| 44:163 Geography of the Newly Industrializing Countries | 3 s.h.
| 44:172 Urban Development Planning and Policy | 3 s.h. |

One of these:

| 44:161 African Development | 3 s.h.
| 44:164 Geography of the Middle East | 3 s.h. |

**RELATIONSHIP WITH OTHER COURSES**

Undergraduate courses are open to all students. Students should select at least 12 semester hours of courses from one of the following clusters.

**Biogeophysical**

| 21:000 Earth Pla... Analysis | 4 s.h. |
| 21:111 Plant Ecolog... | 4 s.h. |
| 21:19 Animal Interactions | 3 s.h.
| 21:008 Introduction to Geology | 2 s.h.
| 21:100 Introduction to Geomorphology | 3 s.h. |
| 12:126 Chemical Geology | 4 s.h.
| 12:106 Hydrogeology and Groundwater Quality | 3 s.h.
| 12:195 Essential Geology | 3 s.h.
| 12:175 Quaternary Geology | 1 s.h. |
| 12:126 Glacial and Pleistocene Geology | 3 s.h.
| 12:173 Quaternary Environments | 1 s.h. |
| 12:179 Quaternary Geology | 1 s.h. |
| 12:159 Environmental Engineering | 2 s.h.
| 21:000 Earth Pla... Analysis | 4 s.h. |
| 21:111 Plant Ecolog... | 4 s.h. |
| 21:19 Animal Interactions | 3 s.h.
| 21:008 Introduction to Geology | 2 s.h.
| 21:100 Introduction to Geomorphology | 3 s.h. |
| 12:126 Chemical Geology | 4 s.h.
| 12:106 Hydrogeology and Groundwater Quality | 3 s.h.
| 12:195 Essential Geology | 3 s.h.
| 12:175 Quaternary Geology | 1 s.h. |
| 12:126 Glacial and Pleistocene Geology | 3 s.h.
| 12:173 Quaternary Environments | 1 s.h. |
| 12:179 Quaternary Geology | 1 s.h. |
| 12:159 Environmental Engineering | 2 s.h.

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**REFERENCES**

Environmental Management  60.105 Microeconomics  3 s.h.
60.105 Macroeconomics  3 s.h.
60.110 Economics of the Government Sector  3 s.h.
60.133 Environmental and Natural Resource Economics  3 s.h.
60.110 Administrative Management  3 s.h.
60.161 Institutional Behavior in Organizations  3 s.h.
60.183 Organizational Design and Operations  3 s.h.
102.010 Introduction to Planning and Policy Development  3 s.h.
102.020 Introduction to Environmental Policy and Planning  3 s.h.
59.204 Theories of Environmental Policy and Assessment  3 s.h.

Environment and Development  64.104 International Development  3 s.h.
64.117 Third World Development Support  3 s.h.
64.151 African Development  3 s.h.
64.152 Planning and Geography of Underdevelopment  3 s.h.
64.163 Geography of the Newly Industrializing Countries  3 s.h.
64.172 Development Planning and Policy  3 s.h.
64.174 African Perspective on Development  3 s.h.
30.100 The Political Economy of the Third World  3 s.h.
113.136 Economic and Political Development: Women's Roles  3 s.h.
115.161 Environment and Culture  3 s.h.
115.161 Sociology of the Third World  3 s.h.
115.162 Women's Roles in Cross-Cultural Perspective  3 s.h.

Honors

The honors major is for students of superior ability who want to pursue studies beyond the regular prerequisites. To graduate with honors in geography, a student must be admitted to the University's Honors Program and the honors program in geography by the fall semester of the senior year, and must maintain a grade-point average of 3.200 in all University work and a 3.40 in geography; and prepare and successfully defend an honors thesis.

The thesis consists of original research under the direction of a faculty member and is assessed by a three-member faculty committee.

Students complete the thesis through a senior thesis in 44.108 Honors Tutorial and 44.114 Honors Thesis. The senior course 44.150 Undergraduate Seminar for Geography Majors may be substituted for 44.199 Honors Thesis, provided the student continues work on the thesis under the direction of a faculty member.

Minor

To minor in geography, a student must complete at least 15 semester hours in geography courses with a minimum grade-point average of 2.00. Twelve of the 15 must be taken at The University of Iowa in 100-level courses. Majors are encouraged to select one of the department's three areas of concentration—water and regional studies, international development studies, or environmental studies—and take courses from those lists that in closest conformity with their wishes to fulfill the minor requirements. Minors may contact the department secretary or the (1211, Physical Science Building) for information on the program.

Cooperative Education Program

The Department of Geography is a participant in the University's Cooperative Education Program, which provides opportunities for both undergraduate and graduate students to secure cooperative training assignments related to their academic programs.

Courses for the Nonmajor

Students in the College of Liberal Arts as well as the other areas of the University may find geography courses meaningful to their own programs of study. The beginning-level courses 44.11 Introduction to Human Geography, 44.12 Introduction to Social Geography, 44.19 Contemporary Environmental Issues, and 44.30 Introduction to Economic Geography are approved for the General Education Requirement in social sciences; 44.15 Third World Development Support is approved for the General Education Requirement in social sciences with a focus on Africa; and 44.16 Introduction to Geography 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 to individual electives. These include 44.19 Introduction to Political Geography, 44.25 World Cities, 44.30 Water in the Republic, 44.32 Planning Basic: Form and Process, and 44.35 Introduction to Economics of Transportation.

Graduate Programs

The department's graduate programs prepare students to carry on creative and productive research in selected areas of geography involving the use and further elaboration of theory. They also prepare students for positions in research, teaching, or an area of applied geography. Success in achieving these goals has been demonstrated by the strong demand for University of Iowa graduates in full-time positions on college and university faculties, in private research organizations, and in business and government.

The department offers specialized instruction in the teaching of geography at the college level for those pursuing academic careers. Opportunities are provided for all graduate students to gain practical teaching experience through service as departmental teaching assistants or graduate instructors.

Master of Arts

The B.A. or B.S. degree in geography is not a prerequisite for entry into the program, but students are expected to have an undergraduate background relevant to pursuing graduate work. A strong analytical background in any of the social, cultural, and environmental sciences and a minor subject in examining the regional and spatial perspectives characterizing modern geography are more important than the particular disciplinary orientation of the student's baccalaureate degree. Experience in the field of geography, the availability of a thesis for future students, and the student's ability to write and defend a thesis for the degree are prerequisites for admission. Credit received for such courses cannot be applied toward the 30 semester hours required for the M.A.

Each of the M.A. subprograms is designed to be completed in four semesters. This means that the student typically will accumulate 40 to 48 semester hours of graduate credit in completing the M.A. Students are advised to use those additional hours to elect graduate courses in other subprograms in geography and/or in other university departments and programs, thereby tailoring their program of study to their individual needs.

The department offers six M.A. subprograms: Location Analysis, Physical Geography, Political Geography, Regional Development, Transportation Systems Analysis, and Water Resources. These specialties are designed for students seeking positions in community planning, public planning, development planning in the Third World, water resources management, and economic development.

Each subprogram offers a course in some of the more traditional fields of geography and builds on the research specialties of the faculty. For example, students in the urban geography subprogram are included in three subprograms—location analysis, political geography, and economic development—while the traditional concerns of economic geography are included in the political analysis and regional development. The more contemporary fields—environmental science and computer science—are included in location analysis and transportation systems analysis. The subprogram in physical geography emphasizes historical methods and current studies with computers and other computer technology.

Although M.A. students pursue a program of study within one of the subprograms, they may gain a broader perspective in another. The M.A. emphasizes the acquisition of analytical skills and their application in research that can provide necessary training in oral and written communication, computer programming and graphics, statistics, mathematics, and technical methods as an integral part of the A.M. program. Students in the transportation subprogram may take additional electives that enable them to receive a transportation certificate in addition to their master's degree.

General Requirements

The M.A. requires a minimum of 30 semester hours of graduate work, of which 15 semester
hours must be in courses numbered 200 or above. In addition to fulfilling the course requirements in one of the department's six subprograms, students must complete at least one course out of their own subprogram from the following introductory graduate courses: 44:121, 44:123, 44:125, 44:128, 44:129, 44:136, 44:137, 44:167, 44:194, or 44:210. Students who elect the M.A. with thesis must pass a written examination and, in most subprograms, an oral examination. For students electing the M.A. with thesis, the written specification can be waived and the thesis defense serves as the oral M.A. examination.

Subprogram Requirements

**Locational Analysis**
- 44:113 Methods of Applied Geography
- 44:119 Economic Geography

**Three of these:**
- 44:216 Behavioral Analysis in Geography
- 44:230 Travel Demand Modeling
- 44:237 Urban Economics and Urban Spatial Structure

- 44:265 Methods of Regional Analysis: Regional Science
- 44:294 Environmental Planning Theory
- 44:330 Research Seminar: Locational Theory

**Physical Geography**
- 44:118 Geographic Information Systems
- 44:120 Landscape Ecology
- 44:128 Drainage Basin: Form and Process
- 44:338 Research Seminar: Physical Geography
- 44:450 Thesis

- **Two of these:**
- 44:225 Water Resources Systems Analysis
- 44:226 Advanced Hydrography: Landscape Ecology
- 44:229 Advanced Earth Surface Processes

**Two from one of the following groups:**
- 12:128 Quantitative Palaeontology and Paleobiology
- 12:173 Quantitative Environmental Analysis
- 12:190 Remote Sensing: Interactions
- 12:192 GPS and Remote Sensing

**Equivalent course of group**
- 44:190 Remote Sensing: The Environment
- 44:192 Global Positioning System

**Political Geography**
- 44:210 Philosophy and Epistemology in Geography
- 44:273 Social Theory and Human Geography
- 44:276 Advanced Urban Geography
- 44:290 Advanced Physical Geography
- 44:329 Research Seminar: Political Geography

**Three of these:**
- 44:175 Locational Coding
- 44:221 Nature Society Theory
- 44:232 Advanced Industrial Geography
- 44:266 Political Economy of Regional Development
- 44:270 Jurisdictional Organizations/Local Service Provision

**Regional Development**
- 44:94 Geographic Perspectives on Development
- 44:210 Philosophy and Epistemology in Geography
- 44:264 Political Economy of Regional Development
- 44:284 Agro-Ecology and Rural Development in the Third World
- 44:364 Research Seminar: Regional Development

**Transportation Systems Analysis**
- 225:120 Probability and Statistics
- 44:166 Introduction to Environmental Systems
- 44:203 Microeconomics

**Methods of Transportation Analysis**
- 44:256 Travel Demand Modeling
- 44:260 Transportation Regulation and Planning
- 102:260 Transportation Policy and Planning

**Additional Requirements**
- 102:261 Problems in Transportation and Land Use
- 44:281 Urban Transportation Planning
- 44:285 Urban Transportation Planning

**WATER RESOURCES**
- 44:257 Research Seminar: Water Resources System Analysis

**Additional Requirements**
- 44:257 Research Seminar: Water Resources System Analysis

**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 in an area of specialization, and to professional expertise in a specific subfield. Students must complete a comprehensive examination in a major area in which the M.A. degree was earned, as well as a thesis which represents him or her as the major area of active research involvement. The Ph.D. is fundamentally a research degree, and as such is constrained by the expertise of the faculty. At the Ph.D. level, the department is best known for its rigorous analytical orientation, particularly in the area of spatial analysis, spatial behavior, transportation, Third World regional development, and political geography. Physical geography, water resources management, and policy.

The Ph.D. is a four-year program, postgraduate program, the first two years of which are identical to the department's M.A. program. Students can enter the program with advanced standing corresponding to previous graduate school training equivalent to that in the department's M.A. program. Students must complete the program with 24 credits of coursework from the B.S. or B.A. course fulfill all the additional requirements for the M.A. degree, except for the M.A. examination. In addition, the student must also complete the requirements of the Ph.D. program. Students are required to complete at least 3 additional semester hours in graduate-level geography courses from those required or recommended for one of the department's subprograms that are not the student's general area of interest.

For more information, please contact the department's graduate coordinator.
Undergraduate Programs

The undergraduate program puts greater stress on the basic sciences of geology than on the advanced engineering or agricultural phases of the discipline. Geology majors receive at least an academic year's work in three allied scientific areas—physics, chemistry, and mathematics—and a semester of biological sciences in addition to a course in each major area of geology.

Students majoring in geology must meet the general requirements of the College of Liberal Arts. It is recommended that they study the foreign language requirements with French, German, or Russian, and the social sciences requirements with approved courses in economics, geography, and/or anthropology. The department offers the Bachelor of Science and the Bachelor of Arts. The B.S. program features two tracks—general education and environment. Options in the environmental track are informal; they are recommended paths of study for students seeking employment in the environmental sciences. Although they are designed for B.A. students, they may be followed by B.S. students as well.

Bachelor of Science

The Bachelor of Science professional program in geology is designed primarily as preparation for graduate study and for employment in industry. The following courses are required:

- 124 Evolution and the History of Life 4 s.h.
- 125 Introduction to Geology 4 s.h.
- 126-127 Environmental Geology 4 s.h.
- 128-129 Structures and Stratigraphy 5 s.h.
- 125-126 Field Geology Field Methods 2 s.h.
- 131 Summer Field Course 6 s.h.
- 132 Principles of Paleontology 3 s.h.
- At least two elective geology courses 6-12 s.h.

Total: At least 38 s.h.

Students may substitute 12-120 Advanced Historical Geology: Iowa for 124 Evolution and the History of Life, and 12-23 Earth History and Resources for 12-5 Introduction to Geology.

The geology major requires at least 10 semester hours of college mathematics, including 225-26 Calculus II and/or 225-26 Engineering Calculus II.

Computer science or statistics courses may be counted toward the 10-semester-hour requirement. Additional mathematics courses are strongly recommended.

Eight semester hours each of physics and chemistry, and a laboratory course in a biological science also are required.

Bachelor of Arts

The Bachelor of Arts program, divided into general education and environmental geology tracks, is designed to provide a varied background in geology and a broader choice of electives than is available in the B.S. program. The B.A. is designed for students interested in the fundamentals of geology or in interdisciplinary environmental programs.

General Education Track

The general track provides a background in geology and allied fields necessary for careers in conservation, urban planning, or professional consulting. With appropriate course work in education, the B.A. program also provides a base for high school or college-level teaching in earth science. See the College of Education section of the Catalogue. The following courses are required:

- 124 Evolution and the History of Life 4 s.h.
- 125 Introduction to Geology 4 s.h.
- 126-127 Environmental Geology 4 s.h.
- 128-129 Principles of Paleontology 3 s.h.
- 125-126 Field Geology Field Methods 2 s.h.

Geology electives 12 s.h.

Total: 35 s.h.

Students may substitute 12-120 Advanced Historical Geology: Iowa for 124 Evolution and the History of Life, and 12-23 Earth History and Resources for 12-5 Introduction to Geology. 12-18 Geology Field Trip Selected National Parks can be substituted for 12-125 or 12-126; 12-95 Geology Field Methods may be substituted for both sections of 12-125 or 12-126. An intensive field course at the Lake Mauston Laboratory may be substituted for both sections of 12-125 or 12-126 with consent of the academic adviser.

The B.A. in geology requires at least 10 semester hours of college-level mathematics, which may include computer science or statistics courses. Eight semester hours of chemistry courses are also required, and courses in other sciences and social sciences courses are recommended to broaden the student's objectives.

Environmental Track

Students who are concerned with environmental issues or are interested in career opportunities in solving environmental problems have the option of pursuing a B.A. degree in an environmental geology track. This track is divided into a basic program for those who wish to become informed and fully appreciate environmental issues (e.g., the role of geosciences, and education), and an enriched program for those who wish to be employed as environmental geologists. The enriched track has been further subdivided into environmental geology, geology, geohydrology, and georegional specialties.

The department encourages students who are interested in either of these options to consult the brochure outline for the environmental track from the Department of Geology office or the Undergraduate Academic Advising Center.

Honor

A degree with honors in geology is offered. Students in the honors program can elect a senior thesis.

Minor

A minor requires at least 15 semester hours of geology courses with a minimum grade-point average of 2.00. At least 12 of the 15 semester hours must be earned in advanced geology courses taken at the University of Iowa. All 12 hours must be numbered 120 and above. The 12-103 Physical Geology and 12-82 Historical Geology may be applied as advanced credits. In addition, 12-120 Environmental Geology, and 12-82 Structural Geology and 12-103 are considered advanced courses for the minor.

College-level courses in mathematics, physics, chemistry, and biological science are required as a minor. Students pursuing a minor in geology should be sufficiently prepared in the area of supporting courses before they take advanced geology courses.

Recommended advanced courses in geology that deal with important areas and earth materials and earth processes are as follows:

- 12-41 Mineralogy 4 s.h.
- 12-52 Elementary Petrology 4 s.h.
- 12-92 Structural Geology 5 s.h.
- 12-121 Principles of Paleontology 5 s.h.
- 12-92 Sedimentology 3 s.h.
- 12-91 Principles of Geophysics 3 s.h.
- 12-80 Solid Earth Geophysics 3 s.h.

Joint Programs

Joint programs can be arranged, usually with chemical, physics, and biological sciences, environmental engineering, and anthropology.

Original Research

Senior or junior who is ready to pursue original research may request that a faculty member or graduate student with whom the program is in progress initiate a small-scale project involving a combination of field, laboratory, and library (investigation). Independent study is encouraged.

Undergraduate classes have produced thesis reports that subsequently were published.

Graduate Programs

Students planning to take graduate work in geology should have completed geography 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.

Graduate students in geology must take 12-107 Geologic Orientation. All graduate students must perform teaching, research, or related appropriate services as part of the degree program.

Graduate students who begin their programs in August 1992 or later must deliver a 15-minute presentation about his or her thesis topic. The format of the presentation is decided individually by each student in consultation with his or her committee. Suggested modes of presentations include either oral or paper presentations at local, regional, national, or international meetings, presentation as part of a lecture seminar, and informal informal colloquium presentations. Graduate students who begin their study...
before August 1992 are encouraged to make these presentations orally.

Prospective graduate students should consult "Rules and Regulations" in the Graduate College section of the Catalog for general attention 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 to prepare them for employment. The Master of Science study emphasizes specialization and advanced study in a particular field. At the discretion of the academic advisor, the student may pursue an advanced specialization in the Master of Science study.

Entering graduate students are assigned to a graduate advisor. By the end of the first month of the second semester in residence, each student must select a research topic and a thesis committee. The department chair then approves the thesis advisor and two additional faculty members, who form the student's advisory committee. The student is responsible for getting the committee's approval for a suitable program of course work, and for satisfying the department's requirements for a research project as outlined in the thesis proposal that is submitted to the departmental approval. This proposal can, however, be waived in the form of a AAP, a GSA, a SIG or a similar granting proposal. The department chair must review and approve the final research project as outlined in the initial proposal that is submitted to the departmental approval.

For auto and truck drivers, the state of Illinois, as part of the Advanced Driver Training Program, requires all candidates to pass a test to obtain the highest level of instruction. The test is designed to assess the candidate's knowledge of traffic laws, safety practices, and defensive driving techniques. The test consists of multiple-choice questions that cover various aspects of driving safety and rules of the road. The candidate must achieve a score of at least 80% on the test to pass. The test is administered by authorized testing centers throughout the state. If a candidate fails the test, they have the opportunity to retake it after studying additional materials and re-taking the test. The Advanced Driver Training Program is designed to help new drivers become more competent and confident behind the wheel, reducing the risk of accidents and promoting safer roadways.
For Undergraduates and Graduates

12.06 Geology: Tectonic Judgment
12.23 Geology: Tectonic Analysis
12.30 Geology: Tectonic Analysis
12.40 Geology: Tectonic Analysis
12.45 Geology: Tectonic Analysis
12.50 Geology: Tectonic Analysis

12.10 Earth Surfaces Processes
12.11 Earth Surfaces Processes
12.12 Earth Surfaces Processes
12.13 Earth Surfaces Processes
12.14 Earth Surfaces Processes
12.15 Earth Surfaces Processes

12.16 Physical Geology
12.17 Physical Geology
12.18 Physical Geology
12.19 Physical Geology
12.20 Physical Geology
12.21 Physical Geology

12.22 Geology: Major Features of the Earth's Tectonic History
12.23 Geology: Major Features of the Earth's Tectonic History
12.24 Geology: Major Features of the Earth's Tectonic History
12.25 Geology: Major Features of the Earth's Tectonic History
12.26 Geology: Major Features of the Earth's Tectonic History
12.27 Geology: Major Features of the Earth's Tectonic History

12.28 Geology: Geochemistry
12.29 Geology: Geochemistry
12.30 Geology: Geochemistry
12.31 Geology: Geochemistry
12.32 Geology: Geochemistry
12.33 Geology: Geochemistry

12.34 Sedimentology
12.35 Sedimentology
12.36 Sedimentology
12.37 Sedimentology
12.38 Sedimentology
12.39 Sedimentology

12.40 Marine Geology
12.41 Marine Geology
12.42 Marine Geology
12.43 Marine Geology
12.44 Marine Geology
12.45 Marine Geology

12.46 Glacial Geology
12.47 Glacial Geology
12.48 Glacial Geology
12.49 Glacial Geology
12.50 Glacial Geology
12.51 Glacial Geology

12.52 Hydrology
12.53 Hydrology
12.54 Hydrology
12.55 Hydrology
12.56 Hydrology
12.57 Hydrology

12.58 Natural Hazards
12.59 Natural Hazards
12.60 Natural Hazards
12.61 Natural Hazards
12.62 Natural Hazards
12.63 Natural Hazards

12.64 Structural Geology
12.65 Structural Geology
12.66 Structural Geology
12.67 Structural Geology
12.68 Structural Geology
12.69 Structural Geology

12.70 Physical Geology
12.71 Physical Geology
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12.76 Geology: Economic Geology
12.77 Geology: Economic Geology
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12.80 Geology: Economic Geology
12.81 Geology: Economic Geology

12.82 Geology: Environmental Geology
12.83 Geology: Environmental Geology
12.84 Geology: Environmental Geology
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12.87 Geology: Environmental Geology

12.88 Geology: Prospecting
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12.94 Geology: Geothermal Resources
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12.151 Geology: Geothermal Resources
12.152 Geology: Geothermal Resources
12.153 Geology: Geothermal Resources
Graduate study in German must raise the humanities track.
The applied track gives students practical skills and proficiency in German for business and government. It is especially useful when combined with a business-oriented curriculum. The College of Liberal Arts and the College of Business Administration offer a joint program leading to an International Business Certificate. For details, see the College of Business Administration section of the Catalog.

Students who plan to complete the undergraduate teaching major in German in conjunction with the College of Education (see the College of Education section of the Catalog) may choose either the humanities track or the applied German track.

Each track usually requires 30 semester hours of course work beyond the basic program.

Students who first enrolled at The University of Iowa before June 1986 are held to a 24-semester-hour requirement.

The following course sequences, or their equivalents, are required for students who begin a major in German with no previous experience in the German language.

**Basic Program**

- 13:11 Elementary German I 4 s.h.
- 13:12 Elementary German II 4 s.h.
- 13:21 Intermediate German I 4 s.h.
- 13:22 Intermediate German II 4 s.h.

The basic program also may be satisfied by various combinations of 13:13, 13:14, 13:23, 13:25, 13:26, and 13:27. See the German department undergraduate advisor for details.

**Humanities Track**

**Third Year**

- 13:101 Introduction to Modern German Literature I 3 s.h.
- 13:102 Advanced Modern German Literature II 3 s.h.
- 13:105 Composition and Conversation I 3 s.h.
- 13:106 Composition and Conversation II 3 s.h.

**Fourth Year**

- 13:107 Cultural Literacy 3 s.h.
- 13:111 Survey of German Literature 3 s.h.
- 13:112 Survey of German Literature 3 s.h.
- 13:116 Advanced Composition and Conversation I 3 s.h.
- 13:117 Advanced Composition and Conversation II 3 s.h.

**Special Topics**

An elective from the courses offered within the department, or a course
related to Germanic studies offered by another department (approval of major advisor required) 3 s.h.

**Applied German Track**

**Third and Fourth Years**

- 13:203 Composition and Conversation I 3 s.h.
- 13:204 Composition and Conversation II 3 s.h.
- 13:105 Principles and Techniques of Translation 3 s.h.
- 13:106 The German Media 3 s.h.
- 13:114 Business German 3 s.h.

**Graduate Program**

- 13:115 Contemporary German Civilization 3 s.h.
- 13:116 Advanced Composition and Conversation 3 s.h.
- 13:198 Special Topic One German department course in literature or culture 3 s.h.

An elective from the courses offered within the department, or a course
related to Germanic studies offered by another department (approval of major advisor required) 3 s.h.

*May be taken in either order.*

German majors, both graduate and undergraduate, are urged to supplement their degree program with relevant courses in areas such as German history, philosophy, and business.

**Elementary and Secondary Teaching Certification in German**

German majors who want certification to teach in elementary and/or secondary schools must successfully complete the requirements for a major in German and must be admitted to the College of Education's foreign language teacher education program. Several courses in the College of Education also are required, as is one semester of student teaching in the junior year. Contact the College of Education, Division of Curriculum and Instruction for further information.

Students who plan to use a German minor to teach at the elementary and/or secondary level must consult the College of Education concerning requirements.

**Honors**

- 13:190 Honors Program in German 3 s.h.
- 13:191 Honors Research and Thesis 3 s.h.

Honors students are expected to engage in meetings and discussions in German literature and culture and to write essays in German and English. Students meet with their faculty director of studies on a regular basis. The program concludes with presentation of an honors thesis to a faculty committee of at least three members.

**Minor**

A minor in German requires 15 semester hours of course work in college-level German with a minimum grade-point average of 2.00. Twelve of these semester hours must be in advanced courses (13:100 and above) at The University of Iowa. At least ten hours must be numbered 13:100 and above count toward the minor except 13:118, 13:123, 13:154, 13:173, 13:182, and 13:183.

**Graduate Programs**

**Master of Arts with Thesis**

Graduate students who choose the master's degree program may elect the master's degree program with thesis option. The thesis program requires a minimum of 30 semester hours of coursework and fulfillment of other requirements of the Department of German and the Graduate College (see the Graduate College section of the Catalog). Students may elect a concentration in either Germanic Linguistics, including applied linguistics, or German Literature.

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. Some conditions may qualify for graduate credit for each work.

With the graduate student's approval, students may take some of the required 30 semester hours outside the department in related subjects, such as philosophy, history, literature, or other languages.

Usually students may receive two semester hours of credit for workshop completion of the thesis. The thesis topic may also be either linguistic or literary 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 30 semester hours of coursework and is considered a terminal degree. Students may elect a concentration in Germanic linguistics, including applied linguistics, or German literature. The same course requirements outlined for the M.A. with thesis apply to candidates for the M.A. without thesis. Students in the latter 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. is awarded upon satisfactory completion of a minimum of 72 semester hours of graduate credit and fulfillment of other requirements of the Department of German and the Graduate College (see the Graduate College section of the Catalog). Students may elect a concentration in either Germanic Linguistics, including applied linguistics, or German Literature.

Credit received toward the M.A. usually is applied to the Ph.D. Students may earn up to 12 additional semester hours of credit for satisfactory completion of the Ph.D. dissertation.

Graduate courses in related subjects outside the department may be counted toward the degree with the approval of the graduate advisor.
Group A: Global Studies
47:1 Interdisciplinary Program 3 s.h.
47:180 American Foreign Policy 3 s.h.
Group B: Disciplinary Studies of the Global Condition
Four of these:
06:125 Advanced Global Studies 3 s.h.
16A:142 United States in World Affairs 1900-1975 3 s.h.
30:160 American Foreign Policy 3 s.h.
30:170 U.S. Foreign Policy: The Politics of International Relations 3 s.h.
30:175 The Politics of International Economics 3 s.h.
46:170 Introduction to Political Geography 3 s.h.

Group C: Introduction to Topical Issues in Global and Comparative Studies
All of these:
16:143 War and Society 3 s.h.
30:160 Politics of War and Peace 3 s.h.
46:190 Contemporary Environmental Issues in the Third World 3 s.h.
46:194 International Development 3 s.h.
46:195 Introduction to the Politics of the Third World 3 s.h.
139:131 Sociology of the Third World 3 s.h.
Students take 12 semester hours of courses that focus on a major world area other than their home area.

Areas for which there are sufficient course offerings at The University of Iowa are listed below. Students who wish to study a particular area for which course offerings are insufficient or whose major is not in a Language Area must first obtain approval by the appropriate language area director.

AFRICA
Asia: China, Japan, India
Latin America
Middle East
Russia and Eastern Europe
Western Europe, Germany, Great Britain
Western Europe as a unit
For listing of courses in these areas, contact the Global Studies Program Office.

ASIAN LANGUAGES
Each student is required to demonstrate an ability to use a foreign language that is widely used in the world area studied. The details of this requirement are worked out on an individual basis. In no case is the requirement less than four semesters of college-level study, and it commonly requires more. Because of the additional time required for Chinese, Japanese, or Russian, students electing these languages may count an additional hour of language study (it for Chinese and Japanese and 3 for Russian) as partial fulfillment of the world area requirement.

TOPICAL CONCENTRATION
Each student develops a topical concentration (12 semester hours) focused on one of the following:
- War, Peace, and Security
- Development, Health, and the Human Environment

For a current list of courses that may be used to complete the topical concentration, contact the Global Studies Program Office.

SENIOR HONORS PROJECT
Each senior completes an honors project, usually during the senior year. Students register for 3 semester hours of research on the project.

Certificate Program
The Certificate Program in Global Studies is designed to provide an international and global orientation for students in a variety of majors. Students in such diverse fields as engineering, business, anthropology, journalism, history, economics, and political science have completed this program. Requirements total 27 semester hours.

Students complete all requirements for their undergraduate major as well as the requirements of the certificate program. Course work in the major may not be counted for the certificate. Those who complete the requirements are awarded a certificate in global studies when they receive their bachelor’s degree, and completion of the program is noted on their transcripts.

Requirements
Students in the certificate program must take courses in the basic area, in each of four emphasis areas, and in a foreign language.

BASIC AREA
Both of these:
- 47:150 Global Studies Seminar 3 s.h.
- 47:180 Global Studies Seminar 3 s.h.

One of these:
- 65:125 International Economics 3 s.h.
- 165:152 United States in World Affairs 1900-1975 3 s.h.
- 30:660 Introduction to International Relations 3 s.h.
- 30:162 American Foreign Policy 3 s.h.
- 30:170 The Politics of International Economics 3 s.h.
- 44:25 Introduction to Political Geography 3 s.h.
- 47:195 Introduction to Public International Law 3 s.h.

EMPHASIS AREAS
Each student takes one course in each of the following areas, and three courses in a fourth. The first course to be taken in each area is listed here. For a current list of courses that can be counted in each area, contact the Global Studies Program Office.

War, Peace, and Security
This component deals with the use of armed force for pursuit of political ends on a continuing and expanding scale from regional nuclear war to individual acts of terrorism. The approaches considered include cause, effect, function, and resolution of violence in the contemporary world.
- 16:143 War and Society 3 s.h.
- 30:106 Politics of War and Peace 3 s.h.

Development, Health, and Human Resources
This component deals with the problems of developing societies within the framework of a competitive global economy.
- 30:422 Introduction to the Politics of the Third World 3 s.h.
- 44:94 International Development 3 s.h.
- 113:151 Sociology of the Third World 3 s.h.

Environmental and Natural Resources
This component is concerned with the use, availability, and disposal of natural resources. Of special concern are environmental problems that arise from the transformation of these resources by humans using modern technology.
- 44:19 Contemporary Environmental Issues 3 s.h.

Cross-Cultural Understanding
Global issues appeal to people who are educated to understand that perceptions, values, and beliefs vary among societies; that these differing values complicate the process of people communicating and aiming at possible solutions; and that without such understanding it is a risky to accept as absolute the perceptions, values, and beliefs of any one society or culture. The goals of this component are to highlight cross-cultural differences as a major contemporary global trend to advance some of the sources, dimensions, and policy implications for these value differences; for foster the cross-cultural sensitivity necessary for dealing with global issues, and to encourage students to clarify their own values and as they bear on the analysis of global problems. Students who choose to take three courses in this area may select courses that bear on the history, culture, and politics of a single world region. Students who choose to take four courses should take 113:3 introduction to the Study of Culture and Society for 3 s.h.

FORERUNNER LANGUAGES
All certificate program students are required to complete three semesters (or equivalent) of a foreign language and are encouraged to go beyond this minimal requirement.

Minor
The requirements for the global studies minor are the same as those for the certificate, except that no courses may be taken that are part of the student’s major. The student’s major does not count toward the minor.

Financial Aid
Students are encouraged to apply for a Stanley Undergraduate Scholarship for International Relations from the International Relations Society for International Cooperation and Study. The scholarships are awarded to outstanding University of Iowa undergraduates who, in close consultation with a faculty member, propose a well-conceived research or fieldwork project on an international topic.

Courses
47:150 Global Interdependence and Human Security 3 s.h.
- Introduction surveys of the global system and its major components. Focuses on methodologies of analysis. Concentrates on problems of international politics, leadership and interaction of political actors. Offered for 3 s.h.

47:100 Introduction to Global Studies un

47:155 Introduction to Global Studies un

41:11 Methods of Field Study for Undergraduates Using Particular/Research Areas
- 18:18:18:18

47:100 International Security Affairs 3 s.h.

47:100 Global Studies Seminar 3 s.h.

47:100 Global Studies Seminar 3 s.h.

47:100 International Security Affairs 3 s.h.

47:100 Global Studies Seminar 3 s.h.

47:100 International Security Affairs 3 s.h.

47:100 Global Studies Seminar 3 s.h.

47:100 International Security Affairs 3 s.h.
History & Liberal Arts 139

Greek
See "Classics."

History

Approved chair: Jeffrey B. Kiles
Professors emeriti: William O. Alexander, Ralph E. Cline, Shirley Need, Dore Iキャッシ
Associate professors: Michael G. Aikens, Elizabeth M. Barrett, Kimberly I. Carroll, William F. Watts, Steven L. Hock, H. Torrance Staton, Katherine Tashu
Assistant professors: James L. O'Shaughnessy, Elizabeth M. Pegues, Rebecca Rogers, Janet B. Schadt, Scott C. Stolz

Undergraduate degree B.A. in History

Graduate study

The Department of History's purpose is to increase knowledge of human experience and provide students with opportunities to gain information about and learn about the world's history and the development of human society. Course offerings are aimed at introducing students to the various elements of human experience, including art, music, literature, politics, economics, and religion. Courses are also designed to provide the student with an understanding of the relationships between different cultures and civilizations.

Undergraduate Program

The College of Liberal Arts and Sciences offers a wide range of programs in the humanities, social sciences, and natural sciences. These programs provide students with the opportunity to develop critical thinking skills, analytical abilities, and a deep appreciation for the rich cultural heritage of humanity. The College offers majors, minors, and certificates in a variety of fields, including history, philosophy, psychology, political science, and economics.

History Minor

The history minor is for students with a general interest in history. The program requirements are as follows:

Students must earn a minimum of 24 semester hours in courses offered by the Department of History numbered 16:51 or higher, of which at least 12 semester hours must be in non-U.S. history courses. The 24 semester hour in history courses must include 3 semester hours in 16:51 Colloquia for History Majors, preferably taken after the student has finished a number of other history courses. In addition to the 24 semester hour in history courses, students must complete a minimum of 15 semester hours of course work in related areas, such as anthropology, economics, fine arts (including studio courses), geography, literature (including writing courses), philosophy, political science, psychology, religion, and sociology. Courses taken to satisfy General Education Requirements will not be counted toward the related areas requirement. Students also may fulfill this requirement by electing a second major or a minor in one of the related areas.

Of the 24 semester hours of history required for the major, 12 (including the 3 semester hours of colloquium) must be taken in residence at The University of Iowa. Credit earned through the College-Level Examination Program (CLEP) may not be counted toward the major.

Courses 16:10 12 hours in Russian History, t a. A Western Civilizations in 1792, 18:5:6

Civilizations of Asia or may not be included in the 24 semester hour of history required for the general major in history.

Teacher Certification

Students majoring in history who wish to qualify for teaching certificate must complete an area of concentration in history and meet the following requirements:

American History Concentration

Courses in U.S. History (including 16:51 Colloquium for History Majors) 56 s.h.

Courses in related areas 24 s.h.

Students must select 15 semester hours of course work in each of two areas selected under concentration in economics, geography, world history (non-U.S.), political science, and sociology.

Students also must meet a special requirement in early European history by taking a 100 level course covering a period to 1700. This course also may be counted toward the related areas requirement in world history if it is one of the two areas chosen.

Students in economics, geography, political science, or sociology who have been taken to satisfy the General Education Requirement in social sciences may be applied to the required hours in related areas, but no more than one such course may be applied to any one related area.

World History Concentration

Courses in non-U.S. history (including 16:51 Colloquium for History Majors and a 100 level course covering a period to 1700) 30 s.h.

Courses in related areas 24 s.h.

Students must select 15 semester hours of course work in each of two related areas chosen from economics, geography, American history, political science, and sociology.

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.

Students seeking the teaching major in history also must complete the professional courses in the College of Education that are required for teacher certification. They should consult an advisor in social studies education in the College of Education for the required courses.

Honors

The honors major is for students of superior ability who wish to pursue a special major that enables them to pursue special interests and enjoy the experience of individual research.

Successful completion of the honors major leads to the Bachelor of Arts degree with honors in history.

To undertake the honors major in history, students must apply to the College of Liberal Arts Honors Program and to the honors program in History. Application should be made by the beginning of the junior year and may be made earlier.

Honor students must complete a minimum of 24 semester hours in courses offered by the Department of History, of which at least 12 must be in non-U.S. History, and 3 must be in related areas. In addition, honors students must take a minimum of 15 semester hours in related courses (see the general major in history). Another 6 semester hours in the honors department's courses, all of which must be earned in honors essay credits, also are required.

Honors credits must be obtained in honors tutorials, all supervised research for the honors essay, and honors-designed sections or honors courses. The honors essay should be a 50- to 40-page paper based on some research in primary sources, a critical assessment of three faculty members' defense of the essay, usually in the eighth week of the student's final semester.

Minor

A minor may be earned by any student who completes at least 15 semester hours in history with a grade point average of 2.50. Twelve of the 15 semester hours must be in advanced courses taken at The University of Iowa, for the minor, all courses numbered above 16:71 are regarded as advanced.
Programs

The graduate programs in history prepare students for occupations such as high school or college teaching, publishing, commercial research, and government or other public service. Additional specialized training, students of history become qualified for careers in archival work, library work, museum work, or historical site preparation and display. Some students enter the joint program leading to a law degree in both law and history (see "Joint Law and Graduate Degree Program" in the College of Law section of the Catalog). Qualified graduate students are invited to apply for fellowships and scholarships; students should be directed to the departmental office.

Doctor of Philosophy

Students who earn the M.A. with research essay are admitted to the Ph.D. program on the favorable recommendation of the examining committee. Students who earn all M.A. at another university must meet the general requirements for admission to the Graduate College (see the Graduate College section of the Catalog) and must submit a specimen of their writing, such as a seminar paper or an M.A. thesis. They must then 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 major's degree. The 72 semester hours must include at least 32 semester hours (eight courses) in 200-level history courses, except from other fields. At least 20 of these 32 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 this 20-hour requirement. The candidate must earn 3 semester hours of credit in the philosophy of history, historiography, or methods of historiographical research. The department has no common language requirement for the Ph.D., but the supervising faculty member may require the candidate to demonstrate a reading knowledge of one or more foreign languages and proficiency in the use of other study tools. The candidate may not complete the comprehensive examination until these requirements have been met.

The comprehensive written and oral examination covers those distinct fields, two of which must be in a major division that is chosen from the following divisions:

- The ancient world
- Medieval Europe
- Europe, including Great Britain: 1500-1815
- Europe, including Great Britain 1815-present
- Russia and the Soviet Union
- United States history
- Latin America
- Chinese history
- Japanese history
- History of India
- Economic history
- Military history
- History and science of medicine

The most field must be written in a division outside the candidate's major division or in a related department or college. The examining committee may define and restrict the individual fields for examination. It may also, separately, for each field, the character of the written portion of the comprehensive examination, which may take the form of a dissertation, a critical bibliography, a typewritten 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.

The candidate must submit to a dissertation committee a written prospectus for the dissertation no later than the semester following completion of the comprehensive exams. The committee consists of at least five members, including at least one member from outside of the department. It considers the prospectus and may approve it, reject it, or require it to be revised. When the dissertation is completed in final form, the committee administers the final examination for the doctorate, a formal oral defense of the dissertation, usually lasting two hours.

Admission

Applicants for admission to the graduate program in history must meet the general requirements for admission to the Graduate College and must submit academic transcripts and Graduate Record Examinations (GRE) General Test scores.

In addition, students must submit examples of original writing to the history department, such as a term paper, a seminar paper, or an honors thesis, and letters of recommendation from three persons familiar with the student's past academic work. To be considered for admission with financial aid for the fall semester, applicants must submit those materials by February 10. For admission without aid for the summer session or fall semester, the deadline is April 10; for the spring semester, November 10. Applicants who wish to be considered for a University of Iowa Fellowship should submit complete application materials by January 10.

Guide to Graduate Study

Further information on graduate study is available in the Graduate College Catalog, available from the history department. The guide is revised every spring to include the latest faculty listing, research interests of faculty members, detailed regulations on study toward advanced degrees, and other information of interest to prospective students.

Special Facilities

The University's libraries are strong in all aspects of U.S. history. The Main Library houses the Henry A. Wallace papers and related corporate archival materials. In European history, special strengths are in medieval and renaissance materials. The Iowa State Historical Department in Iowa City and the Herbert Hoover Presidential Library in West Branch provide additional valuable research materials.

Courses

Courses numbered 111 through 163 are ordinarily taken to satisfy the General Education requirements in the liberal arts framework. They cannot be taken pass/fail, even when they are taken as electives. History majors must have junior or senior standing in order to enroll in 165-51. Other courses numbered below 200 are open to freshmen who have already satisfied the General Education Requirement in historical perspectives. Most courses numbered below 200 are offered alternate semesters. Courses numbered 200 and above usually are offered as occasion demands.
departments and integrate varied approaches to a particular field. A few examples of interdisciplinary programs are aging studies, communication disorders, technical writing, family studies, urban studies, and medicalrnursing. Each program is covered by existing departmental majors and are not appropriate for the ISP major. In all cases, careful and earlier planning is essential.

Plan of Study

Students are required to submit a plan of study before beginning an interdisciplinary studies major. Students should consult promptly with the interdisciplinary studies advisor to discuss an appropriate individualized program for their academic goals. The advisor can explain the plan of study review process. The earlier a plan of study is submitted, the more effective the student's program will be.

Because the ISP major by definition allows for individualized academic planning, students are encouraged to apply for the program prior to or during the junior year.

GUIDELINES

Each plan of study submitted for approval must provide the following information:

- A description of academic goals for the student's degree, with a clear statement of the reasons for preferring the ISP to any departmental program.
- A list of advanced-level course work already completed, and a proposed plan of study to the proposed plan of study; and
- A description of advanced-level work planned for all remaining semesters, noting how the courses will be related to the ISP major, personal interests, and to the central focus of the plan of study.

Each plan of study is approved by a committee that may include the coordinator, the faculty advisory committee, and the ISP advisor. Reviews are held several times each semester.

If the committee does not grant approval, the plan of study may be returned to the student for revisions and resubmission or the next committee meeting. In some cases, the student may be referred to a more appropriate departmental major.

Students are required to take the courses approved in the plan of study. A limited number of substitutions may be allowed, but only if they are clearly consistent with the area of intellectual focus in the approved plan of study and only if they are approved in advance by the ISP advisor. Unapproved substitutions may be designated as elective course work.

Significant changes in the focus of a student's plan may be requested by petition, with notification and 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 from the interdisciplinary studies advisor in the Liberal Arts Office of Academic Progress. A list of review committee meeting times is available each semester.

Interdepartmental Studies - Requirements

Students must meet a total of at least 124 semester hours of credit with a B.A. in interdisciplinary studies. They must complete a minimum of 30 semester hours after enrolling in the program, 15 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.

Grade-Point Average

Students must achieve a grade-point average of at least 2.00 in all college work attempted, all college work undertaken at the University of Iowa, and all advanced courses attempted.

General Education Requirements

Students must complete the College of Liberal Arts General Education Requirements, including four semesters of college-level foreign language or its 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. No more than 18 semester hours of advanced course work from any one department may be counted toward this requirement. However, students who earn more than 18 semester hours in advanced course work from one department may count the total toward the 124 semester hour need for graduation.

Courses taken to satisfy the General Education Requirements may not be counted toward completion of the advanced course work requirement.

Advanced courses typically are those numbered 100 and above. With approval of the Office of Academic Programs, courses numbered below 100 but taught at an advanced level may be used to satisfy this requirement. See "Advanced Courses Numbered Below 100" in this section of the Catalog.

The pass/no-pass grading option is not available for the 36 semester hours of advanced course work required for the degree, but it may be used for advanced course work beyond the 36 semester hours.

Some study abroad advanced course work is considered residential work for the purposes of ISP requirements and college residence requirements. Students should check in advance with the ISP academic advisor or the ISP coordinator.

Advanced courses offered through University of Iowa Guided Correspondence Study count toward the advanced course work requirements, but the College of Liberal Arts residence requirement must be met by either UI course work.

Restrictions

No more than 40 semester hours of credit in any one academic department may be counted toward the 124 semester hours required for graduation. This includes both upper- and lower-level course work, and both UI and transfer course work.

Students completing a B.A. in Interdisciplinary Studies may earn no more than 30 semester hours of credit toward the 124 required for graduation from courses taken in all other colleges of the University (e.g., business administration, engineering). Undergraduate courses offered by the College of Education are an exception to this rule.

All other College of Liberal Arts policies regarding residence, pass/no-pass, withdrawal/IL, and academic standards apply to ISP students.

Related Considerations

All courses numbered with the prefix 7 (College of Education) are considered to be in one department.

All courses numbered with the prefix 6 (College of Business Administration) except 65 (economics) is also considered a department in the College of Liberal Arts are considered to be in one department.

Advanced Courses Numbered below 100

The following courses are accepted as part of the 36 semester hours of advanced course work required under the ISP rules. Students must earn a minimum grade of 2.00 or better in these courses and in those numbered 100 and above.

Advanced courses numbered below 100 that were taken before spring semester 1968 are not considered advanced-level course work. Some of the course prerequisites require or specify special permission signatures.

AMERICAN STUDIES

42 10 Studies in American Cultural Studies 3 s.h.

ART AND ART HISTORY

19 19 Advanced Painting 1 3 s.h.

19 22 Undergraduate Drawing and Design II 3 s.h.

19 17 Undergraduate Sculpture Workshop 3 s.h.

ASIAN LANGUAGES AND LITERATURE

35 23 Second-Year Sanskrit 3-5 s.h.

35 34 Second-Year Sanskrit 3 s.h.

35 50 Non-Western Literacy Traditions 3 s.h.

BIOLICAL SCIENCE

2-3 Iowa Rivers (accepted as advanced course work only if 2 210 Plant Taxonomy also is completed) 2 s.h.

CLASSICS

14 11 Second-Year Greek I 3 s.h.

14 12 Second-Year Greek II 3 s.h.

20 68 Age of Augustus 3 s.h.
either an additional advanced reporting and writing course or a media workshop (19-130/19-139). Every major must complete 19-149 Legal and Ethical Issues in Communication and one advanced conceptual course numbered 19-150 to 19-189. Majors take additional courses according to professional and theoretical interests.

Because of the flexibility inherent in the undergraduate program, each new major should develop an individual plan of study in consultation with a faculty advisor.

Required Courses

- Bachelor of Arts

A student seeking a B.A. in journalism and mass communication must complete the journalism major requirements (19 semester hours), and must fulfill the school's second area of concentration requirement in one of two ways:

- obtain a full B.A. major in another department; or
- complete a 24-hour semester concentration of related courses in one or more departments that offer B.A. degrees.

- Bachelor of Science

A student seeking a B.S. in journalism and mass communication must complete the journalism major requirements (30 semester hours), and must fulfill the school's second area of concentration requirement in one of two ways:

- complete a B.S. major in a natural, mathematical, or social science; or
- complete the following two requirements:

  - A 24-hour semester concentration of related courses in the social sciences (economics, geography, political science, psychology, and/or the natural and mathematical sciences).
  - All the special math, research methods, statistics, computer science, and/or course in science requirements necessary for the B.S. degree in the department in which the majority of second-area work is done.

Honors

Majors with outstanding academic records who already participate in the University Honors Program may earn a Bachelor of Arts degree in journalism and mass communication. The program gives students the opportunity to complete individual work under the guidance of a faculty mentor.

A major with an overall grade point average of 3.20 or higher should contact the honors adviser in the School of Journalism and Mass Communication to review possible interest areas and topics the student might pursue in an honors project. The student also should identify a faculty mentor with whom he or she will develop an honors proposal. The student then arrange honors readings with a particular faculty member or take existing courses in the area of interest. Honors projects may be completed in the form of a thesis or a professional project. The student must develop the form and topic of the thesis or project in a written proposal, which must be accepted by a faculty member. Once the proposal is accepted, the student enrolls in 19-191 Honors Project under the faculty mentor's section number. Students become official honors candidates in the school once 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 can receive an honors degree in journalism and mass communication.

The school's minimum limit of 34 semester hours of journalism courses may be waived for students who complete honors degrees in journalism, at the recommendation of the honors adviser.

Minor

To meet the requirements for a minor, students must complete at least 15 semester hours in journalism and mass communication with a grade point average of 2.00; 15 of the 15 semester hours must be taken in advanced courses at The University of Iowa. Advanced courses are those numbered 19-100 or higher, or those numbered below 19-100 which are considered to be advanced. A list of advanced courses numbered below 19-100 is published with the degree requirements for the Interdisciplinary Studies Program in this section of the Catalog. One of the following courses is strongly recommended:

- 19-00 Social Scientific Foundations of Communication

3 s.h.

- 19-01 Cultural and Historical Foundations of Communication

3 s.h.

The minor is not intended to be sufficient professional preparation for a career in journalism or mass communication. It should be regarded as an introduction to the field. Courses for the minor may not be taken pass/fail.

Transfer Students

All transfer students with a decided interest in journalism are classified as premajors. They may apply for major status during the semester in which they will have completed at least 60 semester hours including those earned from The University of Iowa and other institutions, their sophomore requirements, 19-00 Social Scientific Foundations of Communication, and 19-91 Cultural and Historical Foundations of Communication. Heber of these premajor course requirements may be waived on the basis of work taken at other institutions; thus, a transfer student will be a premajor for at least one semester.

The school's policy is to accept journalism-transfer credits from other institutions for up to, but not more than, 15 semester hours for majors or 3 for minors of the total number of semester hours the student must earn toward a major in journalism and mass communication at Iowa. Some journalism courses work taken elsewhere might be applicable toward fulfilling elective and/or second area of concentration requirements. Any transfer credit intended to meet School of Journalism and Mass Communication requirements must be discussed with a journalism faculty adviser and approved by the head of undergraduate studies after the student is admitted to the school.
Graduate Programs

Master of Arts

The School of Journalism and Mass Communication offers a Master of Arts program with two separate emphasis: professional journalism and communication and mass communication. Applicants should indicate the emphasis for which they seek admission.

Each emphasis requires 32 semester hours of approved course work and successful completion of a master's project or thesis. The specific requirements in each emphasis are listed below.

Professional Program in Journalism

This program is for individuals who wish to improve their technical and analytical skills and to broaden their understanding of the role and function of mass communication in contemporary society, but do not plan to engage in Ph.D. work.

It serves the student who has a background in a field other than journalism and has not completed undergraduate degree in another field or has worked in a career related to journalism (see Group 3 Requirements). It also serves the student who has worked in some area of mass communication (see "Group 2 Requirements").

The program is not designed or intended for individuals who have just completed undergraduate programs in journalism and have no subsequent work experience in mass communication.

GROUP 1 REQUIREMENTS

19:115 Journalism Reporting and Writing (does not count toward degree) 4 s.h.
19:220 Master's Seminar 3 s.h.
Two advanced reporting and writing courses (19:229, 19:235) 6 s.h.
A third 400-level reporting and writing course 3 s.h.
One media workshop (19:240, 19:249) 3 s.h.
Electives 15 s.h.
19:290 Master's Research (project) 3 s.h.

Electives require consent of the advisor and may be selected from either School of Journalism and Mass Communication courses or courses offered by other departments.

GROUP 2 REQUIREMENTS

19:220 Master's Seminar 3 s.h.
19:294 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 courses offered by other departments.

Every student in the professional program must complete a professional project (19:294) under the supervision of a committee of three members of the graduate faculty.

There is considerable flexibility within the professional (journalism) program. The model programs are intended as general information for new and prospective students. The actual program of study for any student is planned in close consultation with the advisor.

Communication and Mass Communication Emphasis

This emphasis offers a specialization in the study of communication phenomena with a special emphasis on theory and methodology. Qualified individuals may petition the graduate admissions committee of the School of Journalism and Mass Communication for admission to the Ph.D. program after successful completion of their M.A. work. The following courses are required.

19:220 Master's Seminar (two semesters) 2 s.h.
19:221 Approaches to the Study of Communication: Issues and Concepts 3 s.h.

One of the following methods courses:

3 s.h.
19:300 Communication Research: Hypothesis Approach
19:351 Communication Research: Behavioral Approaches
19:362 Communication Research: Phenomenological Approaches
19:265 Communication Research: Legal Approaches

Electives in journalism and mass communication and in other departments 15 s.h.
19:239 Master's Research (thesis) 3 s.h.

Every student in the communication and mass communication emphasis must complete an M.A. thesis (19:239) under the supervision of a committee of three members of the graduate faculty.

All students are expected to take course work within the School of Journalism and Mass Communication; the nature and extent of the work is determined by the student and the faculty advisor.

Doctor of Philosophy

The Ph.D. program emphasizes interdisciplinary inquiry into mass communication phenomena within cultural and historical perspectives.

Approaches include philosophical, evolutionary, and critical inquiry. The program's substantive nature is defined by the scholarly interests of the faculty, who turn most frequently to investigations of historical, legal, economic, cultural, social, and moral 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.

Facilities

The School of Journalism and Mass Communication is housed in the three-story Communications Center. The school has special laboratories for photography, typography, radio, television, electronic newswriting, and desktop publishing students, as well as offices and facilities in the university's award-winning student newspaper, The Daily Iowan, which is housed in the Communications Center. Special facilities in the building include the Leslie G. Moeller Seminar Room, the Muriel Special Presentation Room, and the Paol M. Povlousek Room.

The school has one radio station, KIOW, the Kennett and Muriel Greene Resource Center, and pay-per-view accommodations for offices of the Iowa High School Press Association and the Cubs and Sox Club. A digitized media library is available for student and faculty photography and other projects.

Iowa Center for Communication Study

The center encourages and facilitates student and faculty research in the field of communication. Among its publications are The Journalism Outlook, a magazine for journalism students, and The Iowa Guide: Scholarly Journalists in Mass Communication and Related Fields.

Financial Aid

More than $40,000 in scholarships is available to undergraduate and graduate journalism majors. Opportunities for journalism scholarships are available from the school and the National Association of Student Journalists. A digitized media library is available for graduate students, and preference given to doctoral students. The school also has a program of modest financial support for student research projects.

Professional Enrichment

The school encourages students to participate in journalism-related activities outside the classroom. Internships in journalism and public relations positions are available to students. These experiences are selected and monitored to contribute to students' professional growth. The School of Journalism and Mass Communication does not award academic credits for internships, but students may earn credits by applying in independent study in conjunction with internships. In addition to internships, student-operated media include The Daily Iowan, The Iowa Review, and The Newspaper yearbook—providing opportunities for journalism experience.
19:40 Brozon Readings
3 a.m.
Tips on how to make a mass communication, draw on for discussion.

19:41 Brozon Project
2 a.m.
Assignments require candidates completing university projects. Comments of better work required.

Primarily for Graduates
19:42 Visual Communication Research Methods
3 a.m.
Pragmatism of research: Rationale in study of mass communication and media, conceptual framework, implications for future research and development of media systems.

19:43 Communication Research and Mass Communication
3 a.m.
Pragmatism of research: Rationale in study of mass communication and media, conceptual framework, implications for future research and development of media systems.

19:44 Brozin and Technologies Issues in Media
3 a.m.
Brozin: conceptual framework of mass media, relationships among media, socio-economic variables, cultural trends, economic and social issues in U.S. communication policy, newspaper, radio, television, and film industries.

19:45 Mass Media and Society
3 a.m.
Brozin: conceptual framework of mass media, relationships among media, socio-economic variables, cultural trends, economic and social issues in U.S. communication policy, newspaper, radio, television, and film industries.

19:46 Comparative Communication Systems
3 a.m.
Societal, institutional, and media communication: principles and practices; a general overview of cross-cultural differences in communication patterns and practices; global and regional information systems; global and regional media systems.

19:47 Third World Developmental Support
3 a.m.
Policies, programs of Third World development; implications of international institutions and policies on media and development; global and regional media systems.

3 a.m.
Disruption of identity problems and media in international contexts, media and communication: principles and practices; a general overview of cross-cultural differences in communication patterns and practices; global and regional information systems; global and regional media systems.

19:49 Law and the Amass Media
3 a.m.
Law, media, and the economy.

19:50 History of Books and Printing
3 a.m.
Societal, institutional, and media communication: principles and practices; a general overview of cross-cultural differences in communication patterns and practices; global and regional information systems; global and regional media systems.

19:51 Images and Sounds
3 a.m.
Images and Sounds: A film, a television, a newspaper, a filmstrip, a book, a record, a computer, a radio, a telephone, an apparatus, a machine, etc.

19:52 Topics in Mass Communication
3 a.m.
Societal, institutional, and media communication: principles and practices; a general overview of cross-cultural differences in communication patterns and practices; global and regional information systems; global and regional media systems.

19:53 Marcon's Seminar
3 a.m.
Societal, institutional, and media communication: principles and practices; a general overview of cross-cultural differences in communication patterns and practices; global and regional information systems; global and regional media systems.

19:54 Specialized Reading and Writing
3 a.m.
Societal, institutional, and media communication: principles and practices; a general overview of cross-cultural differences in communication patterns and practices; global and regional information systems; global and regional media systems.

19:55 Brozin and the Change
3 a.m.
Societal, institutional, and media communication: principles and practices; a general overview of cross-cultural differences in communication patterns and practices; global and regional information systems; global and regional media systems.
well-conceived research or fieldwork project on an international topic.

**Courses**

130:20 Contemporary Latin American News 2.0

Columbia 31:5, 114:22, 114:23

130:15 Latin American Studies Seminar 3.0

below in 51:14, 11:8, 114:1, 115:5

**LEISURE STUDIES**

Chair: Michael L. Tingue

Professors: P. Murphy, Richard D. McNeil, Michael L. Tingue

Assistant professors: Carolyn Law-Boyd, Kenneth E. Mosley

Visiting Lecturers: Carlos I. Janes

Undergraduate degree: B.S. in Leisure Studies

Graduate degree: M.A. in Leisure Studies

In 1949 the University of Iowa became the first institution of higher education in Iowa to offer courses in leisure studies, and in 1965 to offer a program in leisure studies. The mission of the Department of Leisure Studies has three major components: liberal education through leisure studies, professional preparation for the leisure service profession, and the research of leisure as a behavioral and cultural phenomenon.

By studying the value and function of leisure in a modern society that is filled with stress and boredom with more free time, the department seeks the cause of the liberal arts ideal, a fuller and more humane life.

The Department of Leisure Studies emphasizes the education of all liberal arts students. Specifically, it offers two courses designed to satisfy the 3 semester hours of the College of Liberal Arts' General Education Requirements in the humanities (104-252) and the social sciences (104-505). Both are for all students.

In the past 40 years, the number of people employed in recreation and parks has increased dramatically. There are opportunities for professional placement throughout the United States and Canada in a wide range of public, park and recreation settings: voluntary and social agencies, recreation programs; therapeutic recreation programs; school, military service, commercial, and industrial recreation programs; and teaching and research.

**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 15 semester hours of completed coursework. Three pages of a one-page statement of their interest in leisure studies, significant work or volunteer experience, exposure, personal qualities, and other pertinent information. Letters of reference are optional. Applications are available from the departmental office. Deadline for fall semester admission is March 1, for spring semester, October 1.

**Requirements**

Students must take 37 semester hours of core courses, including the following:

104:40 Leisure in Contemporary Society 3.0

104:61 Recreation Leadership and Programming 4.0

104:101 Leisure Research 3.0

104:105 Introduction to Therapeutic Recreation 3.0

104:108 Administration of Recreation 3.0

Elective course in leisure studies (prefix 104) 3.0

104:110 Internship in Recreation 3.0

104:198 Internship in Recreation 3.0

27:56 and 27:77 Fund Aid and CPI 2.0

Students must also take 6-9 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 of recreation programs, facilities, and departments. It is oriented primarily to municipalities, districts, and county-level recreation and park departments.

The following courses are required.

104:130 Parks and Recreation Facility Management 3.0

104:134 Introduction to Planning and Design of Recreation and Park Areas and Facilities 3.0

Three elective courses selected with advisor

**Therapeutic Recreation**

Therapeutic recreation programs seek to organize, plan, and lead recreation programs in treatment and assessed settings for people who are ill, handicapped, aged, disabled, and disadvantaged.

The following courses are required.

104:121 Orientation to Special Populations in Therapeutic Recreation 3.0

104:125 Role of Therapeutic Recreation in Rehabilitation 3.0

Those to six courses, selected with the advisor, that satisfy pre-examination requirements for certification set by the National Council for Therapeutic Recreation Certification.

**Commercial/Industrial**

The commercial/industrial track prepares students for careers in commercial recreation operations (health spas and clubs, sales of recreation goods and services, recreation-related businesses) and in industrial recreation and employee provided recreational services and opportunities for employees. In the commercial/industrial concentration area, students must select one of the following two emphasis areas.

**BUSINESS OPTION**

The following courses are required.

104:120 Park and Recreation Facility Management 3.0

104:134 Introduction to Planning and Design of Recreation and Park Areas and Facilities 3.0

104:129 Managing the Commercial Recreation Enterprise 3.0

104:158 Computer Applications for Park and Recreation Management 3.0

Students may take 15 semester hours in business or communications at the discretion of their advisor.

**HEALTH PROMOTION OPTION**

The following courses are required.

27:53 Human Anatomy 3.0

27:46 Exercise Physiology for Professionals 3.0

or

27:46 Exercise Physiology 3.0

104:198 Health Promotion in Corporate, Hospital, and Private Setting 3.0

Students must complete a minimum of 9 semester hours in two of the following program areas: physical fitness, nutrition, substance dependency, health psychology, and business management.

**Internship Opportunities**

The Department of Leisure Studies places special emphasis on practical experience and student involvement with the profession and practitioners. Students are encouraged to attend state and national professional conferences, and many classes in the professional core include lectures by working professionals as well as opportunities for face-to-face relations to career contacts.

The practical emphasis is completed by a practical experience that is based on a 15 semester hours as 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 agencies, agencies, work-related 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 50 semester hours of course work at The University of Iowa, completion of at least 9 of the 50 semester hours of required major course work, and a grade point average that meets the minimum requirement of the University Honors Program. To graduate with honors in leisure studies, students must successfully complete 15 semester hours of honors work. With the permission of the chair of their honors committee, students may take 3 semester hours of honors work in another department.
Communication, and the English Department. They co-lead scholarly and applied research and teach classes.

International Writing Program, Windhorse Press
See "Iowa Center for the Arts" in the Special Institutes section of Iowa sections of the Catalog.

Transcription Workshop
See "Master of Fine Arts in Translation" under "Comparative Literature" in this section of the Catalog.

Courses
156:130 Color Photography
Same as 156:100
156:130 Advanced Color Photography
Same as 156:100
156:130-T Digital Photography
Same as 156:100
156:130-T Digital Photography
Same as 156:100
156:130-T Digital Photography Workshop
Same as 156:100
156:150 Color Photography I
Same as 156:100
156:150 Color Photography II
Same as 156:100
156:150 Color Photography III
Same as 156:100
156:210 Intermediate Bookbinding
Same as 156:130
156:210 Advanced Bookbinding
Same as 156:130
156:210 Advanced Bookbinding
Same as 156:130
156:210 Beginning Bookbinding
Book Arts: Paper to Press to Stitch: Bookmaking Studies. Same as 156:130
156:210 The Hand-Printed Book: Principles in Design and Production
Same as 156:120
156:195 Modern Manuscript and Handwriting
Same as 156:100
156:200 Visual Communication
Same as 156:100
156:200 History of the Book
Same as 156:100
156:200 Handwriting: In Textbooks in Papermaking/Papermill
Same as 156:100
156:200 Handwriting: In Textbooks in Papermaking/Papermill
Same as 156:100
156:240 Circular Design and Production
Same as 156:100

Liberal Studies
Coordinator: Elizabeth K. Eisele
Degree offered: B.L.S.

The Bachelor of Liberal Studies (B.L.S.) program is offered by each of the three State Board of Regents universities (The University of Iowa, Iowa State University, and the University of Northern Iowa) to serve adult students who, family, geographic location, or other personal circumstances prevent them from attending college as full-time, on-campus students. The program has no residence requirement.

Students may complete the degree without attending a course on campus. Courses applicable toward the degree may be earned through several types of courses, including Saturday and evening courses, correspondence courses, off-campus courses at sites throughout Iowa, Internet courses, and on-campus courses during the day. Courses from any of the three Regents universities may be applied toward the degree, as may appropriate courses from other accredited institutions.

At The University of Iowa, the B.L.S. is awarded by the College of Liberal Arts and Human Sciences. Since The B.L.S. is a general undergraduate degree with no traditional major, B.L.S. students may not earn minors. However, the requirements are sufficiently flexible to allow students, with the assistance of a B.L.S. advisor, to structure a program that meets their individual needs and objectives. Many B.L.S. students fill in their program designed to help them fit their degree in their chosen career, begin a new career, or prepare for graduate or professional school. Students who have a specific career goal or advanced degree program in mind should consult with an advisor knowledgeable in the field for assistance. The program will give the student the opportunity to accumulate educational background and practical work experience and should include appropriate courses in their B.L.S. degree program.

Admission
Students wishing to graduate from The University of Iowa must apply formally for admission to the B.L.S. Students should consult with a B.L.S. advisor before applying. To be eligible for admission to the program, students must have earned either: an associate degree (AA) or degree from a two-year college and a minimum 30 credits or 20 credits in the Iowa Community College/Regents Articulation Agreement, with a minimum grade-point average of 2.0 or a minimum 2.5 grade-point average of 3.0 or a minimum 2.5 grade-point average of 2.32 or better. Students admitted to The University of Iowa must have a grade-point average of at least 2.00 to qualify for admission to the B.L.S. program.

Requirements
Of the 124 semester hours of credit required for the degree, at least 45 must be earned at four-year colleges or courses defined as upper-division at the institution where the credit was earned (the College of Liberal Arts at The University of Iowa, primary courses numbered 300 and above). At least 45% of the credits for the degree must be earned in courses offered by the Regents universities. At least 80% must be earned after admission to the B.L.S. program from the specific Regents university that will grant the degree.

At The University of Iowa, the B.L.S. degree must be completed by the student in residence in the University of Iowa, with 20 credits to be completed in courses offered by the Regents universities. At least 80% must be earned after admission to the B.L.S. program from the specific Regents university that will grant the degree.

The B.L.S. degree must be completed by the student in residence in the University of Iowa, with 20 credits to be completed in courses offered by the Regents universities. At least 80% must be earned after admission to the B.L.S. program from the specific Regents university that will grant the degree.
The School of Library and Information Science offers a program of professional and academic preparation for careers in all types of libraries and information centers—public, school, special, and so forth. It seeks to recruit and prepare librarians and information professionals 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 professional preparation in library and information science that reflects the variety and growth of information needs led by society and individuals; to engage in research that increases understanding of the nature of information needs and of the role that can be taken to provide for those needs; and to provide public service through counseling and consulting, association and other professional service, so that growths is fostered beyond library and professional preparation, and to the people whose 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 understand the role that the library and the library profession play in society and the library's importance in the economic process;
- articulate a philosophy of librarianship that includes an understanding of intellectual freedom and the role of the librarian in ethical responsibilities, and 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 that information, libraries, and librarians can make to the quality of life, and an ability to convey that appreciation to others;
- demonstrate an understanding of the techniques and procedures of effective information service (i.e., the selection, assessment, organization, access, storage, and dissemination of information); and
- articulate an understanding of management theory and practice sufficient to plan library and information services and to perform the professional responsibilities of identifying needs, setting goals, analyzing problems, implementing programs, and evaluating results.

- demonstrate an understanding of information technology and of software systems relevant to the functions of libraries and information centers;
- choose and evaluate research that built in the advancement of the profession;
- articulate an understanding of the methodology of library and information science and the contributions of relevant fields of knowledge to the discipline; and
- demonstrate a commitment to professional growth.

**Research Objectives**

Further to engage in research on library and information problems that advances both theoretical and practical knowledge. This includes research that directly supports the instructional programs of the School of Library and Information Science.

**Public Service Objectives**

The school offers library and information personnel and library trustees opportunities for continuing education that enhances and updates their awareness of current developments in library operations and information services. It provides consulting services to individuals, libraries, and organizations in order to promote better library and information service for all citizens of Iowa and surrounding areas. Faculty and students in the school participate in local, state, regional, and national levels.

**Undergraduate Study**

Although there is no undergraduate major in library science, bachelor and master level courses in library science are offered. No course numbered 100 or above may be taken for credit by students.

**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 allowed, upon request to the director, to take one course during the application process. This course may apply later to requirements for the degree.

**Master of Arts**

Professional and academic preparation for careers in all types of libraries is provided in the school's Master of Arts program. Graduates hold positions in public, school, academic, and special libraries and information centers, serving in roles such as administration, information science.
consultant, subject specialist, night watchman, school system specialist, school library media specialist, or consultant.

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.

Basic Plan of Study
The program consists of a core required courses basic to all areas of librarianship, and electives. The student's plan of study should be developed carefully in concert with career objectives. All courses to be attempted in the 36-semester-hour program must be approved by the advisor.

Required Core Courses
Required of all M.A. candidates: 18 h.
21:151 Reference 3 s.h.
21:152 Description and Organization of Materials I 3 s.h.
21:153 Foundations and Collection Development 3 s.h.
21:201 Management of Libraries and Information Centers 3 s.h.
21:246 Introduction to Information Science 3 s.h.
21:249 Research Methods 3 s.h.

Electives
Total: 18 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. To be applied toward the degree, elective courses outside the department must be taken following admission to the School of Library and Information Science, and must not exceed 6 semester hours. Only courses taken for graduate credit may be applied toward the 36-semester-hour requirement.

Thesis Option
The purpose of the thesis option is not only to expand research opportunities and to provide one means of independent study to a student with exceptional preparation in library and information science. It is not 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 master's program.

Completion Time
The degree program can be completed in one calendar year (two semesters and a summer), but most students take an extra semester or two to fulfill the requirements. In particular, students who have time-consuming responsibilities, such as family duties or full-time in greater employment, may find it difficult to carry the maximum course load. The maximum load for graduate students is 17 semester hours during regular semesters and 8 semester hours during summer sessions.

Public Librarianship
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 taxes, but they often are organized on a regional or statewide cooperative basis. The variety of services, materials, and organizational structures of public libraries makes for a challenging area of librarianship.

Public librarians need to develop skills in analyzing the communities they serve, designing comprehensive marketing plans to meet these needs, implementing the plans in a cost-effective manner, and evaluating the success of their efforts.

PLAN OF STUDY
Required core courses 18 s.h.
Suggested electives 18 s.h.
21:120 Library and Storytelling for Children 3 s.h.
21:231 The Public Library 3 s.h.
21:254 Library Services for Children 3 s.h.
21:245 Library Materials for Adolescents 3 s.h.
21:247 Information Storage and Retrieval 3 s.h.
21:248 Library Automation 3 s.h.
21:251 Advanced Reference 3 s.h.
21:262 Practical Experiences 2-3 s.h.

Academic Librarianship
The academic library, whether in a community college, a four-year college, or a university, provides information services in support of the teaching, research, and public service missions of the parent institution. These services include instruction in the use of the library and its resources, management skills and subject or language competence are often required.

PLAN OF STUDY
Required core courses 18 s.h.
Suggested electives 18 s.h.
21:232 The College and University Library 3 s.h.
21:247 Information Storage and Retrieval 3 s.h.
21:248 Library Automation 3 s.h.
21:251 Advanced Reference 3 s.h.
21:252 Description and Organization of Materials II 3 s.h.
21:253 Technical and Serial Services 3 s.h.
21:255 Government Publications 3 s.h.
21:256 Copyright and Fair Use 3 s.h.
70:171 The Community College 3 s.h.

Special Librarianship
Special librarianship focuses careers in libraries and information centers serving both profit and nonprofit organization clients—such as businesses and industries, law firms, museums, historical societies. The ability to design services suitable to the parent organization, the provision of specialized skills and resources as in indexing, abstracting, online searching, systems analysis, and organization, and the background of subject-specific expertise are commonly required in special library work. Information brokers and entrepreneurs are also special librarians.

PLAN OF CURRY
Required core courses 18 s.h.
Suggested electives 18 s.h.
21:230 Special Libraries 3 s.h.
21:240 Bibliography 3 s.h.
21:247 Information Storage and Retrieval 3 s.h.
21:251 Advanced Reference 3 s.h.
21:252 Description and Organization of Materials II 3 s.h.
21:255 Government Publications 3 s.h.
21:264 Information Retrieval and Bibliography 3 s.h.
21:265 Information Retrieval, Bibliography, and Research 3 s.h.
21:263 Practicum in Libraries 2-3 s.h.

Information Science
Information science, a rapidly growing multidisciplinary professional area, has been defined as the study of the use of information sources, the rapid development of electronic technologies, and the need to store, retrieve, and disseminate information through the use of these technologies. Its focus is on developing skills in organizing and using information, determining and analyzing information, and needs a particular clientele, and the retrieval and delivery of information.

In addition to libraries and information centers, many organizations in the business sector are finding that information is a valuable commodity in today's competitive world; they are employing information management personnel. An information science specialization can lead to nontraditional careers.

PLAN OF STUDY
Required core courses 18 s.h.
Elective courses 18 s.h.
Two or three of these: 3 s.h.
21:247 Information Storage and Retrieval 3 s.h.
21:248 Library Automation 3 s.h.
21:252 Description and Organization of Materials II 3 s.h.
21:272 Information Retrieval and Bibliography 3 s.h.
21:274 Information Retrieval and Analysis 3 s.h.
21:275 Information Retrieval and Design 3 s.h.
Two or three non-credit courses in other segments. 0-9 s.h.

The balance selected from:
21:230 Special Libraries 3 s.h.
21:240 Bibliography 3 s.h.
21:251 Advanced Reference 3 s.h.
21:255 Technical and Digital Services Management 3 s.h.
21:264 Medical Librarianship and Bibliography 3 s.h.
21:265 Law Librarianship, Bibliography, and Research Techniques 3 s.h.
21:284 Periodicals in Libraries 3 s.h.
21:293 Independent Study 1-3 s.h.

School Library Media Centers

The school library media centers make available to teachers and students a wide range of library and instructional materials in a variety of formats. The work of the media specialists includes activities such as providing instruction to students in the use of media, consulting with teachers about the use of media in the instructional program, producing new materials, offering reading guidance, and providing reference service.

To qualify as school media specialists in Iowa, graduates must hold a valid teaching license and an appropriate media endorsement. The plan of study in the following section describes a program that is designed to prepare students for endorsement at Iowa school media specialists K-12.

State Endorsement for School Media Specialists

Students who complete the program below fulfill state requirements for endorsement as school media specialists K-12. To be admitted to the media endorsement program, a student must hold or be eligible for a teaching license. This program requires completion of 38-39 semester hours. Students completing the media endorsement program fulfill the requirements for the M.A. in Library and Information Science as well. The plan of study is as follows:

21:155 Reference 3 s.h.
21:156 Description and Organization of Materials I 3 s.h.
21:153 Foundations and Collection Development 3 s.h.
21:204 Management of Libraries and Information Centers 3 s.h.
21:223 School Library Media Center Administration 3 s.h.
21:246 Library Materials for Children 3 s.h.
21:245 Library Materials for Adolescents 3 s.h.
21:214 School Library Media Center Practice 3 s.h.
21:212 Introduction to Instructional Design and Technology 3 s.h.
21:215 Survey of Computer Applications to Instruction 3 s.h.
21:246 Research Methods 3 s.h.
79:720 Educational Research Methodology 3 s.h.
79:222 Instructional Strategies 3 s.h.
79:263 Consultation Theory and Practice 3 s.h.
21:264 Multimedia and Interactive Technologies 3 s.h.
79:105 Design and Production of Media for Instruction 3 s.h.

Students who complete 29 of the above semester hours in a designated sequence are eligible for the School Media Specialist endorsement. For elementary school media specialists (K-6) or secondary school media specialists (7-12), the single least semester hour does not require a master's degree.*

Iowa Community College Certification

The school offers a state-approved program for librarian/librarianship resource specialist in an area vocational school or community college. Students receive this endorsement upon completion of the M.A. with the program listed under "Academic Librarianship" in the section of the Catalog and 79:171 Iowa Community College.

Joint Degree Programs

Joint degree programs between the School of Library and Information Science and other University units have as their primary goal the integration of the two areas of study, allowing the student to contribute to one discipline the insights and experience gained in the other. The schools has established formal programs with the Colleges of Law and Business Administration. A student enrolling in a joint program works with an advisor in the School of Library and Information Science to ensure the benefits of integration.

Objectives of a joint program must be consistent with the goals of the student, and since it varies from student to student, they are a matter of advising. Advisees, a student who seeks a career in a law or business library requires a different sequence of courses from one attempting to study the legal basis of librarianship or the management of the library as a corporate organization. Yet another student may choose to seek the benefits a joint program could offer in records management and management information systems.

To enroll in a joint program, students must apply to and be accepted by the School of Library and Information Science and the other unit chosen. Up to 6 semester hours of each study may be applied toward the M.A. in library and information science and up to 9 semester hours toward the M.B.A. or 12 semester hours toward the J.D. In addition to these formal joint programs, arrangements can be made for joint programs between departments on an ad hoc basis.

In no case may a student receive two degrees with fewer than 60 semester hours of graduate work, and joint programs usually require substantially more than this.

Facilities and Resources

The School of Library and Information Science is housed conveniently in the growth wing of the University Main Library, providing facilities for the rapidly increasing and research activities of the school.

Computer Facilities

A multipurpose technology laboratory provides student access to microcomputers. Equipment is available for CO-ROUT software, on-line 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 searching, work with word processing and spreadsheet systems, and perform statistical analyses.

Cataloging Lab

The school maintains a reference collection of cataloging tools used in description, cataloging, and organization, cata

Statewide Reference Service

The school serves as one unit of a state network of libraries. In cooperation with the Iowa Library, student provide backup reference service to libraries throughout the state. The school is also available for bibliographic verification and to answer reference questions. The service helps students retrieve and integrate classroom instruction and provides reference experience.

University Libraries

All of the resources of the University Libraries are available to students enrolled in any one of the schools. The system contains more than 3 million volumes in the Main Library and 11 departmental libraries.

The online catalog and information system, OASIS, contains records for more than 60 percent of the collection as well as deposited abstracts and indices. The Library subscribes to the Center for Research Libraries in Chicago. Also available are information indices in compact disc format and online access to more than 200 million online-located titles.

The third floor of the Main Library houses the government publication, maps, and special collections needs as well as bound periodicals. The location of the School of Library and Information Science on this floor allows quick access to these frequently used collections.
Other Libraries
Students have access to a variety of libraries through field trips, praecinct experiences, and personal use: the State Historical Society Library in Iowa City, the Iowa City and Coralville public and school libraries; the Coe, Cornell, and Cornell County libraries; and the Hartnett Hoover Presidential Library in West Branch. The Iowa City Public Library, located only four blocks from the Main Library, was one of the first public libraries in the nation to convert to a totally computerized catalog. Its services include reference, philosophy, and contemporary management resources; provide a valuable addition to the academic library.

Other Resources
Landscape Center, located across the street from the Main Library, houses the Learning Resources Center of the College of Education and Weig Computing Center. The magazine center consists of the Video Library, Computer Resource Center, 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, public, or library work.

Weig 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, data preparation, and class work. Each graduate student and staff member is assigned a small networked desktop account by the Graduate College.

Faculty Advising
Each graduate student is assigned an advisor upon admission. Students are encouraged to discuss career aspirations and options with other faculty members as well. The relatively small class size of graduate programs allows students to get to know students individually and to take an active role in classroom activities.

All courses are offered to the 30-semester-hour program must be approved by the advisor.

Student Activities
Students have a variety of activities available to aid in their academic and professional development. Conferences, short courses, workshops, institutes, field trips, and teleconference calls provide frequent exposure to contemporary developments in library and information science, as well as an opportunity to meet with practicing librarians from across the state and nation.

The Library and Information Science Student Organization (LISOS) is composed of all students accepted into the M.A. program. The first-year Convocation of ASCC (SCE) serves as a forum between students and faculty/administration. Students in the newly organized Student Government and other activities. ASCC sends a representative to faculty meetings. There is also an active student chapter of the Special Libraries Association.

Placement
The school provides active placement assistance to its graduates through open house announcements, seminars on resume writing and interviewing, and personal counseling. The University's Educational Placement Office issues a regular listing of job openings and provides references for successful graduates. Iowa graduates find positions in all types of libraries. The placement statistics for the past three years reveal that 80 percent of Iowa graduates find positions in libraries in 40 states and 9 foreign countries. Strong personal and 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, with a minimum one-year grade average of 3.25 on a 4.00 scale; and at least 65 semester hours of study in the liberal arts and sciences;

A combined verbal/quantitative score of 600 on the Graduate Record Examination (GRE) General Test.

Personal qualifications and professional potential are ascertained by means of letters of recommendation and an on-campus interview with the graduate school and other representatives of the faculty. Telephone interviews are arranged when distance makes it impossible for an applicant to come to Iowa City. The school does not accept every applicant who meets the minimum admission requirements; an admissions committee selects each class on a competitive basis.

Foreign students whose native or official language is not English are required to achieve a score of 550 or higher on the Test of English as a Foreign Language (TOEFL).

Applicants are requested to write to the School of Library and Information Science for information about the Graduate Record Examination (GRE) General Test.

Prospective students are urged to begin application procedures early enough to complete all requirements by the following deadlines. Applications must be filed by the time they have not taken the Graduate Record Examination (GRE) General Test.

Competed applications should be received by the school by March 1 for fall semester; October 1 for the spring semester; or February 1 for the summer semester. Decisions of the admission committee are announced two to three weeks after each deadline. Late applications are considered if places are still available. Financial aid, however, is often not available for late applicants.

Financial Aid
The School of Library and Information Science and the University administration as well as one quarter-time graduate assistantships. To be considered for a graduate assistantship, an applicant must have at least a 3.00 undergraduate grade-point average and combined verbal/quantitative scores of 1100 on the GRE. Those who do not meet these requirements are invited to obtain the following information: the Graduate Record Examination (GRE) General Test. Those who do not meet these requirements are urged to apply for the above awards before March 1. For information on student loans, work-study eligibility, or other financial assistance, contact the Office of Student Financial Aid.

Students interested in part-time employment should contact the libraries in the Iowa City area. Positions usually are available in the University Libraries.

Courses
21-100 Cooperative Education Internship 0 s.h.
21-140 Bibliographic Instruction for Children 3 s.h.
21-150 Reference and Medieval Manuscripts 3 s.h.
21-151 References and Medieval Manuscripts 3 s.h.
21-152 Preparation and Medieval Manuscripts 3 s.h.
21-153 Preparation and Medieval Manuscripts 3 s.h.
21-154 Preparation and Medieval Manuscripts 3 s.h.
21-155 Preparation and Medieval Manuscripts 3 s.h.
21-156 Preparation and Medieval Manuscripts 3 s.h.
21-157 Preparation and Medieval Manuscripts 3 s.h.
21-158 Preparation and Medieval Manuscripts 3 s.h.
21-159 Preparation and Medieval Manuscripts 3 s.h.
21-160 Preparation and Medieval Manuscripts 3 s.h.
21-161 Preparation and Medieval Manuscripts 3 s.h.
21-162 Preparation and Medieval Manuscripts 3 s.h.
21-163 Preparation and Medieval Manuscripts 3 s.h.
21-164 Preparation and Medieval Manuscripts 3 s.h.
21-165 Preparation and Medieval Manuscripts 3 s.h.
21-166 Preparation and Medieval Manuscripts 3 s.h.
21-167 Preparation and Medieval Manuscripts 3 s.h.
21-168 Preparation and Medieval Manuscripts 3 s.h.
21-169 Preparation and Medieval Manuscripts 3 s.h.
21-170 Preparation and Medieval Manuscripts 3 s.h.
21-171 Preparation and Medieval Manuscripts 3 s.h.
21-172 Preparation and Medieval Manuscripts 3 s.h.
21-173 Preparation and Medieval Manuscripts 3 s.h.
21-174 Preparation and Medieval Manuscripts 3 s.h.
21-175 Preparation and Medieval Manuscripts 3 s.h.
21-176 Preparation and Medieval Manuscripts 3 s.h.
21-177 Preparation and Medieval Manuscripts 3 s.h.
21-178 Preparation and Medieval Manuscripts 3 s.h.
21-179 Preparation and Medieval Manuscripts 3 s.h.
21-180 Preparation and Medieval Manuscripts 3 s.h.
21-181 Preparation and Medieval Manuscripts 3 s.h.
21-182 Preparation and Medieval Manuscripts 3 s.h.
21-183 Preparation and Medieval Manuscripts 3 s.h.
English as a Second Language

ESL instruction is offered in three districts, but limited, programs: the ESL credit support course, the Iowa Intensive English Program (IEP), and the Teaching Assistant Preparation in English Program (TAPE). These programs meet the needs of students whose native language is not English. The ESL credit support courses help students master English proficiency so they can complete their degree requirements. The IEP provides intensive instruction for students who must reach their English proficiency to gain admission to a university or college. The TAPE program prepares students to teach in American classrooms.

ESL Credit Support Courses

These courses bridge the gap between full-time language instruction and full-time academic work, serving students whose TOEFL scores range from 300 to 500. ESL courses are designed 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 (IEP)

The IEP primarily serves students who have conditional admission or who have not yet achieved the entrance TOEFL scores required by the University of Iowa. The IEP requires students to achieve a TOEFL score of 500. Students who have TOEFL scores below 500, the program offers extensive English instruction and a cultural, social, and academic orientation to the United States. Instructors emphasize 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 twice weekly class-time instruction each week, plus individual work in the language laboratory. Field trips and cultural and social events are an integral part of the program. Students enrolled in the IEP have full access to all University facilities. The program welcomes international students preparing to enter universities level colleges as well as other students who want to improve their English skills. Instruction is by full-time professional ESL instructors.

Students admitted to the IEP receive a certificate of eligibility (Form 100), which entitles them to obtain a 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 whose first language is not English, who need additional work in English communication and classroom presentation techniques, and who will hold teaching assistantships while at The University of Iowa. Only students who need the program and who have sufficient command in English to profit from it are eligible. TAPE courses are open to graduate students who have had the TOEFL scores required by the University. Information is available from full-time professional ESL instructors.

Facilities

The Department of Linguistics has limited acoustic equipment consisting of a sound spectrachord, a multi-mode tape recorder, and an automatic chamber. A remote terminal and personal computers are also available to students.

The departmental reading room provides a common meeting place for faculty and students. Students have considerable influence on departmental affairs and enjoy a high degree of individual instruction.

Primarily for Undergraduates

103:000 Comparative Education, Internship 3.0 b.
103:010 Language and Society 3.0 a.
Continued training in general linguistics is available for students with advanced proficiency in English. Students may receive credit for individual study.
103:013 Language and Formal Meaning 3.0 b.
includes formal and informal study of linguistic meaning through historical semantics, linguistic analysis of predicate and quantification, and synchronic or functional meaning.
103:015 Elementary Swahili I 3.0 c.
for four credits, and part-time study. GRE, foreign language. Students are 101:15 101:15 101:15 101:15
103:016 Elementary Swahili II 3.0 c.
students interested in the study of Swahili. GRE, foreign language. Prerequisites: 101:15 and 101:15.
103:017 Intermediate Swahili I 3.0 c.
for four credits, and part-time study. GRE, foreign language.
103:018 Intermediate Swahili II 4.0 a.
students interested in the study of Swahili. GRE, foreign language. Prerequisites: 101:15 101:15 101:15.
103:090 Special Project 1.0 e.

For Undergraduates and Graduates

103:101 Introductory Linguistics 3.0 a.
for students in general linguistics. Students in 103:100.
Thomson's Study of The Town of English' examines English in the modern and recent world, offers an in-depth treatment of English. In comparison with 103:106, 103:106.
103:106 Teaching English as a Second Language 3.0 b.
Methods and techniques, remote post teaching labs. GRE, foreign language. Prerequisites: 103:101 and 103:100.
the Doctor of Philosophy degree. The program helps students achieve a command of theoretical and applied mathematics and obtain a fundamental knowledge of one area in another science (behavioral, biological, engineering, medical, physical, or social). The program is flexible; students can concentrate on applications in any subject area, such as differential equations and numerical analysis, or on other applicable techniques in mathematics. Specifically computing is an important part of applied mathematics today, so it is often a part of student training and dissertation research.

Applicants should have a desire to do advanced work in a mathematical science or applied mathematics, statistics, or computer science and have a good background in a related subject matter.

Plan of Study
Faculty members help each student plan a course of study that is consistent with the student's background, interests, and goals.

Individual programs are designed to help students develop expertise in methods of applied mathematics and build a good foundation in related topics of differential equations, numerical analysis, or other applicable techniques in mathematics. The individual programs also provide sufficient knowledge in a particular science to enable students to use mathematics techniques in that science. Students can arrange their study plans to earn a major or minor in one of the major fields of study in mathematics after they complete part of their plan. Students that satisfy these requirements and supervises with the help of the faculty.

Comprehensive Exam
Ph.D. comprehensive examinations cover three areas: theoretical foundations and techniques in mathematics, methods of application, and the chosen scientific area. One program's objective is to have each student's dissertation research include many of the objectives of an advanced mathematics program. For example, a student might formulate a model, do a quantitative analysis of the model, and interpret the results.

Assistantships, Application for Admission
Research and teaching assistantships are available to qualified applicants. Applicants for assistantships or research assistance are advised to contact the department's graduate assistants at the University of Iowa. The University of Iowa, Iowa City, Iowa 52242.

Courses
22A:998 Reading and Research
Course of study required.

COMPUTER SCIENCE
Chair: Jonathon Simon
Professor: David A. Boplies, Jonathan L. Sprey, Arthur C. Brill, Greg Kortz (Departments)
Associate professors: Steven A. Barlax, Steven C. Bedell, Susan Clark, Douglas W. Jones, Joseph K. Simon, Victor Sun
Assistant professor: Mehrdad Daghale, Mark Brown, David O. Jones, Mark McCleary, Hiroshi Zhuang
Lecturer: William E. Dodge
Graduate degree: S.A., B.S. in Computer Science; minor in Computer Science.
Graduate degree: M.S., Ph.D. in Computer Science

Undergraduate Programs
Computers have changed the world and will be one of the dominant forces in the future. Students need to be proficient in today's ideas and technology and at the same time be prepared to conform tomorrow's challenge. Undergraduates majoring in computer science develop competence in mathematics, programming languages, and computer systems. Students also explore at least one area of potential computing applications through a required elective graphic. They have great flexibility in their choice of areas, but specific courses in each area must be approved by the computer science advisor.

Students are assigned advisors but also must pass themselves through walk-in hours offered by the faculty. In addition, majors should consult the department's undergraduate handbook, available in the MacNair Hall library, the Division of Mathematics offices, or the undergraduate academic advising center. The handbook details department policies, suggests possible elective areas, and discusses the Cooperative Education Program and graduate programs with the University's chapter of the Association for Computing Machinery.

Pre-Computer Science
Exceptionally well-qualified students may be admitted to the University as computer science majors. Most entering students who want to major in computer science are designated pre-computer science majors until they have met the entry requirements of the computer science major. Students remain on pre-computer science status until they complete the following required courses.

22C:16 Introduction to Programming with Pascal
22C:17 Programming Techniques and Data Structures
22C:18 Computer Organization and Assembly Language Programming
22M:25 Calculus I
or 22M:15 Engineering Calculus I
22M:45 Accelerated Calculus I
Upon completing these courses, students are evaluated for entry into the computer science major. The requirements for entering the major are:

- A grade-point average of at least 2.5 in the four approved pre-computer science courses.
- A grade no lower than C is required, and an overall grade-point average of at least 2.0.

Transfer students who have within a course approved as equivalent to one of the pre-computer science courses are exempt from those courses, provided the transfer grade is at least a B. Such transfer courses are used in computing the pre-computer science grade-point average.

After admission to the major, students need to complete a grade-point average of 2.0 or higher in the courses required for the B.A. or B.S. in computer science (see "Bachelor of Arts" and "Bachelor of Science") in order to remain in the major and to receive the B.A. or B.S. in computer science.

Advanced Placement
The Computer Science Advanced Placement test can be used to gain credit for 22M:10 and/or 22C:17. See the Computer Science Undergraduate Handbook for more details.

Bachelor of Arts
The General Education Requirements for the degree are met in the College of Liberal Arts introductory section of the catalog.

For the B.A., the following computer science core courses are required.

22M:21 Calculus I
or 22M:15 Engineering Calculus I
22M:45 Accelerated Calculus I
22M:26 Calculus II
22M:30 Engineering Calculus II
or 22M:40 Accelerated Calculus II
22M:27 Introduction to Linear Algebra
22C:10 Introduction to Programming with Pascal
22C:17 Programming Techniques and Data Structures
22C:18 Computer Organization and Assembly Language Programming
22C:19 Discrete Structures I
22C:21 Algorithms and Data Structures
22C:25 Programming Language Concepts
22C:31 Digital Systems and Computers
22C:32 Introduction to Systems Software
Total 34 s.h.

In addition, an approved elective program of at least 12 s.h. of electives is required (see "Required Elective Program, below").
Bachelor of Science

The General Education Requirements for this degree are stated in the College of Liberal Arts Introductory section of the Catalog. Courses that satisfy General Education Requirements, if chosen carefully, may also satisfy the departmental natural science sequence requirement as described below.

Students must take all departmental requirements for the B.A., including the approved elective program of at least 12 semester hours (see "Required Elective Program", in addition, they must meet the following three requirements:

- completion of 22C:120 Probability and Statistics; 22C:39 Probability and Statistics, 22C:56 Probability and Statistics, or another probability and statistics course with 4 units prerequisites, as approved by the computer science advisor;
- completion of a natural science sequence acceptable toward a major in that science; approved sequences are listed under "Natural Science Sequences," below; and
- completion of two advanced courses selected from the following list.

### ADVANCED COURSES

- **22C:51 Computer Graphics** 3 s.h.
- **22C:52 Elementary Numerical Analysis** 3 s.h.
- **22C:54 Disease Structures II** 3 s.h.
- **22C:56 Topics in Computer Science** 3 s.h.
- **22C:99 Honors in Computer Science** (if approved, may be counted only once as an advanced course) 3 s.h.

**Computer Science Major Requirements**

- **22C:122 Advanced Programming** 3 s.h.
- **22C:123 Programming Language Foundations** 3 s.h.
- **22C:125 Data: Abstraction, Types, and Structures** 3 s.h.
- **22C:127 Introduction to Computer Construction** 3 s.h.
- **22C:132 Parallel Programming** 3 s.h.
- **22C:135 Introduction to Computer Architecture** 3 s.h.
- **22C:144 Database Management Systems** 3 s.h.
- **22C:145 Artificial Intelligence I** 3 s.h.
- **22C:153 Design and Analysis of Algorithms I** 3 s.h.
- **22C:160 Geometric and Physical Modeling I** 3 s.h.
- **22C:161 Robotics I** 3 s.h.
- **22C:162 Computer Vision I** 3 s.h.
- **22C:167 Theory of Graphs** 3 s.h.
- **22C:168 Cryptograph Communications** 3 s.h.
- **22C:169 Fundamentals of Software Construction** 3 s.h.
- **22C:181 Formal Methods in Software Engineering** 3 s.h.
- **22C:182 Software Engineering Project** 3 s.h.
- **22C:183 Software Engineering Project II** 3 s.h.
- **22C:195 Topics in Programming Languages** 3 s.h.
- **22C:196 Topics in Computer Science** (if repeated, may be counted only once as an advanced course) 3 s.h.
- **22C:198 Individual Programming Projects II (repeatable, may be counted only once as an advanced course)** 3 s.h.
- **22C:199 Numerical Analysis:**
  - Nonlinear Equations and Approximation Theory 3 s.h.
  - Numerical Analysis: Interpolation 3 s.h.
  - Numerical Analysis: Numerical Linear Algebra 3 s.h.

These courses cannot be taken pass/no-pass.

- Students with certain special programs may petition for additional courses to be accepted for this requirement.

### NATURAL SCIENCE REQUIREMENTS

For the B.S., students must select one course from each of the following areas of natural science.

- Chemistry
- Physics
- Mathematics
- Biology

- **Astronomy**
- **Biology**
- **Chemistry**
- **Mathematics**
- **Physics**

Required Elective Program

For the B.A. or B.S., students must take at least 12 semester hours of electives in a thematic area with potential computing applications, such as business, engineering, physics, or another field in which they plan to apply the computer science degree. These courses must be approved by the student’s computer science advisor to ensure the appropriateness of the courses. 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 3.50 or higher may join the UniversityHonors Program. Interested students should contact the honors program office in the Stouferhouse House Honors Center. To graduate with honors in computer science, students complete six semester hours of 22C:99 Honors in Computer Science and submit an acceptable honors thesis. The course 22C:99 can count as one or both of the two advanced courses for the B.S. To take 22C:99, students obtain the consent of a computer science faculty member. The faculty member must know the nature of the intended project for the honors thesis and act as advisor. For details, see the honors course web site for computer science.

### Graduate Programs

#### Master of Science

All candidates for the M.S. in computer science must complete the following courses or acquire equivalent proficiency:

- **22C:115 Advanced Operating Systems** 3 s.h.
- **22C:122 Advanced Computer Organization and Architecture** 3 s.h.
- **22C:123 Programming Language Foundations** 3 s.h.
- **22C:135 Introduction to Computer Theory** 3 s.h.

Three additional graduate-level 22C courses (except software engineering subclass students) 9 s.h.

- **22C:128 Survey of Computer Science (except software engineering subclass students)** 6 s.h.

Total 36 s.h.
Courses outside computer science are required to support the student's career needs and must be approved by the advisor. They are intended to broaden the student's background through study of a new area or to extend students' work outside of computer science.

Computer science courses should be selected according to students' special area interests, but they also should provide a broad range of experience and competence in computer science. In particular, some experience with projects including extensive programming should be included.

M.S. candidates may elect to write a thesis, and with their advisor's consent may up to 8 semester hours of thesis credit toward the minimum total of 30 semester hours of credit required for the M.S.

The M.S. final examination consists of either an oral defense of the thesis or a written comprehensive examination that covers completion of 22C:116 Advanced Operating Systems, 22C:129 Advanced Operating Organization and Architecture, 22C:132 Programming Language Foundations, and 22C:135 Introduction to Computation Theory. The written examination attempt to address the interface among these four courses as well as the major topics in each course. Students should consult the Computer Science Graduate Handbook for more information.

Applicants for admission to the M.S. program in computer science usually are required to have a background in computer science. In special cases, students admitted without the required background may be admitted to the graduate program. In such cases, the student is required to complete specified courses prior to admission to graduate courses.

Software Engineering Subtrack

M.S. candidates may elect the software engineering subtrack, offered jointly with the Department of Electrical and Computer Engineering. Students must satisfy the following requirements:

22C:118 Fundamentals of Software Engineering 3 s.h.
22C:118/180 Formal Methods in Software Engineering 3 s.h.
22C:185 Software Engineering Project I 3 s.h.
22C:185 Software Engineering Project II 3 s.h.

Four computer science courses listed under "Master of Science" (22C:118/129, 22C:132, 22C:135, 22C:145) 12 s.h.
A 200-level course 3 s.h.
Three approved electives at least one of which is an upper-division science course 9 s.h.
Total 36 s.h.

Students who elect the software engineering subtrack follow the sections' options and write the comprehensive examination as the final examination.

Doctor of Philosophy

The department is highly selective in admitting doctoral students and usually considers only applicants with a grade-point average above 3.50. All students are required to complete at least 72 semester hours of graduate work, including a thesis. Students need not have a master's degree to begin the Ph.D. program, and they need not acquire one in order to be eligible for the Ph.D. Course requirements or equivalent proficiency for the doctorate include the following:

22C:116 Advanced Operating Systems 3 s.h.
22C:129 Advanced Computer Organization and Architecture 3 s.h.
22C:132 Programming Language Foundations 3 s.h.
22C:135 Introduction to Computation Theory 3 s.h.
22C:135 Design and Analysis of Algorithms I 3 s.h.

Students must complete at least 18 semester hours of 200-level computer science coursework to add to 22C:200 Research for the 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 three areas: abstract algebra, analysis, logic and set theory, operations research, statistics, and probability, and numerical analysis. At least one course in the outside area must be at the 200 (advanced) level, except in statistics and probability, where the advanced course may be at the 100 level.

COMPREHENSIVE EXAM

Students write the M.S. comprehensive examination as the first part of the Ph.D. comprehensive examination. Thereafter, they select a faculty advisor and a research committee within a specialty area. They then formulate a plan of study and a research program.

The second part of the Ph.D. comprehensive examination is taken under the direction of the research committee; normally, both a written and oral portion are examined.

The student passes written proposals for research and presents an oral defense to the research committee. They must demonstrate expertise in the area of proposed research and justify the proposed work in terms of originality and significance. Students make a final oral defense of their completed dissertation.

Graduate Service Courses

Competence and experience in the use of a digital computer in programming is useful for and often prerequisite to advanced study and research in many disciplines. For most students, the two-semester sequence, 22C:100/ 22C:167 Programming Techniques and Data Structures, is recommended. Students in fields in which other programming languages are used may find 22C:100 Introduction to Computing with FORTRAN, 22C:167 Programming with COBOL, or 22C:110 Programming with C more appropriate.

Courses

Primary for Undergraduates

22C:00 Cooperative Education Training Assignment 0 s.h.
22C:99 On-the-Job Training Experiences 0 s.h.
22C:101/147 Introductory Computer Programming: Concepts of Computer Science Requirement 3 s.h.
22C:183 Survey of Computing 3 s.h.
22C:210/215 Fundamentals of Computer Science 3 s.h.
22C:231/232 Computer Concepts/Computing Applications 3 s.h.
22C:315/316 Introduction to Computing 3 s.h.
22C:317/318 Design and Analysis of Algorithms I 3 s.h.
22C:319/320 Advanced Computer Organization and Architecture 3 s.h.
22C:331/332 Programming Language Foundations 3 s.h.
22C:333/334 Introduction to Computation Theory 3 s.h.
22C:335/336 Design and Analysis of Algorithms II 3 s.h.

Students must complete at least 18 semester hours of 200-level computer science coursework to add to 22C:200 Research for the 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 three areas: abstract algebra, analysis, logic and set theory, operations research, statistics, and probability, and numerical analysis.

At least one course in the outside area must be at the 200 (advanced) level, except in statistics and probability, where the advanced course may be at the 100 level.

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### Program 8 Requirements

**Bachelor of Science**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>2221-64</td>
<td>Introduction to Discrete Probability Models</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>223-167</td>
<td>Introduction to Stochastic Processes</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

### Program 8 Requirements

Program 8 requirements for the B.S. are the same as those for the B.A. program A, except that two additional courses in mathematics numbered 2221-107 or higher are required. The statistics and computer science courses listed in the Catalog. A requirements for the B.S. also may be used to fulfill this requirement.

**General Education Requirements**

Students must satisfy the College of Liberal Arts General Education Requirements and are encouraged to select CEB courses that use mathematics.

**Other Requirements**

Additional degree requirements concerning minor credits, grade-point average, and so forth, are discussed in the College of Liberal Arts section of the Catalog.

**Honors**

Any undergraduate student with a cumulative grade-point average of 3.20 or higher may join the University Honors Program. Interested students should contact the honors office in the Northrup House Honors Center. In order to graduate with honors in mathematics, a student must be registered in the College of Liberal Arts Honors Program, must complete the regular requirements for the major, and a math course or a combination of 10-15 hours in mathematics at a grade-point average of at least 3.40, and must complete an honors thesis or project under the direction of an honors committee. An honors thesis registration for 2221-197 for at least 3 semester hours. For more information, contact the mathematics department honors advisor.
Minor
The minor in mathematics requires:
A minimum of 15 semester hours credit
earned in Department of Mathematics.
Courses, at least 12 of these 15 semester
hours must be taken at the University of
Iowa in advanced courses, neither transfer
credit nor credit by examination is accepted
outside the 12 semester hours of advanced
work. Advanced courses are 22M:27, 22M:28,
and all courses numbered 22M:50 or
higher except 22M:81, 22M:104, and
22M:195;
A grade-point average of at least 2.00 in all
work attempted in the Department of
Mathematics.
No course counted toward the minor may be
taken pass/no credit.

Graduate Programs
Master of Science
Students earn the M.S. through courses and
comprehensive examinations. There is no M.S.
thesis.
There are four programs leading to an M.S.
in mathematics. The courses (and comprehensive
examinations area) may be modified with the
consent of the department.

Program I
This program prepares students for further study of pure and applied mathematics and for
employment in government and industry.
Students must take a two-semester sequence in
algebra (either 22M:115-116 or 22M:210-211); a
course in topology (22M:132); and a
two-semester-sequence in abstract algebra
(22M:120-121) or Analysis (22M:205-206). The
student must take two comprehensive
examinations, one on the analysis and
topology sequence and the other on the
algebra sequence.
The program requires a minimum of 30
semester hours of graduate credit, including
at least 24 semester hours in the Division of
Mathematical Sciences. Students who have
courses or credit equivalent to the required
courses may request substitute electives.

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 22M:100 or
higher may be used to satisfy the
24-hour-hour requirement. Students are
encouraged to consult with mathematics
educators faculty when planning their courses
of study.

Program III
This program focuses on applied mathematics. It
requires several courses and two comprehensive
examinations, one on differential equations
(22M:144, 22M:143) and one on
analytical-numerical optimization (22M:109, 22M:171,
22M:174). The required courses are:
22M:144 Introduction to Partial Differential
Equations I
22M:142 Intermediate Differential Equations
22M:140 Continuum Mathematical Models
22M:151 Discrete Mathematical Models
22M:174 Numerical Techniques
22M:170 Numerical Analysis: Nonlinear
Equations and Approximation Theory
22M:171 Numerical Analysis: Differential
Equations and Linear Algebra
Two additional courses from the following:
22M:118 Complex Variables
22M:127 Marble Theory
22M:140 Continuum Mathematical Models
22M:151 Discrete Mathematical Models
22M:132 Theory of Graphs
22M:115 Advanced Operating Systems
22M:153 Design and Analysis of Algorithms I
22M:152 Introduction to Probability
22M:154 Introduction to Mathematical Statistics
22M:167 Introduction to Stochastic Processes
The program requires a minimum of 30
semester hours of graduate credit, including
at least 24 semester hours in the Division of
Mathematical Sciences. Students who have
courses or credit equivalent to the required
courses may request substitute electives.

Program IV
This program is designed for nondepartmental
students working toward Ph.D. degrees in areas
that require mathematical knowledge. The
program has no required courses. Course
distribution requirements are the same as those
for program I.
Students in program IV are considered to have
passed the comprehensive examination for the
major's in mathematics if they have maintained
a minimum grade-point average of 3.00 in all
mathematics courses taken for the major's in
mathematics and have successfully 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 major's in mathematics. A
suitable program of study should be approved
by a mathematics advisor before the student
takes the Ph.D. comprehensive examination,
and a member of the mathematics faculty should
serve on the Ph.D. comprehensive examination
committee.

Admission
Admission to an M.S. program (II) is based on
a combination of undergraduate course work
and grades, letters of recommendation, and GRE
General Test scores (also TOEFL scores for
foreign students). The following guidelines are
current although exceptions may be made.
Numerical standards are reset every year or
more.
Students must have completed work in an
undergraduate mathematics program equivalent
to the bachelor's degree offered by the
mathematics department. Students whose
preparation does not meet this requirement may
be admitted conditionally and are asked to take
specific courses that cover the deficiency.
Students must have an undergraduate
grade-point average of at least 2.60. Subtest
and difficulty of course are considered when
evaluating grades, grades of C or lower in
mathematics course must be taken by A
grade.
Students must submit three letters of
recommendations to support their application.
Students must score at least 530 on the
quantitative section of the GRE General Test.
Applicants are encouraged to submit scores
for the mathematics exam as well.
In particular, collegiate financial support
whose credentials may show weak
areas.
Foreign students are required to demonstrate
dKaren's competence in English. Normally this is
done by scoring at least 550 on the TOEFL.
Doctor of Philosophy
The Ph.D. program places strong emphasis on
preparation for research and teaching. The
department maintains no division between
"pure" and "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 examinations), foreign language, and
financial support. At least 24 semester hours of
graduate credit is required and at least three years of
graduate residence, including at least one year at
The University of Iowa. While there are no
individual required courses, several are
designated as preparatory for the Ph.D.
comprehensive examination (see below).
Students should give their highest priority.
To further encourage mathematical breadth, students
must complete 18 semester hours of graduate credit in
course equivalent or more advanced than the Ph.D.
comprehensive examination preparatory courses.
The department maintains a list of 200 and
300 level courses that are accepted as well as
rules to ensure proper distribution.
The Ph.D. comprehensive examination consists of three parts, each a three-hour written exam, 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 and topology; and either one more of the preceding or partial differential equations. For each comprehensive area, there is a two semester, 200-level course sequence designated as preparation, although exams may differ from course content. One grade (pass, fail, conditional pass) is given in the three part-examination by a committee that usually consists of six faculty members.

Candidates also take an oral final examination on their dissertation material.

Candidates are required to demonstrate reading proficiency in French, German, or Russian by passing a reading test administered by the appropriate language department, or passing a special examination approved by the mathematics department graduate committee. The demonstration of language competence must take place after the student has enrolled in graduate school.

The most distinctive aspect of a Ph.D. is the thesis. The department expects you to be an original mathematical worker capable of discovering and writing material that is found in standard published research journals. The thesis is written under the supervision of a committee chosen by the student and approved by the student’s faculty, presumably the student’s adviser.

Admission

Admission to the Ph.D. program is based on a conference, a resume, and a written statement, letters of recommendation, and results of the Graduate Record Examination scores (also TOEFL scores for foreign students). Students are selected on the basis of their scores, and no formal admission for the master’s program is in this section. The department is generally open to Ph.D. students and scores for doctoral admissions: undergraduate or graduate grade point average of at least 3.0, GRE General Test quantitative score of at least 700, TOEFL score of at least 575. Others new graduate students are admitted as master’s even if they intend to go on for a Ph.D.

Courses

Undergraduate: Lower Division

These courses are not open to graduate students except by special arrangement with the department chair.

2201: Calculus of One- and Two-Dimensional Vectors 4 s.h.
2411: Basic Algebra I 3 s.h.
2412: Basic Algebra II 3 s.h.
2413: Basic Algebra III 3 s.h.
2414: Basic Algebra IV 3 s.h.
2415: Basic Algebra V 3 s.h.
2416: Basic Algebra VI 3 s.h.
2417: Basic Algebra VII 3 s.h.
2418: Basic Algebra VIII 3 s.h.
2419: Basic Algebra IX 3 s.h.
2420: Computer Lab for Calculus I 1 s.h.
2421: Computer Lab for Calculus II 1 s.h.
2422: Computer Lab for Linear Algebra 1 s.h.
2423: Topology I 3 s.h.
2424: Topology II 3 s.h.
2425: Topology III 3 s.h.
2426: Topology IV 3 s.h.
2427: Topology V 3 s.h.
2428: Topology VI 3 s.h.
2429: Topology VII 3 s.h.
2430: Topology VIII 3 s.h.
2431: Topology IX 3 s.h.
2432: Topology X 3 s.h.
2433: Topology XI 3 s.h.
2434: Topology XII 3 s.h.
2435: Topology XIII 3 s.h.
2436: Topology XIV 3 s.h.
2437: Topology XV 3 s.h.
2438: Topology XVI 3 s.h.
2439: Topology XVII 3 s.h.
2440: Topology XVIII 3 s.h.
2441: Topology XIX 3 s.h.
2442: Topology XX 3 s.h.
2443: Topology XXI 3 s.h.
2444: Topology XXII 3 s.h.
2445: Topology XXIII 3 s.h.
2446: Topology XXIV 3 s.h.
2447: Topology XXV 3 s.h.
2448: Topology XXVI 3 s.h.
2449: Topology XXVII 3 s.h.
2450: Topology XXVIII 3 s.h.
2451: Topology XXIX 3 s.h.
2452: Topology XXX 3 s.h.
2453: Topology XXXI 3 s.h.
2454: Topology XXXII 3 s.h.
2455: Topology XXXIII 3 s.h.
2456: Topology XXXIV 3 s.h.
2457: Topology XXXV 3 s.h.
2458: Topology XXXVI 3 s.h.
2459: Topology XXXVII 3 s.h.
2460: Topology XXXVIII 3 s.h.
2461: Topology XXXIX 3 s.h.
2462: Topology XL 3 s.h.
2463: Topology XLI 3 s.h.
2464: Topology XLII 3 s.h.
2465: Topology XLIII 3 s.h.
2466: Topology XLIV 3 s.h.
2467: Topology XLV 3 s.h.
2468: Topology XLVI 3 s.h.
2469: Topology XLVII 3 s.h.
2470: Topology XLVIII 3 s.h.
2471: Topology XLIX 3 s.h.
2472: Topology L 3 s.h.
2473: Topology LI 3 s.h.
2474: Topology LII 3 s.h.
2475: Topology LIII 3 s.h.
2476: Topology LIV 3 s.h.
2477: Topology LV 3 s.h.
2478: Topology LX 3 s.h.
2479: Topology LXX 3 s.h.
2480: Topology LXXX 3 s.h.
2481: Topology CX 3 s.h.
2482: Topology CXX 3 s.h.
2483: Topology CXXX 3 s.h.
2484: Topology CXXXI 3 s.h.
2485: Topology CXXXII 3 s.h.
2486: Topology CXXXIII 3 s.h.
2487: Topology CXXXIV 3 s.h.
2488: Topology CXXXV 3 s.h.
2489: Topology CXXXVI 3 s.h.
2490: Topology CXXXVII 3 s.h.
2491: Topology CXXXVIII 3 s.h.
2492: Topology CXXXIX 3 s.h.
2493: Topology CXL 3 s.h.
2494: Topology CXLI 3 s.h.
2495: Topology CXII 3 s.h.
2496: Topology CXIII 3 s.h.
2497: Topology CXIV 3 s.h.
2498: Topology CXV 3 s.h.
2499: Topology CXVI 3 s.h.
2500: Topology CXVII 3 s.h.
2501: Topology CXVIII 3 s.h.
2502: Topology CXIX 3 s.h.
2503: Topology CXI 3 s.h.
2504: Topology CXII 3 s.h.
2505: Topology CXIII 3 s.h.
2506: Topology CXIV 3 s.h.
2507: Topology CXV 3 s.h.
2508: Topology CXVI 3 s.h.
2509: Topology CXVII 3 s.h.
2510: Topology CXVIII 3 s.h.
2511: Topology CXIX 3 s.h.
2512: Topology CXI 3 s.h.
2513: Topology CXII 3 s.h.
2514: Topology CXIII 3 s.h.
2515: Topology CXIV 3 s.h.
2516: Topology CXV 3 s.h.
2517: Topology CXVI 3 s.h.
2518: Topology CXVII 3 s.h.
2519: Topology CXVIII 3 s.h.
2520: Topology CXIX 3 s.h.
2521: Topology CXI 3 s.h.
2522: Topology CXII 3 s.h.
2523: Topology CXIII 3 s.h.
2524: Topology CXIV 3 s.h.
2525: Topology CXV 3 s.h.
2526: Topology CXVI 3 s.h.
2527: Topology CXVII 3 s.h.
2528: Topology CXVIII 3 s.h.
2529: Topology CXIX 3 s.h.
2530: Topology CXI 3 s.h.
2531: Topology CXII 3 s.h.
2532: Topology CXIII 3 s.h.
2533: Topology CXIV 3 s.h.
2534: Topology CXV 3 s.h.
2535: Topology CXVI 3 s.h.
2536: Topology CXVII 3 s.h.
2537: Topology CXVIII 3 s.h.
2538: Topology CXIX 3 s.h.
2539: Topology CXI 3 s.h.
2540: Topology CXII 3 s.h.
2541: Topology CXIII 3 s.h.
2542: Topology CXIV 3 s.h.
2543: Topology CXV 3 s.h.
Suggested additional courses:
225:179 Casualty Actuarial Topics 3 s.h.
225:199 Life Actuarial Topics 3 s.h.

The required and elective courses should be taken in the following order. In order to complete the program in four years, 225:153 Introduction to Probability must be completed prior to the spring semester of the junior year.

PREREQUISITE YEAR

Fall Semester
225:25 Calculus I 4 s.h.
or
225:35 Engineering Calculus I 4 s.h.
225:45 Accelerated Calculus I 4 s.h.
101:410b Riemann I 4 s.h.

Spring Semester
225:26 Calculus II 4 s.h.
or
225:36 Engineering Calculus II 4 s.h.
or
225:46 Accelerated Calculus II 4 s.h.
or
101:480c Riemann II 4 s.h.

SOPHOMORE YEAR

Fall Semester
225:27 Introduction to Linear Algebra 4 s.h.
61:2 Principles of Microeconomics 4 s.h.
225:27 Introduction to Computing with FORTRAN 1 s.h.
or
225:16 Introduction to Programming with Pascal 4 s.h.

Spring Semester
225:28 Calculus III 4 s.h.
or
61:2 Principles of Macroeconomics 4 s.h.
225:120 Probability and Statistics 4 s.h.

JUNIOR YEAR

Fall Semester
225:153 Introduction to Probability 3 s.h.
225:177 Numerical Analysis for Actuaries 3 s.h.
225:180 Mathematics of Finance 3 s.h.
Business requirement

Spring Semester
225:150 Methods of Statistical Inference 3 s.h.
225:154 Introduction to Mathematical Statistics 3 s.h.
225:181 Life Contingencies I 3 s.h.
Business requirement

SENIOR YEAR

Fall Semester
225:175 Risk Theory and/or 3 s.h.
225:182 Life Contingencies II 3 s.h.
Business requirement

Spring Semester
225:176 Casualty Actuarial Mathematics and/or 3 s.h.
225:183 Life Contingencies III 3 s.h.

Bachelor of Science in Statistics

Applied Statistics
This program is designed to prepare students for careers in applied statistics or for graduate study in statistics or other disciplines that incorporate statistical tools. The required courses in the program are:
225:27 Introduction to Computing with FORTRAN 3 s.h.
or
225:14 Introduction to Programming with Pascal 4 s.h.
or
225:25-26 Calculus III 3 s.h.
or
225:26-36 Engineering Calculus III 3 s.h.
or
225:46-45 Accelerated Calculus III 3 s.h.
or
101:410c Riemann III 4 s.h.

At least two of the following:
61:1-15 Introduction to the Design of Sample Survey 3 s.h.
225:150 Applied Time Series Analysis 3 s.h.
225:161 Applications of Multivariate Statistical Techniques 4 s.h.
225:160 Nonparametric Statistical Methods 3 s.h.
or
225:167 Introduction to Stochastic Processes 3 s.h.
or
225:160 Analysis and Design of Experiments I 3 s.h.

Students in this program are expected to take at least two non-actuarial courses in an area in which statistics is applied, such as geography, business, or science. Students are also 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:
225:25-26 Calculus II 3 s.h.
or
225:35-36 Engineering Calculus II 3 s.h.
or
225:46-45 Accelerated Calculus II 3 s.h.
or
225:115 Introduction to Linear Algebra 4 s.h.
or
225:132 Beginner's Analysis 4 s.h.
or
225:150 Fundamental Properties of Sums and Functions 3 s.h.
or
225:115 Introduction to Analysis I 3 s.h.
or
225:153 Introduction to Probability 3 s.h.
or
225:154 Introduction to Mathematical Statistics 3 s.h.

At least three of the following:
225:122 Regression Analysis 3 s.h.
or
225:150 Applied Time Series Analysis 3 s.h.
or
225:155 Analysis and Design of Experiments I 3 s.h.
or
225:165 Introduction to Discrete Probability Models 3 s.h.
or
225:128 Introduction to Stochastic Processes 3 s.h.

Students are encouraged to take at least one course in economics or psychology, and additional courses in mathematics.

Honors
Qualifying 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 3.33 in all departmental courses numbered 120 and higher, complete one 200-level course with a grade of at least B or complete an honors project.

More specific information about these requirements is available from the department.

Minor
Students can earn a minor in statistics by taking 15 semester hours in statistics courses, 12 of which must be in courses taken at the University of Iowa numbered 225:120 and above. Students can earn a minor in actuarial science by completing 15 semester hours in Actuarial Science courses, 12 of which must be in courses numbered 225:120 and above. Students can earn a minor in statistics or actuarial science by completing 15 semester hours in Actuarial Science courses, 12 of which must be in courses numbered 225:120 and above. Students can earn a minor in statistics or actuarial science by completing 15 semester hours in Actuarial Science courses, 12 of which must be in courses numbered 225:120 and above. Students can earn a minor in statistics or actuarial science by completing 15 semester hours in Actuarial Science courses, 12 of which must be in courses numbered 225:120 and above. Students can earn a minor in statistics or actuarial science by completing 15 semester hours in Actuarial Science courses, 12 of which must be in courses numbered 225:120 and above. Students can earn a minor in statistics or actuarial science by completing 15 semester hours in Actuarial Science courses, 12 of which must be in courses numbered 225:120 and above.

Graduate Programs

Master of Science
Each M.S. candidate has a committee of four members, which is responsible for recommending action on the candidate's degree. For nonthesis programs, the committee's recommendation usually is based on two written examinations on topics covered in the required courses. For thesis programs, the committee's final recommendation usually is based on an oral defense of the thesis, although it may be based on a single written examination or an oral defense exam in the candidate's program of study.

With the approval of certain two-course sequences approved by the department, graduate students may not include on their plan of study any course that they also took as an undergraduate student at The University of Iowa. 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 225:153-154, 225:175-176, and
225:182-183.

The department requires a grade-point average of at least 2.75 for courses that appear on the
plan of study. This includes all courses used to meet degree requirements plus additional courses
that are relevant to the student's program. Students who choose to earn the M.S. with thesis may earn up to 9 semester hours of
credit for their preparation. Specific course
requirements for the M.S. programs are as follows:

Actuarial Science
Eleven graduate courses are required; they must include:
- 225:153 Introduction to Probability 3 s.h.
- 225:154 Introduction to Mathematical Statistics 3 s.h.
- 225:156 Methods of Statistical Inference 3 s.h.
- 225:175 Stochastic Processes 3 s.h.
- 225:177 Numerical Analysis for Actuaries 3 s.h.
- 225:180 Mathematics of Finance 3 s.h.
- 225:181 Life Contingencies I 3 s.h.
- 225:182 Life Contingencies II 3 s.h.
- 225:190 Casualty Actuarial Mathematics 3 s.h.
or
- 225:191 Loss Contingencies I 3 s.h.

- 225:192 Casualty Actuarial Topics 3 s.h.
or
- 225:193 Life Actuarial Topics 3 s.h.

The above course may be any course in
statistics, mathematics, science, or science
time management, to the extent that
- in certain cases, with consent of advisor, a
different course may be substituted for 225:179 or 189.

Theoretical Statistics and Probability
- 225:153 Introduction to Analysis I 3 s.h.
- 225:154 Introduction to Probability 3 s.h.
- 225:154 Introduction to Mathematical Statistics 3 s.h.
- 225:170 Introduction to Stochastic Processes 3 s.h.
- 225:201 Theory of Statistical Inference I 3 s.h.

At least two of these:
- 225:156 Introduction to Decision Models 3 s.h.
- 225:175 Topics in Statistics 3 s.h.
- 225:202 Theory of Statistics II 3 s.h.
- 225:290 Introduction to the Theory of Nonparametric Statistics 3 s.h.
- 225:295 Actuarial Science I: 5 s.h.
- 225:296 Multivariate Analysis 4 s.h.
- 225:296 Theory of Probability IV 5 s.h.

Applied Statistics
- 225:153 Regression Analysis 3 s.h.
- 225:153 Introduction to Probability 3 s.h.

- 225:154 Introduction to Mathematical Statistics 3 s.h.
- 225:155 Analytic and Design of Experiments 3 s.h.
- 225:173 Data Analysis 3 s.h.

At least two of the following:
- 225:156 Applied Time Series Analysis 3 s.h.
- 225:161 Applied Multivariate Statistical Techniques 4 s.h.
- 225:168 Analytic and Design of Experiments II 3 s.h.

The remainder of the program consists of at least two additional courses numbered 225:153 or above, and other courses approved by the student's advisor.

Experience in a computer language such as
FORTRAN is required. If students satisfy the
requirement by taking a course, that course may
not be counted toward the M.S. semester-hour
requirement.

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 advisors in developing a program of
study tailored to their specific interests. If
the student's interest in a particular application
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).

Wright Thesis
- 225:153 Introduction to Probability 3 s.h.
- 225:154 Introduction to Mathematical Statistics 3 s.h.

At least two of these:
- 225:153 Regression Analysis 3 s.h.
- 225:155 Analytic and Design of Experiments I 3 s.h.
- 225:161 Applied Multivariate Statistical Techniques 4 s.h.
- 225:168 Analytic and Design of Experiments II 3 s.h.

The remainder of the program consists of at least two additional courses numbered 225:153 or above, and other courses approved by the
advisor. With the advisor's approval, courses on
other fields related in the thesis may be
substituted.

Theoretical research in a computer language such as
FORTRAN is required. If students satisfy the
requirement by taking a course, that course may
not be counted toward the M.S. semester-hour
requirement.

Theoretical thesis is a statistical presentation of the
results of a meaningful research project in
another field, or a study of the characteristics of
a new statistical method. It generally requires 3
semester hours of 225:199 individual study for
two semesters.

Quality Management and Productivity
This innovative M.S. program is sponsored by
the Departments of Statistics and Actuarial Science in the College of Liberal Arts, Industrial
and Management Engineering in the College of
Engineering, and Management Sciences in the College of Business Administration. The M.S.
program requires 30 semester hours, including at least 27 semester hours in the core which
consists of the following core courses or
reasonable substitutes:

- 225:120 Probability and Statistics 4 s.h.
- 225:153-154 Introduction to Probability-Introduction to Mathematical Statistics 3 s.h.
- 69:275 Operations Research M.S. 3 s.h.
- 56:160 Quality Control and Engineering 3 s.h.
- 225:152 Regression Analysis 3 s.h.
- 56:160 Reliability Theory and Practice 3 s.h.
- 69:276 Production Management 3 s.h.
- 225:181 Analysis and Design of Experiments I 3 s.h.
- 61:203 Organizational Design, Change, and Transformation 3 s.h.
or
- 56:253 Engineering Administration II 3 s.h.

Students also must take at least 2 semester
hours of seminar in seminar and presentation. Students are required to have a grade-point average of at
least 3.00 for courses that appear on the plan of
study. Outstanding students may write M.S.
theses.

Doctor of Philosophy
To satisfy the course requirements for a Ph.D.
in statistics, students must successfully
complete:
- 225:155 Analytic and Design of Experiments I 3 s.h.
- 225:156 Introduction to Stochastic Processes 3 s.h.
- 225:157 Data Analysis 3 s.h.
- 225:291 Advanced Inference I 3 s.h.
- 225:295 Linear Models 4 s.h.
- 225:296 Theory of Probability II 3 s.h.

At least 2 semester hours of any combination
of the following:
- 225:201 Seminar: Mathematical Statistics 3 s.h.
- 225:295 Seminar: Probability 3 s.h.

At least one of the following:
- 225:156 Applied Multivariate Statistical Techniques 3 s.h.
- 225:160 Analysis and Design of Experiments II 3 s.h.

At least one of the following:
- 225:290 courses of Categorical Data 3 s.h.
- 225:293 Introduction to the Theory of Nonparametric Statistics 3 s.h.

And at least one of the following:
- 225:294 Advanced Inference II 3 s.h.
- 225:296 Multivariate Analysis 4 s.h.
22C-7 Introduction to Computing with FORTRAN 3 s.h.
22C-16 Introduction to Programming with Pascal 4 s.h.
22C-17 Programming Techniques and Data Structures 3 s.h.

Honors
The honors program is open to juniors and seniors who have a grade-point average of at least 3.30 overall and 3.60 in microbiology courses. The program requires 25 semester hours of course work in microbiology, including 6 semester hours in 0117-112 Honors Microbiology. These two courses constitute an introduction to experimental research. At the end of the research, students present a written report. Students who successfully complete these requirements receive the B.S. degree with honors.

Minor
An undergraduate minor in microbiology requires at least 15 semester hours of credit in microbiology courses with a minimum grade-point average of 2.00. Of these 15 semester hours, at least 12 must be taken at The University of Iowa in courses numbered 0117 and above.

Graduate Programs, Faculty, Courses
See "Microbiology" in the College of Medicine section of the Catalog

MILITARY SCIENCE (ARMY ROTC)

Instructor: Lt. Col. Paul J. Robert
Professor: Capt. Robert Kelemen, Colonel
Adjunct Professor: Gregory Rusnak (Catholic), Capt.
Thomas (Cornell)

Instructor: Admiral David E. Maberry, N.G.S.

The Military Science Department is a nondegree-granting academic department that administrates the Reserve Officer Training Corps (ROTC). The department prepares students with education in the role of the military and instruction in personal leadership, while providing those students who choose to serve in the armed forces, as an active or reserve status, an opportunity to earn a commission as an Army officer.

Course are open to all students. The course credits that may be applied toward graduation vary. In the College of Liberal Arts, up to 20 semester hours may be applied toward graduation.

Undergraduate Program

ROTC COURSE

The ROTC basic course is designed primarily for freshmen and sophomores. It provides the fundamentals of leadership and management and introduces the role of the military as affected by national and foreign policy. Students incur no obligation to the military for participation in the basic course. The following courses satisfy the basic course requirements:

23-91 The Profession of Arms 3 s.h.
23-92 The Military in a Modern Society 2 s.h.
22-93 Military Seminar Skills 2 s.h.
22-94 Principles of Modern Warfare 2 s.h.

The basic course requirements may be taken over a one-year period or during a six-week paid camp during the summer. Students with prior military training may be exempt from the basic course requirements.

ADVANCED COURSE

The ROTC advanced course, though open to any student who meets the prerequisites, is designed primarily for students who wish to pursue a commission as a Second Lieutenant in the U.S. Army upon graduation. It is open to both undergraduate and graduate students. Most students in the advanced course meet an obligation with the military that can be satisfied in the regular Army or the Army Reserve.

A grant of $1,000 per month is provided to students who agree to serve in the armed 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 junior, and have a grade-point average of at least 3.5 at the end of the six-week paid camp. ROTC may also offer their summer the senior year, it is required for all students wishing to become Army officers. The following courses are the academic requirements for completion of the advanced course.

23-95 Advanced Military Fitness Training (Campus): 23-117 1 s.h.
22-116 Challenges of Leadership 3 s.h.
22-117 Unit Tactics 3 s.h.
22-118 Military Management 3 s.h.
23-96 Service Operation 1 s.h.

ADDITIONAL COURSE WORK

Students desiring a commission must complete one course from each of the following categories. These courses may be the same as those used to satisfy the College of Liberal Arts General Education Requirements.

Written Communications
10-28 Poets and Their World 4 s.h.
10-3 Advanced Rhetoric (or equivalent) 4 s.h.

Human Behavior
24-41 Introduction to Psychology 3 s.h.
25-492 Introduction to Ethics 3 s.h.
30-2 Introduction to American Politics 3 s.h.
31-11 Personality 3 s.h.
32-2 Intelligence and Society 3 s.h.
34-1 Introduction to Sociology: Principles 3 s.h.
45-1 American Values 3 s.h.
11-13 Introduction to the Study of Culture and Society 4 s.h.

113-10 Anthropology and Contemporary World Problems 3 s.h.

Mathematics
75-256 Elementary Statistics and 3 s.h.
22-1 Basic Algebra (1 no degree credit) 3 s.h.
22-1 Basic Algebra II (no degree credit) 4 s.h.
22-1 Basic Geometry (no degree credit) 3 s.h.
22-10 Finite Mathematics 4 s.h.
22-11 Introduction to Calculus with 4 s.h.
22-17 Quantitative Methods I 4 s.h.
22-13 Calculus I 4 s.h.
22-2 Statistics and Society 3 s.h.
22-8 Quantitative Methods II 4 s.h.
22-36 Principles of Reasoning 3 s.h.
36-40 Theory and Practice of Argument 4 s.h.
103-15 Language and Formal Reasoning 3 s.h.

Military History
16-11 Issues in Human History: 3 s.h.
Vietnam War in Historical 3 s.h.
Perspective 3 s.h.
16-15 Issues in Human History: 3 s.h.
World War II in Human History: The 3 s.h.
Gulf War 3 s.h.
18-11 World War I 3 s.h.
18-14 World War II 3 s.h.
18-15 The Vietnam War in Historical 3 s.h.
Perspective 3 s.h.
18-16 World War II, 1939-1945 3 s.h.
18-17 The Progressive Era in America 3 s.h.
18-18 The Contemporary United States 3 s.h.
1940-1950 3 s.h.

Computer Literacy
76-94 Computer Applications 3 s.h.
7W-92 Introduction to 3 s.h.
Microcomputing for Teachers
22-5 Problem Solving and 3 s.h.
Programming
22-6 Introduction to Computing with 3 s.h.
FORTRAN
22-9 Programming with OOBOL 3 s.h.
22-16 Introduction to Programming 3 s.h.
with Pascal
57-3 Engineering I 4 s.h.
56-90 Professional Writing: An 3 s.h.
Overview

Financial Aid
The Military Science Department offers two-, three-, and four-year merit scholarship for students who wish to enter the ROTC program. These scholarships provide payment of tuition at The University of Iowa, $450 for books and supplies each year. at military base. and a tax-free allowance allowance of $100 per month during the academic year. Additional scholarships are available for noncommissioning students who wish to become Army nurses.

Military Science (Army ROTC) • Liberal Arts 177
Courses

23/19 Leukemia Laboratories, 2:00 p.m. Art. 3:00 p.m. S. C. Schoen. Role of laboratory in leadership; focus on "hitting the cancer" dilemma in patients as it affects the laboratory.

23/20 The National Cancer Institute, 2:00 p.m. Sh. A. R. 3:00 p.m. F. M. Schaefer. Discussion of the Institute, its organization and activities. Office of the Director.

23/21 The Institute at a Glance, 2:00 p.m. Dr. W. H. 3:00 p.m. F. M. Schaefer. General features of the Institution.

23/22 The Methods in Medical Research, 2:00 p.m. Dr. W. H. 3:00 p.m. F. M. Schaefer. The methods and role in guiding clinical and basic research. Office of the Director.

23/23 The Methods in the Medical Library, 2:00 p.m. Dr. W. H. 3:00 p.m. Library Staff. How to use the Library.

23/24 General Medical Science, 2:00 p.m. J. B. 3:00 p.m. J. B. General review of the basic sciences.

MUSEUM STUDIES

Chair and director: George S. Scott
Assistant professor: George S. Scott

The University Hospitals and Museums of the University of Nebraska at Lincoln are committed to the study of medical history, the history of science, and the history of medicine. The museums are located in the James B. Templeton Memorial Building.

24/01 Cooperative Education Internship, 9:00 a.m.

24/02 Internship in Medical History, 9:00 a.m.

24/03 Internship in the History of Science, 9:00 a.m.

24/04 Principles of Exhibit Design, 9:00 a.m.

24/05 Museum Techniques, 9:00 a.m.

24/06 Museum Management, 9:00 a.m.

24/07 Museum Administration and Management, 9:00 a.m.

24/08 Museum Administration and Management, 9:00 a.m.

24/09 Museum Administration and Management, 9:00 a.m.

24/10 Museum Administration and Management, 9:00 a.m.

24/11 Museum Administration and Management, 9:00 a.m.

24/12 Museum Administration and Management, 9:00 a.m.

MUSEUM FACILITIES

The museum studies program is currently located on The University of Iowa campus and is open to students interested in pursuing careers in museums. The Museum of Natural History is located in the old Main Building, 2400 W. Market St. in Iowa City. The museum features over 1,000 exhibits, including a large collection of fossilized plants and animals. The museum is open to the public on weekdays from 9:00 a.m. to 5:00 p.m. and on weekends from 10:00 a.m. to 4:00 p.m. For more information, please call (319) 335-2211 or visit the museum's website at http://www.mnh.ui.edu.
Bachelor of Music

Course Requirements

All baccalaureate candidates in music must satisfy the College of Liberal Arts General Education Requirements, except that B.M. candidates are exempt from the historical perspectives requirement. The following School of Music course requirements also must be met:

25:1:4 Music Elective and Theory I 16 s.h.
25:75 Group Instruction in Piano III or the successful completion of proficiency exams I and II 2 s.h. (Registration to Group Instruction in Piano III is contingent upon a 25:1:2 Music Elective and Theory I and II, unless exempted by proficiency exams, which students must take while enrolled in 25:1:2. Students who complete the requirement in their first year of residence, unless exempted by proficiency exams.)
25:74 Recital Attendance 3 s.h.
(Seven recitals required for all candidates for the B.M. degree, but four recitals for music therapy students)
25:107 Techniques of Conducting 3 s.h.
25:142 History of Music I 3 s.h.
25:145 History of Music II 3 s.h.
25:154 Senior Recital (To complete the senior recital, students must have achieved upper-level applied status or be enrolled in upper-level applied music courses, and must have the approval of the music department, the Catalog: Music department. Students may complete either a senior recital or a senior research paper.)
At least four semester hours of electives from the following. The combination of courses 25:145 (or 25:147) and 25:147 (or 25:149) does not fulfill this requirement.
25:117 Arranging for Band 3 s.h.
25:135 Composition I 3 s.h.
25:145 Counterpoint below 100 3 s.h.
25:147 Counterpoint above 100 3 s.h.
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.
25:151 Analysis of Music Literature 3 s.h.
25:152 Analysis of Music Literature Special Topics 3 s.h.
25:153 Keyboard Harmony 3 s.h.
25:157 Orchestration 3 s.h.
25:183 Chamber Music 3 s.h.
25:101 Jazz Improvisation I 3 s.h.
25:102 Jazz Improvisation II 3 s.h.
25:240 Jazz Improvisation III 3 s.h.
25:244 Jazz Improvisation IV 3 s.h.

Applied Music

Four years of applied music are required. Instruction is separated into two levels, lower and upper. Students must achieve upper-level status before they can give the senior recital. Determination of readiness for upper-level applied music is based on the student's area of instruction. Students are allowed a maximum of 6 semesters (not including summer) in the lower-level applied instruction. Those who want to continue beyond the maximum allowable lower-level registration must do so under the nonmajor category.

Inclusive Participation

Students may remain in a major as a minor and graduate in a major ensemble each semester of residence. During the summer semester, students must be available for ensemble participation as needed. Ensemble assignments are made at the discretion of the major teacher and ensemble director. String, majors participate in University Orchestra and/or Chamber Orchestra. Keyboard majors may participate in major ensembles for two semesters during their junior- and/or senior years, with consent of their advisor. Composition and musicology majors may, with their advisor's permission, substitute other ensembles.

Any request for adjustment of this requirement should be submitted in writing to the review committee consisting of the ensemble directors. The advisor, the major teacher, and the student are informed of the committee's decision.

Music • Liberal Arts
Music Therapy

Admission to the program in music therapy is based on successful completion (grade of C or better) of at least 31.144 Introduction to Music Therapy. In addition to the core courses in music therapy listed below, specific courses are required in biological sciences, sociology, abnormal psychology, social psychology, and music.

A six-month internship in an approved off-campus clinical facility is required before the completion of the internship, students may apply for admission to the National Association for Music Therapy and are qualified to sit for the board certification examination. To increase their job opportunities in the education sector, students are encouraged to complete music teacher certification requirements.

Course requirements for the major in music therapy are as follows:

- 25:74-76 Bachelor Attendance (4 semesters required) 4 s.h.
- 25:04 Music Therapy Practicum (two seminars, 1st and 2nd semester hours, respectively) 3 s.h.
- 25:06 Music Techniques in Special Education and Recreation 3 s.h.
- 25:114 Orientation to Music Therapy 2 s.h.
- 25:138 Music Therapy Techniques: Artistic Children 3 s.h.
- 25:150 Music Therapy Techniques: Adult Clients 3 s.h.
- 25:140 Internship in Music Therapy 2 s.h.
- 75:144 Psychology of Music 2 s.h.
- 75:149 Behavioral Research in Music 2 s.h.
- 25:04 Music Therapy Practicum (two seminars, one practicum) 5 s.h.
- or 25:154 Senior Recital 1 s.h.

Music therapy students who elect the senior recital option must take four years of applied music and attain upper-division status; they also must take 8 semester hours of culminating experience. Those who elect the senior research projects option must take three years of applied music and attain upper-division status.

Composition Major

Approved for third-semester students of creative work for evaluation by the composition faculty. Upon admission to the program, students are assigned a faculty advisor. Accomplished students may gain admission as entering freshmen. In such cases the approval of submitted work waives the necessity of a performance audition. If the composition faculty achieves a successful agreement on further study, the entering freshman to transfer student must audition to be admitted to the school.

Students enrolled in the general requirements of the Bachelor of Music degree as raised in the Catalog. Beyond these requirements, composition majors must complete additional course work in composition, music theory, and electives. An appropriate plan of study is designed by students in consultation with their advisors.

The Bachelor's Thesis (25-99) replaces the recital required of applied music majors. A thesis, consists of one or more compositions approved by a committee of three faculty members and performed on regularly scheduled School of Music recitals.

Bachelor of Arts

The B.A. with 50 semester hours of allowable music credits, is offered for all performance majors listed under the B.M. degree as well as music history and composition. The B.A. is not available in the music therapy, or non-entertainment programs. Students may earn music certification if they complete the curriculum listed for the appropriate certification program: (a.) string, brass, woodwind, and percussion; vocal and keyboard; see "Teacher Certification (Music Specialist),"

Specific course requirements vary for each of the available majors under the B.A. degree, although at College of Liberal Arts General Education Requirements must be met for each. Students should check with their advisors, the area advisor, or the office for specific program requirements.

Teacher Certification (Music Specialist)

Areas of concentration in music education are instrumental music, vocal music, and music in special education. In addition to the B.A. or B.M. requirements in music and liberal arts, certification to teach music in Iowa schools requires satisfactory completion of specific requirements in the area of concentration. Requirements in the instrumental and vocal areas are listed below. The general requirements are listed under "Curriculum and Instruction" in the College of Education section of the Catalog.

I. TEACHER MAJOR

Instruction in performance (strings and vocal music) takes one year of 25:23" Cellos: sound and basic techniques (2 h.)
- 25:100 Classical String 2 h.
- 25:06 Jazz Methods and Materials 2 h.
- 75:143 Instrumental Techniques (including clarinet and cornet) 2 h.
- 25:108 Instrumental Conducting 2 h.
- 75:150 String Methods and Materials 4 h.
- 75:90 Introduction to Teaching Music 2 h.
- 75:144 Methods and Materials Elementary School Instrumental Music 2 h.
- 75:101 Observation and Laboratory Practice in the Secondary School 6 h.
- 75:192 Special Area Student Teaching 6 h.
- 75:197 Special Seminar: Curriculum and Student Teaching 1 h.

String majors preparing for music teacher certification must pass the proficiency examinations of 25:71-72 Group Instruction in Piano III.

BRASS, WOODWIND, AND PERCUSSION MAJORS

I. Brass, woodwind, and percussion majors in music education participate in a concert band each semester and in marching band for two full semesters during the first two years in residence at the University. Exceptions to this policy must be approved by the music education advisor and the director of bands.

The following courses are required:
- 75:143 Instrumental Techniques 8 s.h.
- 25:182 Marching Band Techniques 1 s.h.
- 25:190 Jazz Band Techniques 1 s.h.
- 75:144 Methods and Materials Elementary School Instrumental Music 1 s.h.
- 75:138 Marching Band Instrumental Care and Repair 3 h.
- 75:140 Band Methods and Materials 3 s.h.
- 75:145/25:108 Instrumental Conducting 2 s.h.
- 75:138 Observation and Laboratory Practice in the Secondary School 6 s.h.
- 75:192 Special Area Student Teaching 6 s.h.
- 75:197 Special Seminar: Curriculum and Student Teaching 1 s.h.

I. Students preparing for music teacher certification must pass the proficiency examinations of 25:71-72 Group Instruction in Piano III.

VOCAL AND KEYBOARD MAJORS

Voice performance majors should consult the music office for recommendations.

- 75:139 Child and Adolescent Voice Production 2 s.h.
- 75:147 Vocal Methods and Materials 3 s.h.
- 75:148 Choral Conducting and Literature 3 h.
- 25:115 116 Dictions for Singers II 4 s.h.
- 25:192 The Direction of Teaching Music 2 s.h.
- 75:143 Methods and Materials Elementary School General Music 2 s.h.
- 75:142 Methods and Materials Secondary School General Music 3 s.h.
- 75:192 Special Area Student Teaching 6 s.h.
- 75:197 Special Seminar: Curriculum and Student Teaching 1 s.h.

I. Vocal and keyboard majors preparing for music teacher certification must pass the proficiency examinations of 25:71-72 Group Instruction in Piano III. In addition, keyboard majors should register for 25:17 Non-Major Piano for two semesters. Vocal majors should register for 25:18 Non-Major Piano for two semesters.

KEYBOARD MAJORS (NON VOCAL)

I. Keyboard majors who elect to teach the instrumental area must complete the requirements in either the brass/woodwind persuasion or string area and pass the proficiency examination of 25:71-72 Group Instruction in Piano III.
Honors

Freshman and sophomore music majors with an average on their achievement test scores in the upper 25% are interviewed by members of the College of Liberal Arts Honors Program (see College of Liberal Arts introductory section of the Catalog). They also may take part in the honors program of the School of Music. Some entering freshmen are invited to join on the basis of their high school record and ACT scores.

Throughout undergraduate residence, honors music students may take advantage of enrollment in honors sections of courses in the school and in the college, and may seek honors designations for any course with consent of the instructor.

Honors students with junior or senior standing may undertake work leading to the bachelor's degree (B.M. or B.A.) with honors. Completion "with honors" is awarded after completion of 6.6 semester hours of honors work; a minimum of 3.0 semester hours of such work must be in 25-97 Honors in Music. Honors projects for which credit is given in 25-97 include honors performances (solo and/or ensemble); honors compositions (for transcriptions, orchestration, arrangements); and honors essay, research papers, editions, or translations. A combination of at least two of these types of projects is required. None of the projects may duplicate projects assigned in other courses, nor may they be required for graduation (e.g., 24-154 string recital).

Honors students in music are encouraged to take graduate-level courses. Advanced course work in music history, music theory, and language study will be strongly recommended. Students may seek honors committee approval by the honors advisor and the student's faculty advisor to evaluate the student's work.

Consult the music honors advisor for more information.

Financial Aid

A number of music activity scholarships are available. Write to the School of Music for information.

Minor

Students may minor in music by completing 15 semester hours which may include at least 6 of the 15 which must be advanced courses. A complete list of advanced courses is available from the music office.

Graduate Programs

Enrolling graduate students must take the School of Music advisory examination in music theory (harmony, counterpoint, and composition), and history and literature before registering. The advisory examination is given each session on the two days (including Saturday) before registration. Students with deficiencies in theory must register for 25:11 Review Theory. A student describing the general content of these sets 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 or 25:147 Counterpoint after 1600
25:236 Methods and Techniques of Teaching Music Theory
25:347 Seminar in Music Theory Research

Three of these:

25:146 Analysis of Music Literature 1600-1750
25:140 Analysis of Music Literature 1750-1820
25:150 Analysis of Music Literature 1820-1900
25:151 Analysis of Music Literature 1890-Present
25:152 Analysis of Music Literature Special Topics
25:212 Gregorian Chant

Master of Arts

The Master of Arts is offered in performance (including conducting), composition, musicology, 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 musicology and nonmusic degrees require a minimum of 30-32 postbaccalaureate semester hours. Information about specific admission and curriculum requirements for each degree is available from the School of Music. All curricula must include the following requirements:

25:221 Introduction to Graduate Study in Music 2 s.h.
25:240 Introduction to Contemporary Analysis and Theory 3 s.h.
One elective from:
25:11 Review Theory (as determined by advisory exam)
25:301/501 Advanced History and Literature of Music 3 s.h. or satisfactory advisory examination

If acceptable from 25:301 and/or 25:302 as a result of the advisory examination, students elect additional courses from the music history sequence 25:301-330, 25:313-314, 25:322-324, 25:330-332, and may elect other musicology courses.

Ensemble Participation

Students participate in a major ensemble such as the music school or a major ensemble in the section of the Catalog. During the summer session, students must be available for ensemble participation as needed. Ensemble assignments are made by the major teacher and the ensemble director. Keyboard majors may substitute accompanying participation for a major ensemble, at their adviser's discretion. Theory, composition, musicology, and music education majors may, with their adviser's permission, substitute other ensembles.

Requests for admission to this requirement must be submitted in writing to a review committee consisting of the ensemble directors involved, the adviser, the major teacher, and a representative from the director's office. The committee meets regularly at the end of each semester registration period.

Admission

Before applicants are considered for admission, they must submit supporting materials in their indicated area of concentration, as follows.

Composition—representative music scores
Theory—analysis or research papers
Musicology—literature of music
Music education—methods of teaching
Performance—audition
Musicology—research papers, or these, thesis, or recent publication
Pedagogy—contact School of Music
Informal statement of specific admission and curricular requirements for each area is available from the School of Music.

Master of Fine Arts

The M.F.A. is for students of superior ability in instrumental or vocal performance. It requires a minimum of 60 postbaccalaureate semester hours. In addition to the entrance and continuing requirements for the Master of Arts degree, students must present a public recital of a full-length recital or programs (25-401 M.F.A. Thesis, for a minimum of 8 semester hours of credit). Students may earn a Master of Art degree while working toward the Master of Fine Arts degree, but all requirements for each degree—excluding two final examinations—must be completed separately. A minimum combined total of 60 semester hours of graduate credit (see the Graduate College section of the Catalog).

Doctoral Degrees

All doctoral study in music includes:

minimum course requirements listed under the M.A. degree,
one or more additional electives from the following:
25:301/501 Advanced History and Literature of Music 3 s.h. or satisfactory advisory examination

If acceptable from 25:301 and/or 25:302 as a result of the advisory examination, students elect additional courses from the music history sequence 25:301-330, 25:313-314, 25:322-324, 25:330-332, and may elect other musicology courses.

Ensemble Participation

Students participate in a major ensemble such as the music school or a major ensemble in the section of the Catalog. During the summer session, students must be available for ensemble participation as needed. Ensemble assignments are made by the major teacher and the ensemble director. Keyboard
area requirements is available from the School of Music office.

Courses

General

2530 Cooperative Education Internship 0-4 hrs.

2531 Humanities of Music I 3 hrs.

2534 Humanities of Music II 3 hrs.

2531A Humanities of Music I 3 hrs.

2531A Humanities of Music II 3 hrs.

Theory and Composition

25 1 Majors and Minors in Theory I 3 hrs.

25 1 Adv. Theory I 3 hrs.

25 1 Advanced Theory II 3 hrs.

25 1 Advanced Theory III 3 hrs.

25 1 Advanced Theory IV 3 hrs.

25 12 Advanced Theory 3 hrs.

25 10 Fundamentals of Music 3 hrs.

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PHILOSOPHIES AND ETHICS OF POLICIES, LAW, AND ECONOMICS

Director: Philip Cunningham
Undergraduate degree Credit in Philosophy and Ethics of Politics, Law, and Economics, or PHILO. The program's primary departments include economics, philosophy, and political science. Students pursuing majors or minors in these departments are eligible to join the PHILO program; preview students may find it especially attractive. Philosophies and Ethics of Politics, Law, and Economics is based on the assumption that societies institutionalize values. These generate institutions that guide conduct by governing opportunities, prescribing behavior, and influencing beliefs and attitudes. As people exercise their behavior in society, they find that their roles as subjects, decision makers, and insurers must be studied as both isolated and integrated to order to be understood. The PHILO program enables its students to select courses that investigate causes, motives, and values in behavior, and how they interconnect. Because of the program's multiple requirements, students should begin as freshmen or sophomores. However, juniors who already have taken enough courses that satisfy PHILO requirements can enter and complete the program by the time they graduate. Students who complete the program requirements earn a certificate, and the notation "Certificate in the Philosophies and Ethics of Politics, Law, and Economics" appears on their transcripts. Students interested in enrolling in the PHILO program should contact the program director.

Certificate

Students must complete 36 semester hours to earn the PHILO certificate. Those who have a major 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 course that meets a General Education Requirement and/or a requirement in the major or minor may also be used to meet a PHILO requirement.

Students must complete the following course of study.

Foundation

Each PHILO 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 the general areas, reasons, or values. Requirements for each discipline are as follows.

ECONOMICS

Students must choose either the microeconomics or the macroeconomics track.

Microeconomics
OE 101 Principles of Microeconomics 3 s.h.
OE 103 Microeconomics 3 s.h.
or OE 104 Microeconomics Theory 3 s.h.
OE 170 History of Economic Thought 2.5 s.h.
One course on issues in microeconomics, chosen from:
OE 111 Labor Economics 3 s.h.
OE 113 Health Economics 3 s.h.
OE 133 Environmental and Natural Resource Economics 3 s.h.
OE 135 Regional and Urban Economics 3 s.h.
OE 141 Economics of American Industries 3 s.h.
OE 142 Antitrust Legal and Economic Analysis 3 s.h.
OE 145 Introduction to the Economics of Transportation 3 s.h.
OE 225 Law and Economics 3 s.h.
OE 177 Industrial Organization 3 s.h.

Macroeconomics
OE 222 Principles of Macroeconomics 3 s.h.
OE 105 Macroeconomics 3 s.h.
OE 170 History of Economic Thought 2.5 s.h.
One course on issues in macroeconomics, chosen from:
OE 117 Money, Banking, and Financial Markets 3 s.h.
OE 119 Economics of the Government Sector 3 s.h.
OE 125 International Economics 3 s.h.
OE 129 Economic Growth and Development 3 s.h.
OE 150 Introduction to Economic History 3 s.h.
OE 163 Comparative Economic Systems 3 s.h.
OE 173 Advanced International Economics 3 s.h.
OE 174 Monetary Economics 3 s.h.
OE 176 Public Sector Economics 3 s.h.

PHILOSOPHY

26-36 Philosophy and Human Nature 3 s.h.
26-102 Introduction to Ethics 3 s.h.
One course in the history of philosophy, chosen from:
26-111 Ancient Philosophy 3 s.h.
26-112 Medieval Philosophy 3 s.h.
26-114 Seventeenth-Century Philosophy 3 s.h.
26-116 Eighteenth-Century Philosophy 3 s.h.
26-117 Nineteenth-Century Philosophy 3 s.h.
26-118 Twentieth-Century Philosophy 3 s.h.
26-125 American Philosophy 3 s.h.
26-141 Eastern Philosophy 3 s.h.
One course on relevant issues, chosen from:
26-104 Introduction to Philosophy of Science 3 s.h.
26-120 Political Philosophy 3 s.h.
26-133 Philosophy of History 3 s.h.
26-167 Epistemology 3 s.h.
26-196 Philosophy of the Human Sciences 3 s.h.

POLITICAL SCIENCE

30-50 Introduction to Political Thought and Political Action 3 s.h.
One course on methods of political analysis, chosen from:
30-50 Introduction to Political Behavior 3 s.h.
30-65 Introduction to International Relations 3 s.h.
30-70 Introduction to Political Communication 3 s.h.
30-118 Law and Social Change 3 s.h.
30-135 Introduction to Positive Political Theory 3 s.h.
30-180 Honors Seminar on the Study of Politics 3 s.h.
One course on the history of political theory, chosen from:
30-131 Foundations of Political Theory 3 s.h.
30-132 Modern Political Theory 3 s.h.
30-133 Postmodern Political Theory 3 s.h.
30-134 American Political Theory 3 s.h.
30-135 Introduction to Positive Political Theory 3 s.h.
One course on issues in political theory, chosen from:
30-138 Current Political Theory 3 s.h.
30-139 Political Issues 3 s.h.
30-135 Governing in the Future 3 s.h.
30-175 Political Communication and Cognition 3 s.h.
30-182 Honors Seminar on Political Theory 3 s.h.

FIELDS

Students must complete three courses (9 semester hours) in each of two of the following fields: economics, ethics, politics, and law—al as follows.

ECONOMICS
Not open to students using economics as their foundation.
68-1 Principles of Microeconomics 3-4 s.h.
and 68-103 Microeconomics 3 s.h.
or 68-2 Principles of Macroeconomics 3-4 s.h.
68-105 Macroeconomics 3 s.h.
One course on the history of economic theory:
68-179 History of Economic Thought 2.5 s.h.

ETHICS
Not open to students using philosophy as their foundation.
14-107 Ancient Views of Justice 3 s.h.
26-102 Introduction to Ethics 3 s.h.
One course in the history of ethics, chosen from:
26-122 Political Philosophy 3 s.h.
26-125 American Ethics 3 s.h.
26-182 History of Ethics 3 s.h.
26-184 Morals, Prichard, and Ross 3 s.h.
One course on issues in ethical, chosen from:

- 26:132 Political Philosophy
- 3 s.h.

- 32:118 Religious Ethicists: Moral

- 3 s.h.

- 32:159 Political Theology and Social Activism

- 3 s.h.

- 25:161 History of Religious Ethics

- 3 s.h.

- 32:163 Introductions to Geopolitical Ethics

- 3 s.h.

NUROPS

Not open to students using political science as their major.

- 30:10 Introduction to Political Thought and Political Action

- 3 s.h.

- 30:10 Introduction to Political Behavior

- 3 s.h.

- 30:10 Introduction to International Relations

- 3 s.h.

- 30:70 Introduction to Political Communications

- 3 s.h.

One course on the history of political theory, chosen from:

- 30:131 Foundations of Political Theory

- 3 s.h.

- 30:132 Modern Political Theory

- 3 s.h.

- 30:133 Postmodern Political Theory

- 3 s.h.

- 30:134 American Political Theory

- 3 s.h.

- 30:135 Introduction to Positive Political Theory

- 3 s.h.

One course on issues in political theory, chosen from:

- 30:138 Current Political Theory

- 3 s.h.

- 30:199 Political Issues

- 3 s.h.

- 30:192 Communication and Cognition

- 3 s.h.

LAW

Liberal Arts undergraduates typically are not permitted to register for courses in the College of Law (credit 91). 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 PROGRAM program, and obtain consent of instructor. Undergraduates enroll through the student and graduate degree laws for any subsequent undergraduate degree. The requirements are as follows:

One course on principles of legal theory, chosen from:

- 144:201 Jurisprudence

- 2 s.h.

- 144:202 Issues in Law and Philosophy

- 2 s.h.

- 144:203 Litigation, Social Science and Social Change

- 3 s.h.

- 144:205 Legal Reasoning

- 3 s.h.

One course on the history of legal theory, chosen from:

- 30:110 Law in American History I

- 3 s.h.

- 30:111 Law in American History II

- 3 s.h.

- 30:14 Foundations of Anglo-American Law

- 3 s.h.

- 30:116 American Constitutional Law, II

- 3 s.h.

- 144:205 Legal History Seminar

- 3 s.h.

- 144:207 Modern Constitutional History

- 3 s.h.

One course on issues in legal theory, chosen from:

- 30:117 The Politics of Civil Rights and Liberties

- 3 s.h.

- 30:118 Law, and Society

- 3 s.h.

- 30:174 Women and the Law

- 3 s.h.

- 144:209 Legal Control of Sexuality and Sexual Control

- 3 s.h.

- 144:210 Hard Cases: Science Policy and Values

- 2 s.h.

- 144:211 Native American Law

- 3 s.h.

- 144:212 Law, Medicine, and Public Policy

- 3 s.h.

- 6:299 Law and Lawyers in Literature

- 3 s.h.

Integration

The following are required:

Theory of Inquiry

One course chosen from:

- 25:104 Introduction to Philosophy of Science

- 3 s.h.

- 25:105 The Philosophy of the Human Sciences

- 3 s.h.

- 30:100 Understanding Political Research

- 3 s.h.

- 30:180 Issues Seminar on the Study of Politics

- 3 s.h.

Senior Seminar

144:444 Seminar: Philosophies and Ethics of Politics, Law, and Economics

3 s.h.

Courses

144:444 Seminar: Philosophies and Ethics of Politics, Law, and Economics

3 s.h.

Integrative Studies: Those that cross-disciplinary between philosophy, political science, law, economics, Open for use in semester in PROGRAM program.

144:201 Jurisprudence

2 s.h.

144:202 Issues in Law and Philosophy

2 s.h.

144:203 Litigation, Social Science and Social Change

3 s.h.

144:205 Legal Reasoning

3 s.h.

144:206 Legal History Seminar

3 s.h.

144:207 Modern Constitutional History

3 s.h.

One course on issues in legal theory, chosen from:

- 30:117 The Politics of Civil Rights and Liberties

- 3 s.h.

- 30:118 Law, and Society

- 3 s.h.

- 30:174 Women and the Law

- 3 s.h.

- 144:209 Legal Control of Sexuality and Sexual Control

- 3 s.h.

- 144:210 Hard Cases: Science Policy and Values

- 2 s.h.

- 144:211 Native American Law

- 3 s.h.

- 144:212 Law, Medicine, and Public Policy

- 3 s.h.

- 6:299 Law and Lawyers in Literature

- 3 s.h.

Integration

The following are required:

Theory of Inquiry

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- 25:104 Introduction to Philosophy of Science

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Courses

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144:202 Issues in Law and Philosophy

2 s.h.

144:203 Litigation, Social Science and Social Change

3 s.h.

144:205 Legal Reasoning

3 s.h.

144:206 Legal History Seminar

3 s.h.

144:207 Modern Constitutional History

3 s.h.

One course on issues in legal theory, chosen from:

- 30:117 The Politics of Civil Rights and Liberties

- 3 s.h.

- 30:118 Law, and Society

- 3 s.h.
undergraduate major in philosophy with a 2.00 minimum grade-point average. Students who change majors must meet the minimum grade-point average as per the requirements of the department.

### Minor
In order to achieve a minor in philosophy, a student must complete a minimum of 15 semester hours in philosophy courses with at least a 2.00 minimum grade-point average. Of these, at least 3 hours must be in 3000-level philosophy 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.

### Graduate Programs
The graduate program is designed to train teachers and scholars in philosophy. The main areas in the graduate curriculum are metaphysics, epistemology, history of philosophy, 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. Courses in logic and philosophy of science, ethics, aesthetics, and ancient philosophy are offered. Students with a bachelor’s degree in philosophy or a related field may enter the program directly. All other students must take a qualifying examination in logic and philosophy of science in order to be admitted to the graduate program. The number of graduate hours required for the master’s degree is 15 semester hours.

### Doctor of Philosophy
The Ph.D. degree requires a minimum of 72 semester hours of graduate credit by the time the student has completed three semesters of graduate study. The doctoral examination is a comprehensive examination consisting of a dissertation area examination, a special area examination, and a prospectus of the dissertation. The comprehensive examination may be taken only after the student has shown competence in French, German, Greek, or Latin. The director of graduate studies can provide more information.

### Courses
More detailed descriptions of undergraduate and graduate courses offered during a given semester or summer session are available in the Department of Philosophy main office shortly before the beginning of the semester.

### For Undergraduates Only
- **Philosophy and Natural Science** 3 s.h.
- **Philosophy and Social Science** 3 s.h.
- **Philosophy and the Arts** 3 s.h.
- **Philosophy and Interpretation** 3 s.h.
- **Philosophy and Literature** 3 s.h.
- **Philosophy and the Sciences** 3 s.h.
- **Philosophy and the Humanities** 3 s.h.
- **Philosophy and the Arts** 3 s.h.
- **Philosophy and the Sciences** 3 s.h.
- **Philosophy and the Humanities** 3 s.h.
- **Philosophy and the Arts** 3 s.h.
- **Philosophy and the Sciences** 3 s.h.
- **Philosophy and the Humanities** 3 s.h.
- **Philosophy and the Arts** 3 s.h.
- **Philosophy and the Sciences** 3 s.h.
- **Philosophy and the Humanities** 3 s.h.
- **Philosophy and the Arts** 3 s.h.
- **Philosophy and the Sciences** 3 s.h.
- **Philosophy and the Humanities** 3 s.h.
- **Philosophy and the Arts** 3 s.h.
- **Philosophy and the Sciences** 3 s.h.
- **Philosophy and the Humanities** 3 s.h.
- **Philosophy and the Arts** 3 s.h.
- **Philosophy and the Sciences** 3 s.h.
- **Philosophy and the Humanities** 3 s.h.
- **Philosophy and the Arts** 3 s.h.
- **Philosophy and the Sciences** 3 s.h.
- **Philosophy and the Humanities** 3 s.h.
- **Philosophy and the Arts** 3 s.h.
- **Philosophy and the Sciences** 3 s.h.
- **Philosophy and the Humanities** 3 s.h.
- **Philosophy and the Arts** 3 s.h.
- **Philosophy and the Sciences** 3 s.h.
- **Philosophy and the Humanities** 3 s.h.
- **Philosophy and the Arts** 3 s.h.
- **Philosophy and the Sciences** 3 s.h.
- **Philosophy and the Humanities** 3 s.h.
Undergraduate Programs

It is recommended that all students in physical education satisfy the Consent of Liberal Arts General Education Requirement in natural sciences by taking Chemistry 4.0 or 4.13 and Biology Sciences 2.1, 2.2, 2.3, and 2.35 in mustation in basic reasoning with questions 2.35 (same as 225.12), 2.25, or 2.30. Each undergraduate student in physical education elects a wide variety of courses and is required to prepare for careers in teaching, corporate fitness programs, wellness centers, private health clubs, YM/CWAs, and sport programs. Students acquire theoretical background through anatomy, kinesiology, physiology, and weight courses, with implications for the performance and teaching of fitness and sports skills. The undergraduate programs also are designed to prepare students for graduate study in physical education (see "Consent Theses" for areas of specialization). The professional major in physical education leads to the Bachelor of Science degree.

Health Promotion Specialization

PROGRAM REQUIREMENTS

4.0-7 General Chemistry I 3 cr.
4.0-8 Principles of Chemistry I 3 cr.
2-2 Introduction Animal Biology 1 cr.
2.3-Principles of Animal Biology 5 cr.
2.2-1 Human Biology 4 cr.
7-15 Elementary Statistics and Inference 3 cr.
225-2 Statistics and Society 3 cr.
225-8 Quantitative Methods 4 cr.

CORE COURSE

210-5 Human Anatomy 3 cr.
27-710 Biochemistry 3 cr.
27-140 Exercise Physiology for Coaches 3 cr.
285-1 Physical Education Skills 4 cr.
285-5 Fitness and Wellness for Life 2 cr.
28-15 Contemporary Issues in Health Promotion 3 cr.
26-17 First Aid CPR and AED (current certification) 3 cr.
28-110 Professional Strategies for Sport Wellness Programs 3 cr.
28-113 Stress Management 3 cr.
28-143 Techniques of Exercise Testing and Basic Analysis 3 cr.
104-100 Introductory Nutrition 3 cr.
104-138 Health Promotion in Corporate, Hospital, and Fitness Settings 3 cr.
104-158 Computer Application for Park and Recreation Management 3 cr.
Total 38 cr.

INTERNSHIP

28-114 Internship 6-12 cr.
Acceptance into an internship program is based on the following criteria:
2.90 minimum grade point average in 27-140, 28-110, and 104-186, with a minimum grade of C in each, and a minimum grade point average on all University of Iowa course work; and completion of all requirements for the major.

PROGRAM ELECTIVE AREAS

Students must complete 9 semester hours from one of the major areas listed below. An additional elective area (6 cr.) must be completed if a student is not eligible or chooses not to do an internship. This substitution and all other course changes or substitutions must be approved by the curriculum committee prior to course registration.

Health Fitness Specialist

28-178 Water Safety/Rescue for Trainers 3 cr.
28-179 Aquatic Safety 1 cr.
28-178a Technique Design for Exercise Programs 3 cr.
28-180 Theory and Principles of Weight Training 3 cr.
28-179a Fundamentals of Health Promotion 1 cr.
104-150 Exercise Programs for Special Populations 3 cr.
104-150 Fitness/Sp ort Nutrition 3 cr.
104-150 Health Promotion and Wellness for Older Adults 3 cr.
104-151 Nutrition for the Middle Years 3 cr.
104-152 Nutrition for the Later Years 3 cr.
104-162 Aging and Leisure 3 cr.

Health Behavior

11-112 Human Sexuality 3 cr.
28-187 Socio-Physical Dimensions of Physical Activity 3 cr.
11-112 Health Psychology 3 cr.
27-177 Microcounseling 3 cr.
27-99 Counseling for Related Professions 3 cr.
27-176 Test/Therapy Education 3 cr.
70-185 Introduction to Substance Abuse 3 cr.
24-1312 Social Psychology of Alcohol Use and Community Problems 3 cr.
24-1312 Social Substance Use and Abuse 3 cr.
44-36 Non-Prescription Drugs 3 cr.
Health Management
6A:1 Introduction to Financial Accounting 3 s.h.
6A:2 Managerial Cost Accounting 3 s.h.
6B:1 Principles of Macroeconomics 3 s.h.
6B:2 Principles of Microeconomics 3 s.h.
6A:17 Entrepreneurship and Small Business Formation 3 s.h.
6A:12B Managing the New or Small Business 3 s.h.
6A:14 Introduction to Law 3 s.h.
6A:100 Administrative Management 3 s.h.
6A:160 Introduction to Marketing 3 s.h.
104:134 Introduction to Planning and Design of Recreation and Parks Areas and Facilities 3 s.h.
104:130 Park and Recreation Facility Management 3 s.h.
104:139 Managing Commercial Recreation Enterprises 3 s.h.

Teacher Certification Specialization
The following academic, activity, and teacher certification courses are required.

ACADMK
28:154 Laboratory in Teaching of Physical Activities 2 s.h.
28:155 Teaching of Dance 2 s.h.
28:177 First Aid and CPR 2 s.h.
28:185 Red Cross or comparable certification in first aid and CPR 2 s.h.
27:53 Human Anatomy 3 s.h.
27:104 Human Learning and Motor Control 3 s.h.
28:24 Issues in Health Education 3 s.h.
28:43 Psychosocial Dimensions of Physical Activity 3 s.h.
28:160 Administration of Physical Education and Athletics 3 s.h.
28:100 Physical Education for the Handicapped 3 s.h.
27:140 Exercise Physiology for Practitioners 3 s.h.
28:467 Measurement and Evaluation in Physical Education 3 s.h.
28:164 History of Sport in the United States 3 s.h.
28:174 Sport in the Western World: Greeks to Present 3 s.h.
27:81 Kinesiology 3 s.h.
27:106 Biomechanics of Physical Education 3 s.h.

ACTIVITY
Students must demonstrate competence in each of the following areas and may earn a maximum of 10 semester hours in the following areas. Students may take proficiency tests for many courses and may test out of a maximum of 7 semester hours. At least 7 semester hours must be earned through class participation.

28:15 Self Defense, Cooperative Games, Innovative Games, Team Handball 1 s.h.
28:16 "Teaching and Apparatus" 1 s.h.
28:17 Recreational Skills 1 s.h.
28:20 Volleyball 1 s.h.
28:22 Field Sports (flag football, soccer, softball) 1 s.h.
28:23 Basketball 1 s.h.
28:24 Track 1 s.h.
28:25 Basic Dance Skills 2 s.h.
28:97 Theory and Principles of Weight Training 1 s.h.
*Proficiency tests are not available for these activities.

TEACHER CERTIFICATION
28:717 Methods and Materials in Elementary Physical Education Preeminent—Elementary School 3 s.h.
76:121 Special Area Student Teaching 3 s.h.
75:140 Human Relations for the Classroom Teacher 3 s.h.
75:75 Educational Psychology and Measurement 3 s.h.
75:97 Instructional Strategies and Design in Physical Education 3 s.h.
75:100 Issues in Education 2 s.h.
75:140 Methods of Secondary Physical Education 3 s.h.
75:187 Seminar: Curriculum and Student Teaching 3 s.h.
75:191 Observation and Laboratory Practice in the Secondary School 3 s.h.
79:102 Introduction to Microcomputing for Teachers 1 s.h.

COACHING ENDOWMENT
The Iowa Department of Education requires that all athletic coaches be certified. 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.
27:53 Human Anatomy 3 s.h.
27:57 Basic Athletic Training 3 s.h.
28:103 Administration of Physical Education and Athletics 3 s.h.
28:125 Theory of Coaching 2 s.h.
28:71 First Aid and CPR 2 s.h.
27:91 Kinesiology 3 s.h.

MINOR IN PHYSICAL EDUCATION

Minor in Physical Education
The minor in physical education requires at least 15 semester hours of credit with a 2.00 minimum grade-point average. Twelve of the 15 semester hours must be taken at The University of Iowa in advanced courses. Students may choose from the following courses.

27:53 Human Anatomy 3 s.h.
27:81 Kinesiology 3 s.h.
27:107 Biomechanics of Physical Education 3 s.h.
27:140 Exercise Physiology for Practitioners 3 s.h.
28:74 Issues in Health Education 3 s.h.
28:75 Contemporary Issues in Health Promotion 3 s.h.
28:43 Psychosocial Dimensions of Physical Activity 3 s.h.
28:132 Administration of Sport/Wellness Programs 3 s.h.
28:14 History of Sport in the United States 3 s.h.
28:174 Sport in the Western World: Greeks to Present 3 s.h.
28:100 Introductory Nutrition 3 s.h.
28:77 First Aid and CPR 3 s.h.
46:56 Home/Preventive Drugs 2 s.h.
28:129 Substance Use and Abuse 3 s.h.
27:140 Exercise Physiology for Practitioners 3 s.h.
27:141 Exercise Physiology 3 s.h.
31:52 Health Psychology 3 s.h.
71:112 Human Sexuality 3 s.h.
76:154 Methods and Administration of School Health Programs 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 study.

Honors students in physical education take 28:93 Honors Seminars, complete a research 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 a 3.00 minimum 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 a 3.20 minimum grade-point average throughout the remainder of their degree work.
Graduate Programs

The Department of Physical Education and Sports Studies has been a pioneer in providing graduate physical education programs for women, especially at the doctoral level. It has awarded more than 500 master's degrees and more than 200 doctoral degrees during the past 50 years. Its graduates have pioneered distinguished service through teaching, coaching, research, administration, and other leadership roles in physical education, health, dance, and athletics. The department's proud heritage of producing leaders has been furthered by recent graduates who continue to encourage high aspirations of the young women and men that it serves.

The curricula assume previous education in the respective fields. A program is planned individually with consideration 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 are the flexibility of program planning for the individual student and the diversity of available research areas. Attendance at summer sessions is helpful in obtaining diverse instruction.

Graduate students work primarily in the Department of Physical Education and Sports Studies, but the resources of the entire university are available as needed. Work requires the department provides a broad view of the student's major and the department's emphasis. Interdisciplinary opportunities in many areas and are strongly encouraged for students specializing in administration, coaching, and health promotion.

The graduate student group is cosmopolitan and international.

Master of Arts

The M.A. is awarded on completion of at least 20 semester hours of graduate work, including thesis, or 48 semester hours of coursework without thesis. The curriculum leads to teaching, administration, coaching certification, or preparation for advanced degree work.

Core Requirements

Students must demonstrate competence in philosophy of sport and kinology. 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:

28-205 Techniques of Research 3 s.h.
28-305 Seminar: Perspectives in Human Movement 2 s.h.
28-451 Thesis (M.A. students on thesis option) 1-6 s.h.
37-103 Introduction to Statistical Methods (or equivalent)

The sport studies core consists of three 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 health promotion program may choose to select courses from only two areas. The following courses satisfy the sport studies core requirements:

28-127 Philosophy of Sport
28-129 Social Psychology and Sport
28-153 Sociology of Women in Sport
28-165 Inequality in Sport
28-245 Sport in the U.S. Culture
28-164 History of Sport in the United States
28-174 Sport in the Western Worlds: Greeks to Present

Program Options

M.A. students may elect a general sport studies curriculum or a specialization in administration of physical education and athletics, health promotion, coaching, sociology of sport, or sport psychology.

In addition to the required courses listed above, students must take the core courses in their area of specialization as well as electives selected in consultation with the advisor.

Administrative of Physical Education and Athletics

28-106 Principles of Administration 3 s.h.
28-330 Advanced Athletic Administration 3 s.h.

Health Promotion

28-306 Health and Fitness: Research Program Models 2 s.h.
106-150 Fitness Nutrition 2 s.h.
27-141-142 Exercise Physiology/Laboratory 3 s.h.
101-206 Cardiovascular or Therapeutics 4 s.h.
28-246 Health Promotion and Cardiopulmonary Therapeutics 3 s.h.
31-152 Health Psychology 3 s.h.
31-250 Introduction to Health and Behavioral Science 3 s.h.

Coaching

All students must have or earn a coaching endorsement.

28-106 Physiological Research on Women in Sport 2-3 s.h.
28-465 Internships 1-2 s.h.
28-218 Advanced Coaching 2 s.h.

Sociology of Sport

28-153 Sociology of Women in Sport 2-3 s.h.
28-165 Inequality in Sport 3 s.h.
28-163 Sport and the Media 2-3 s.h.
28-340 Seminar in Sociology of Sport (may be repeated) 3 s.h.
28-348 A Cultural Analysis of Sport 3 s.h.

Sport Psychology

28-113 Stress Management 3 s.h.
28-351 Seminar in Sport Psychology 3 s.h.
28-351 Selected Issues in Social Psychology and Physical Activity (may be repeated) 3 s.h.

PsychologicalServices 6 s.h.

Sport Studies

Students in the general sport studies program must take at least one course from each of the four core areas. In addition, students must take at least two courses in the following areas: administration of physical education and athletics, education, or health promotion.

Coaching

History of sport

Philosophy of sport

Sociology of sport

Sport psychology

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 12 credit hours for the dissertation.

Problems

A comprehensive exam is required in each of the following areas:

RESEARCH FORK

All doctoral students are required to take a statistics course at an appropriate level. Each student must locate a foreign language, such as German or French, and complete a literature review.

The language requirement may be satisfied by taking two semesters of a foreign language at the third or fourth year level. The student must pass a foreign language examination and be placed in a graduate school or pass a Ph.D. language examination.

The computer tool requirement may be satisfied by taking at least two hours of graduate courses as approved by the departmental graduate committee.

Required Courses

28-300 Research Forum 0 s.h.
28-352 Seminar: Perspectives in Human Movement 2 s.h.
28-495 Thesis: Ph.D. 1-6 s.h.

Specialization

Students must complete a specialization of 30 semester hours, including dissertation, they must take approximately 20 semester hours in one or more departments other than the Department of Physical Education and Sports Studies. The following specialization areas have been approved: administration of physical education and athletics, psychology of sport, and sociology of sport. Students interested in another area may submit a plan of study for consideration.
Bachelor of Arts in Astronomy

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 astronomy. This degree program is appropriate for those planning careers in secondary school teaching, technical writing, and science-related administration (i.e., "Science Education") in this and the College of Education section 3. 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.

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 (i.e., "Science Education") in this section of the Catalog and in the College of Education section 3. 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.

Bachelor of Science in Astronomy

Bachelor of Science in Physics

Double Major in Physics and Astronomy

Honors

Junior and senior majors who are members of the University Honors Program may apply six semester hours of 2009 Honors Seminar and conduct an investigation with the guidance of a faculty member as part of their programs for the B.A. or B.S. with honors in physics or astronomy. They must present a written report.
Minor in Physics

A program of physics courses satisfying the 15 semester hours, with a minimum grade-point average of 2.00, is offered. Students may choose from the College of Liberal Arts must include 12 semester hours of upper-level physics courses taken at The University of Iowa, including PHYS 20:10 (prerequities PHYS 20:21 and 20:19) and 100-level physics courses.

Minor in Astronomy

A minor in astronomy requires 15 semester hours of credit in astronomy courses with a minimum grade-point average of 2.00. The 15 semester-hour total should include 6 semester hours selected from the following:

PHYS 20:110 Introduction to Astronomy 3
PHYS 20:137 Astronomical Laboratory 3

An additional 6 semester hours of these courses or of 100-level physics courses take 12 semester hours must be taken at The University of Iowa.

Graduate Programs

Two advanced degrees are offered in physics: the Master of Science—with either thesis or critical essay—and the Doctor of Philosophy. The Doctor of Philosophy in Physics and Astronomy participates in interdisciplinary doctoral programs with the Program in Applied Mathematical Sciences (see the Graduate College section of the Catalog). Each entering graduate student is assigned a faculty advisor, who assists in preparing a plan of study and in guiding the student's progress. Graduate study leads to candidacy for the advanced degree in physics or astronomy only after passing a qualifying examination in all major areas of physics at the level of advanced undergraduate work. The examination is given during the first week of the second semester of the year and must be taken by all first-year graduate students. After a student has passed, research begins. The appropriate thesis or essay advisor then becomes the candidate's major advisor and the chair of the final examination committee.

Master of Science in Physics

The M.S. in physics is offered with either thesis or critical essay. The degree may be terminal or an introduction to the Ph.D. In either case, the final examination is oral, conducted by a committee of three members of the graduate faculty appointed by the dean of the Graduate College.

The program for the M.S. with thesis requires 30 semester hours of graduate work (100- or 200-level courses) and a thesis based on original experimental or theoretical investigation by the candidate. No more than 6 of the minimum 30 semester hours may be for research (PHYS 20:281 Research Physics). The program for the M.S. with a critical essay requires 30 semester hours of graduate work (100- or 200-level courses), an independent study of the literature on a chosen topic, and presentation of a critical essay on that topic. No more than 4 of the minimum 30 semester hours may be for the critical essay (PHYS 20:220 Individual Critical Study). Up to one-third of the graduate program may be related scientific fields other than physics and mathematics—for example, chemistry, astronomy, geology, or engineering.

Candidates for either of the M.S. programs must have satisfactorily completed the following courses or their equivalents as undergraduates or graduates:

PHYS 20:115 Intermediate Mechanics 3
PHYS 20:116 Intermediate Quantum Mechanics 3
PHYS 20:118 Statistical Physics 3
PHYS 20:120-130 Electricity and Magnetism 6
PHYS 20:132 Intermediate Laboratory (two semesters) 4
PHYS 20:133 Advanced Laboratory (two semesters) 4
PHYS 20:171-172 Mathematical Methods of Physics 6
PHYS 20:193 Atomic Physics 3

Two additional courses selected from:

PHYS 20:192 Elementary Particles and Nuclear Physics 3
PHYS 20:193 Introduction to Solid State Physics 3
PHYS 20:194 Plasma Physics 3

The student's plan of study should provide for at least six graduate-level courses appropriate to the student's preparation and personal preferences. Students who fail to pass the departmental written examination for the M.S. must receive the M.S. if they fulfill the following requirements: complete 30 semester hours of 100- or 200-level courses, write a thesis or critical essay, pass an oral examination on the thesis or critical essay, and obtain a grade of B or better in PHYS 20:245, 20:213, 20:214, 20:245, and 20:246 (these courses count toward the 30 semester hours).

Master of Science in Astronomy

The M.S. in astronomy is offered with either thesis or critical essay. The general requirements are the same as those for the M.S. in physics (see above). Course requirements or their equivalents for undergraduates or graduates are as follows:

PHYS 20:115 Intermediate Mechanics 3
PHYS 20:116 Intermediate Quantum Mechanics 3
PHYS 20:117 Optics 3
PHYS 20:118 Modern Physics 3
PHYS 20:192-193 Introduction to Astronomy 1
PHYS 20:220 Electrodynamics and Magnetism 6
PHYS 20:222 Advanced Laboratory 2
PHYS 20:227-228 Astronomy Laboratory 2
PHYS 20:227-228 Mathematical Methods of Astronomy 6
PHYS 20:194 Atomic Physics 3
PHYS 20:194 Plasma Physics 3

Students who intend to pursue a Ph.D. in physics with an astrophysics specialization should take the following courses as early as possible in the master's program as possible:

PHYS 20:195 Plasma Physics 3
PHYS 20:205-222 Theoretical Astrophysics 7
PHYS 20:205 Stellar Structure and Evolution 3
PHYS 20:235 Special Topics in Astrophysics 3
PHYS 20:235-236 Advanced Astrophysics 6

Doctor of Philosophy in Physics

The program of study for the Ph.D. with a major in physics includes thorough course work in both chemical and quantum theoretical physics for all candidates, whether their specialized research is in either an experimental or a theoretical area. All candidates must take comprehensive examinations; participate in advanced seminars; do original research in experimental physics, theoretical physics, or astrophysics, and prepare and defend a written dissertation based on this work. They also must take at least 27 semester hours of graduate courses in the department, excluding PHYS 20:20, 20:21, 20:281, and 20:282, and research. The following minimum program is recommended as preparation for the comprehensive examinations.

PHYS 20:193-222 Theoretical Astrophysics 9
PHYS 20:205-222 Theoretical Astrophysics 7
PHYS 20:205 Stellar Structure and Evolution 3
PHYS 20:235 Special Topics in Astrophysics 3
PHYS 20:235-236 Advanced Astrophysics 6

Advanced mathematics, such as complex variables and tensor analysis, is used freely in these courses. An introduction to these fields is given in PHYS 20:171-172 Mathematical Methods of Physics. The mechanics of this advanced course or courses will depend on the ability of the students' preparation for graduate work, the students' choice of areas advanced and selected courses will depend on the interest of these areas and the approval of the research advisor. Ph.D. students are expected to be distributed, involved, and moderately advanced.

Candidates for the Ph.D. degree are not recommended for the degree until they have written the dissertation in proper form for formal presentation and have submitted it for publication and the approval of the research advisor.
Undergraduate Programs

Bachelor of Arts

Students seeking the B.A. degree with a major in political science must complete 33 semester hours of course work in political science, as follows:

30:1 Introduction to American Politics 3 s.h.
30:2 Introduction to Political Science 3 s.h.
30:40 Introduction to the Politics of the Third World 3 s.h.
30:61 Introduction to American Foreign Policy 3 s.h.
30:70 Introduction to Political Communication 3 s.h.

Students must earn at least 18 semester hours in political science courses numbered 100 or above credit from 30:192 Washington Internship cannot be included in total). At least 12 of the required 18 semester hours must be taken in regularly scheduled classroom work. Transfer students must take at least 9 of the 33 semester hours of work in political science at The University of Iowa.

Students must maintain at least a 2.00 grade point average in all political science courses and in all political science courses taken at The University of Iowa.

Bachelor of Science

The B.S. degree requires three semesters of mathematics in statistics. The following set of courses are approved.

23:17 Quantitative Methods I or
23:25 Calculus I 4 s.h.
23:19 Introduction to Statistical Methods 3 s.h.
23:48 Intermediate Statistical Methods 4 s.h.

Other sets of courses may be used with written approval of the director of undergraduate studies in political science. A 2.00 grade-point average is required.

Education Major

Undergraduates planning to emphasize political science in their teacher training should consult the College of Education for requirements.

The courses 30:1 Introduction to American Politics and 30:110 The American Political System fulfill the Iowa teacher certification requirements.

Honors

The program leading to a B.A. or a B.S. with honors is open to students with a minimum cumulative grade-point average of 3.50 overall and in political science. To graduate with honors, students must maintain at least a 3.50 grade-point average in political science and a cumulative grade-point average of at least 3.20. Students are encouraged to take upperclass honors seminars as often as possible, although the program honors only 9 semester hours of upperclass honors course work with a grade of B or higher in each course.

Honors students must complete 30:192 Honors Seminar or the Study of Politics, preferably as seniors. They also must take at least one additional upper-class honors seminar, 30:181 Honors Seminar on American Politics, 30:182 Honors Seminar on Political Theory, 30:183 Honors Seminar on Comparative Politics, or 30:164 Honors Seminar on International Politics. The last 3 semester hours required for graduation with honors in political science may be earned by completing 30:185 Honors Research Project, 30:186 Honors Senior Thesis, or a third upperclass honors seminar. Contact the department director of honors for more information.

Minor

To receive a minor in political science, students must take 15 semester hours in political science courses, 12 of which must be taken in courses at The University of Iowa numbers 100:100 and above credit from 30:192 Washington Internship cannot be applied to the minor. 23:17 Quantitative Methods I or
23:25 Calculus I 4 s.h.
23:19 Introduction to Statistical Methods 3 s.h.
23:48 Intermediate Statistical Methods 4 s.h.
23:71 Statistical Analysis or 65:85
Econometrics 4 s.h.
23:25 Calculus I 4 s.h.
23:25 Calculus II 4 s.h.
23:48 Intermediate Statistical Methods 4 s.h.

Other sets of courses may be used with written approval of the director of undergraduate studies in political science. A 2.00 grade-point average is required.

Graduate Programs

The department has a program leading to a Doctor of Philosophy in political science for students planning academic careers. The department estimates usually award minor degree only as a preliminary step toward the Ph.D.

Master of Arts with Thesis

To earn an M.A. in political science, students must complete at least 24 semester hours with a grade-point average of at least 3.25, submit a thesis, and pass a final oral examination. No more than 8 semester hours of credit for thesis preparation may be counted toward the 24-semester-hour minimum requirement. The final oral examination covers both thesis and course work.

Master of Arts without Thesis

If the evaluation committee convened at the end of the student's first year of courses finds that a student's work provides sufficient evidence of the research and writing skills ordinarily demonstrated in a master's thesis, it may recommend that the student be exempted from a doctoral program without writing a master's thesis. The requirements for the M.A. without thesis include completion of at least 30 semester hours of graduate work with a grade-point average of at least 3.75 and a review of the student's record by a final examination committee, which may waive the final oral examination.

The same requirements apply when a first-year evaluation committee finds that the quality of a student's work is inadequate for recommendation toward the Ph.D. but adequate for proceeding with the master's program. The committee may recommend that the student be permitted to seek the nonthesis M.A. as a terminal degree.

Doctor of Philosophy

The Ph.D. program in political science is designed to prepare students for research, teaching, and advisory service in academic settings and private or governmental institutions. It produces graduates who are deeply committed to the study of political issues, familiar with fundamental knowledge and practical policies, well-trained in methods and techniques for careful research and application, and prepared to make contributions in the discipline of political science and to society.

The M.A. degree is also available. The requirements are the same as for the Ph.D. degree. Students are admitted each year, so students work closely with faculty members on research and publication. Graduate students know one another and enjoy support from the graduate student association.

Curriculum

Doctoral study usually lasts four years. The first year is divided into two semesters of core courses evenly divided between substantive and methodological. Emphasis is on basic research methodologies and contemporary methods—those today's political scientist must understand today. Special attention is given to research design, collection of observations, and interpretation of data. micro and macromodelling, and social software. Some first-year students complete this training with a research tutorial involving investigative projects directed by the faculty.

The second and third years are spent in research seminars with focused, substantive topics. Some of the curriculum might be devoted to advanced professional topics. Meetings are held to prepare the comprehensive examinations by the end of the third year. The fourth year is spent on dissertation research and writing. Students who do basic research and gather data about often require a fifth year to complete the dissertation.
36:315 Political Psychology 3.4.1. Behavioral science and political psychology is concerned with the understanding of political behavior, attitudes, beliefs, and political decision-making, and with the psychological processes that underlie such behavior, including decision-making, perception, attitudes, and political ideology.

36:316 Political Socialization 3.4.1. Development of political roles, attitudes, values, and political values by socialization processes, including the influence of family, peers, and other social units.

36:344 Women and Politics 3.4.1. Comparative analysis of women's political activity and leadership, with a focus on the political participation and representation of women in different political contexts.

36:345 Public Opinion and Electoral Behavior 3.4.1. Political attitudes and beliefs in public opinion, the behavior and dynamics of political parties, and the role of political institutions in shaping public opinion.

36:348 Foreign Policy 3.4.1. International relations and foreign policy, including the role of the United States in international relations, and the impact of foreign policy on domestic politics.

36:349 Theories of International Relations 3.4.1. Theories of international relations, including realism, constructivism, and liberalism, and their implications for U.S. foreign policy.

36:354 Positive and Normative Politics 3.4.1. Positive and normative political science, including theories of power, democracy, and political legitimacy.

36:364 Public Opinion and Political Behavior 3.4.1. The role of public opinion in shaping political behavior and decision-making.

36:373 Positive and Normative Political Theory 3.4.1. Positive and normative political theory, including the role of values and ethics in political decision-making.

36:379 Gender Political Conduct and Cognition 3.4.1. Theories of political behavior and political cognition, including gender and political behavior.


36:413 Organizational Behavior 3.4.1. Organizational behavior in politics, including the role of political organizations in shaping political behavior.

36:417 Seminar: Positive Political Communication and Cognition 3.4.1. Seminar on positive political communication and cognition, focusing on the role of communication in political decision-making.

36:419 Internship in Political Psychology 3.4.1. Internship in political psychology, providing hands-on experience in the field.

36:421 Research Training Seminar 3.4.1. Research training seminar, providing opportunity for students to design and conduct research.


36:438 Field Research 3.4.1. Field research in political psychology, providing opportunity for students to conduct research in the field.

Honors
The department has an active honors program open to majors with at least a 3.20 grade-point average and at least 3.20 overall. The program includes research seminars and individual research collaboration with faculty members. Students usually are selected to participate in the department's 31:19 Honors Seminar in Psychology during the spring semester of their junior year. Interested majors should contact the department honors advisor early in their junior year.

Minor
A minor in psychology is an attractive option to students from a variety of disciplines. A minor requires 15 semester hours with a minimum grade-point average of 2.00. At least 12 of those 15 semester hours must be in upper-level courses in this department; this includes all 100-level courses and 31:43. Departmental advisors can help students identify courses for a minor that complement the student's major.

Area Electives
Area offerings vary from semester to semester. Prior to each registration period, students should check the latest version of the Undergraduate Psychology at Iowa and the current Schedule of Classes.

An approved statistics course is a prerequisite to a 100-level course. For psychology majors in the B.A. program, the statistics course must be 41:30A Fundamental Statistics (4 credit hours). For psychology majors in the B.S. program, the statistics course must be 41:30B Intermediate Statistics (3 credit hours). Students may substitute the following courses for the statistics requirements of the psychology major:

CLINICAL PSYCHOLOGY
3.133 Introduction to Clinical Psychology 3 s.h.
3.155 Personality 3 s.h.
3.168 Psychology of Aging 3 s.h.
3.152 Health Psychology 3 s.h.
3.141 Schizophrenia 3 s.h.
3.162 Depression and Mania 3 s.h.
3.163 Abnormal Psychology 3 s.h.
3.166 Developmental Psychology 3 s.h.
3.170 Behavior Modification 3 s.h.

COGNITIVE PSYCHOLOGY
3.166 Introduction to Mental Processes 3 s.h.
3.110 Learning and Motivation in Children 3 s.h.
3.115 Language Processing 3 s.h.
3.119 Memory and Cognition 3 s.h.
3.130 Psychophysiology of Thinking 3 s.h.
3.133 Fundamentals of Sensation and Perception 3 s.h.
3.147 Introduction to Psychophysiological Measurement 3 s.h.
3.155 Human Factors Engineering 3 s.h.

SOCIAL PSYCHOLOGY
3.115 Introduction to Social Psychology 3 s.h.
3.102 Intergroup Influence 3 s.h.
3.103 Development of Children's Social Behavior 3 s.h.
3.106 Attitude Change 3 s.h.
3.107 Environmental Stress 3 s.h.
3.106 Small Group Processes 3 s.h.
3.112 Research in Nonverbal Communication 3 s.h.
3.124 Psychology and the Law 3 s.h.
3.140 Psychology of Intergroup Relations 3 s.h.

*These courses may be counted in either—but not both—of the areas indicated.

Graduate Program
The graduate program in psychology is designed primarily for students seeking the Ph.D. 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 require from two to four additional years in this 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 careful investigation of basic and applied problems, and determined to make contributions to the discipline of psychology and to society.

Graduate training is organized in four broad training areas: clinical psychology, human development, experimental psychology, and social psychology. Each entering student is expected to identify one of these as his or her primary area and to follow a program that develops thorough understanding of the theoretical and methods of investigations central to that subdiscipline. While pursuing specialty training, all students must meet course requirements in statistics, research methods, statistics, research methods, and a second area elective. Students also become familiar with the theoretical and research strategies, and special techniques in one or more research areas through involvement in individual supervised research projects. This research participation—which may be with one faculty...
member all year long or with a different faculty member each semester—is designed to help students develop, by early in the second year of the Ph.D. candidacy, a reasonably detailed plan for the master's research project.

By the end of the second year—certainly very early in the third year—students are expected to have completed their master's project and to have defended their thesis. Advancement to Ph.D. candidacy is based on a faculty-wide review of the student's overall record of performance on the M.A. project, in course work, and in teaching, research, and service.

During the third year, students continue selected course work in the teaching and interest areas, develop a prospectus for the dissertation research, and prepare for the comprehensive examination. This written examination covers material in the specialty and in mixed areas and is given at the beginning of the fourth year. The fourth year is devoted primarily to advanced seminars and to conducting the Ph.D. study and preparing the dissertation. In the Ph.D. final examination, students present an oral defense of their dissertation and are expected to relate the dissertation work to broader issues in the discipline of psychology.

Master of Arts with Thesis

As indicated above, the department does not offer a specific M.A. program. The M.A. with thesis is a required option only for students preparing for the Ph.D. This degree requires satisfactory completion of at least 30 semester hours of graduate course work in psychology, 18 of which must be taken in the major field. The course work must include the statistics sequence, a covering course, and at least one course outside the primary specialty area. Students also must complete an acceptable scholarly thesis and conduct a successful oral defense of the thesis.

Master of Arts without Thesis

The M.A. without thesis is an option available to those few students who terminate their work in the department after four semesters. This degree requires satisfactory completion of at least 38 semester hours of graduate credit in psychology, 24 of which must be taken at The University of Iowa. The course work must include the statistics sequence, a covering course, and at least one course outside the primary specialty area, and must be successful 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 research, and is designed to prepare students for a career in clinical psychology. The program is designed for students who are interested in developing a clinical psychology 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 in the Carl I. Seashore Psychology Clinic with course work and supervised research experience.

Students in the clinical program may develop special competence in areas such as psychopharmacology, personality assessment, the affective disorders, behavioral and cognitive therapies, child psychology, and clinical health psychology. Faculty members collaborate actively with colleagues from departments such as psychiatry, psychology, pediatrics, obstetrics and gynecology, and surgery, and from other units, such as the Center for Health Services Research, the School of Social Work, and nearby area education agencies. As a consequence of such collaboration, there are several topics in health psychology in which clinical faculty members are prepared to offer research supervision. Within the department, joint training programs combining a clinical specialty with work in other training areas have been established and are available to students with strong interests in new specialty areas.

Students have opportunities to gain additional practical experience through placements in clinical facilities maintained by local, state, and university agencies. Students in the clinical program who wish to have the designation "clinical psychology" on their official transcripts 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 all but, in most cases, the dissertation project.

Human Experimental Psychology

Students affiliated with the human experimental program concentrate their training in the broad area 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 thought; perceptual learning; visual psychophysics; psychophysical scaling and signal detection theory; production of speech; human judgment and decision making; information processing, visual perception; and memory and recognition.

Faculty members in the human experimental area are prepared to help students gain additional expertise in a variety of interest areas, including human factors, consciousness, aging, and organizational and consumer behavior. Collaborative research is under way among faculty members from the College of Business Administration, the Center for Health Services Research, and several departments, including neuropsychology, industrial engineering, speech pathology and audiology, and entomology.

Neuroscience and Behavior

The program in neuroscience and behavior focuses on the anatomy of learning and motivation, primarily in mammalian subjects, through the application of behavioral and biological principles. Special faculty strengths are in brain and cranial superconducting, comparative psychophysics, motivation, neuropsychopharmacology, neurorehabilitation, and neuroanatomy. Students in this program have the opportunity to learn state-of-the-art techniques in computer-controlled experimentation and electronic instrumentation, and modern analytic and laboratory methods in neurochemistry, histology, and biochemical assays. Faculty members in the neuroscience and behavior area interact extensively with colleagues from a number of basic science departments in the University in teaching and research.

Collaborative activities provide excellent research training and teaching opportunities for students interested in emerging interdisciplinary fields such as behavioral 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 subsets, 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 acquire additional preparation for research and teaching in areas such as organizational and consumer behavior, communications, human action, and behavioral medicine. Such preparation, which ordinarily will involve selected course work outside the department (e.g., In the College of Business Administration or in the Department of Communication Studies) and participation in special research projects, will broaden students' employment opportunities.

Admission

Once the graduate program in psychology is designed primarily for students seeking the Ph.D. degree, students are considered on this basis. Occasionally a qualified applicant interested in advanced work only through the M.A. area may be admitted to pursue a joint graduate program involving psychology and another discipline or profession. A person interested in such a program should contact the department by mail or by filing as an application.

The deadline for applications is February 1. For all materials to be on file by that date, the Graduate School's Graduate Record Examination (GRE) General Test should be taken in October, certainly no later than December, to ensure that the results in psychology are 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. Admission decisions are based on a composite consideration of prior academic performance, letters of reference, scores on the verbal, quantitative, and analytic sections of the GRE General Test, and the applicant's statement about background and personal interest. Initial review of admission materials will determine whether applicants are admitted to the applicant's primary training area.

An undergraduate major in psychology—in one's major course of study in psychology, a course in statistics, and additional work in the natural sciences in that
mathematics—is desirable but not required. Students who have not had such a background but are strongly qualified on other grounds may be admitted. They will be expected to remedy deficiencies through special course work or independent study prior to enrolling in the regular graduate program.

A student who has completed substantial graduate work in another discipline, being admitted to The University of Iowa's psychology program is expected to present documentation such as a master's thesis or equivalent, that reflect significant engagement in research and scholarly writing. This material and the record of previous graduate course work reviewed by the faculty members of the appropriate training area as a basis for placement in the graduate program. In no instance are students permitted to complete substantial research or writing for a master's degree at another institution while they are regular full-time students in the graduate program at The University of Iowa.

A foreign language is not required for admission, and there are no foreign language requirements for either the M.A. or the Ph.D. in psychology.

Financial Aid

All students admitted to the graduate training program in psychology are considered, on the basis of merit, for available financial support in the form of assistantships, teaching assistantships, research assistantships, training assistantships, and fellowships. Separate applications for financial aid are required.

Faculty

The wide recognition of the commitment of the faculty to research and scholarship is reflected in the number of junior faculty, associates, and fellows, and book chapters each year. Many faculty members also are active as editors, consultants, and members of the consulting editors for major psychology journals.

Facilities

The department's facilities for graduate training and research are among the finest in the country. The Center for Research Laboratories of Psychology and adjoining space in Seaborn Hall includes the Laboratory of Learning, a laboratory, which is so equipped and furnished with accurate apparatus for research in child behavior; the Center of Learning Science; and the Laboratory of Psychopharmacology.

Seaborn Hall. The psychology branch of the University's Main Library, with major collections in all areas, is conveniently located in the west wing of Seaborn Hall. The research and teaching activities of the department greatly benefit from the facilities and staff of other University and social agencies, including The University of Iowa Hospitals and Clinics, the Psychiatric Hospital, the Veterans Affairs Medical Center, the University Counseling Service, the Child Development Clinic, the Wendell Johnson Speech and Hearing Clinic, the Iowa Driving Simulator, the Center for Health Services Research, and the School of Colleges.

Courses

Primarily for Undergraduates

3:0, 3:15, or 3:13 or equivalent is prerequisite to all other psychology courses. Only one of these courses may be taken for credit.

3:14, 3:12, 3:13, 3:14, 3:15, 3:16, 3:17, and 3:19 are open to freshmen who have satisfactorily completed an introductory psychology course (3:15 or 3:13 or equivalent).

3:14 Elementary Psychology

Psychology as a behavioral science. G.E. social sciences.

3:15 General Psychology

Introduction to psychology as an experimental science. Focus on methods of investigation in psychology. G.E. social sciences.

3:16 Introduction to Behavior Analysis


3:17 Fundamentals of Biopsychology

Behavioral and physiological correlates of behavior. Emphasis on human behavior; for students with normal biological or social sciences.

3:18 Introduction to Clinical Psychology

Current emphasis in the clinical psychology: correspondence between theoretical problems and research procedures. G.E. social sciences.

3:19 Introduction to Child Development

Current emphasis; child psychology, including behavior and environment, inheritance, developmental levels, structural level, stratification, behavior modification, human genetic differences, and the development of self-concept.

3:20 Introduction to Social Psychology

Research emphasis on the interpersonal, cultural, and social relations behavior in human society; includes major aspects of social psychology. G.E. social sciences.

3:21 Introduction to Menstrual Processes

Technical and emotional processes of the female reproductive system. G.E. social sciences.

3:22 Introduction to Comparative Psychology

Behavioral processes in animals, birds, reptiles, mammals, reptiles, fish, and arthropods. G.E. social sciences.

3:23 Psychology in Business and Industry

Application of psychological principles and techniques of world of work; emphasis on personnel selection, attitude, motivation, performance, and job performance.
3.121 Developmental Psychology 1 4 2 a)
Learning events in or out of behavior in a particular area in, e.g., learning and memory, perception, social behavior, emotional behavior, physiological behavior. May be replaced. 1 period. 5 or 10 eller 6 week course may substitute for behavioral psychology.

3.122 Personality and the Law 3 2 a)
Social psychological principles, legal findings that affect the legal system, and the evolution of legal principles. May be replaced. 1 period. 5 or 10 eller 6 week course may substitute for behavioral psychology.

3.123 Physiological Psychology 3 3 a)
Basic concepts and techniques in neuroscience, their application to analysis of sensory processes, neural mechanisms, and behavior.

3.124 Personality Development and Behavior 3 2 a)
Developmental theoretical topics on interrelativeness, research, psyche, psychodynamic, neurophysiological, and neuromotor development. May be replaced.

3.125 Introduction to Behavioral Pharmacology 3 2 a)
Behavioral consequences of drugs, emphasis on behavioral psychoactive drugs. May be replaced.

3.126 Biological Aspects of Behavior 3 2 a)
Behavioral, physiological, and pharmacological aspects of the nervous system, regulation, sexual activity, and social behavior. Basic neural mechanisms of behavior. May be replaced.

3.127 Personality of Thinking 3 2 a)
Critical thinking, reasoning, judgment and decision making, language and logical intelligence, creativity. Recommended for 3 11 or 12.

3.128 Motivation 3 2 a)
Biological, psychological, and sociological discussions of motivation.

3.129 Dysfunctional Sensation and Perception 3 2 a)
Sensation in abnormal and theoretical psychology. May be replaced with two of other coursesinthetheory-developmental psychology.

3.130 Principles of Behavioral Analysis 3 2 a)
Behaviorism, operant conditioning, classical conditioning, observational learning, operant extinction, classical extinction, social learning, and social learning. May be replaced.

3.131 The Psychology of Pain and Analysis 3 2 a)

3.132 Clinical Therapeutic Theory 3 2 a)
Theory of personality development, emphasis on concepts of Gestalt theory, psychoanalytic theory, humanistic psychology, social constructivism, human behavior, and social behavior. May be replaced.

3.133 Law, Power, and Justice 3 2 a)
Psychosocial knowledge, legal issues concerning the roles of justice and social issues. May be replaced.

3.134 Cross-Cultural Psychology 3 2 a)
Social psychological findings, as they contribute to people's attitudes, behaviors, and perceptions. May be replaced. Changes in different cultural groups, change in different cultural groups, time factors, that affect change. Cross-cultural psychology, psychological effects of cultural contact and conflict such as cultural contacts and horrification.

3.135 Learning and Personality in Psychology 3 2 a)
Analysis, interpretation of data from many research studies, statistical analysis, hypothesis testing, and report writing. Recommendations are qualitative techniques, critical analysis packages. Required 1 period.

Primary for Graduates

3.141 Introduction to Psychological Measurement 3 2 a)
Basic concepts and techniques of psychological measurement. May be replaced.

3.142 Psychological and Social Science 3 2 a)
Research processes of social science, social behavior, emotional behavior, psychological behavior. May be replaced.

3.143 Personality and the Law 3 2 a)
Social psychological principles, legal findings that affect the legal system, and the evolution of legal principles. May be replaced.

3.144 Clinical Psychology 3 2 a)
Psychological concepts in understanding abnormal, prevention, treatment of abnormal behavior. May be replaced. Research that assesses the effects of behavior on psychological and social behavior.

3.145 Human Factors Engineering 3 2 a)
Design of man-machine systems and development of system work environment by analyzing behavior of human society. Emphasis on sensory and perceptual processes, motor skills, experimental methodologies. Recommended: 516-12 or 13.

3.146 Psychophysiology 3 2 a)
Application of psychological principles to human health. Biological and psychological principles, evaluation of psychological and physiological tests. May be replaced.

3.147 Health Psychology 3 2 a)
Psychophysiological principles and psychological concepts, prevention, treatment of abnormal behavior. May be replaced. Research that assesses the effects of behavior on psychological and social behavior.

3.148 Neuropsychology 3 2 a)
Brain and mind, brain and behavior. May be replaced.

3.149 Abnormal Psychology 3 2 a)
Psychological principles and techniques of abnormal psychology, interpretation of abnormal behavior. May be replaced.

3.150 Developmental Psychology 3 2 a)
Age-related behavioral changes and development of psychological and physiological characteristics; classical and modern research methods and measurement. Recommended: 516-12 or 13.

3.151 Experimental Psychology 3 2 a)
Scientific methodology, understanding psychology, prevention, treatment of abnormal behavior. May be replaced. Research that assesses the effects of behavior on psychological and social behavior.

3.152 Social Psychology 3 2 a)
Social psychology, social psychology, social psychology, social psychology, social psychology, social psychology. May be replaced.

3.153 Personality and the Law 3 2 a)
Social psychological principles, legal findings that affect the legal system, and the evolution of legal principles. May be replaced.

3.154 Personality and the Law 3 2 a)
Social psychological principles, legal findings that affect the legal system, and the evolution of legal principles. May be replaced.

3.155 Clinical Psychology 3 2 a)
Psychological concepts in understanding abnormal, prevention, treatment of abnormal behavior. May be replaced. Research that assesses the effects of behavior on psychological and social behavior.

3.156 Personality and the Law 3 2 a)
Social psychological principles, legal findings that affect the legal system, and the evolution of legal principles. May be replaced.

3.157 Psychotherapeutic Techniques 3 2 a)
Behavioral methods for physical and social behavior. Relationship between personality characteristics and physical reactions. Recommended: 516-12 or 13.

3.158 Current Trends in Psychology 3 2 a)
Recent developments and trends in psychology. May be replaced.

3.159 Research and Practice in Psychology 3 2 a)
Research processes of social science, social behavior, emotional behavior, psychological behavior. May be replaced.

3.160 Special Readings and Projects 3 2 a)
Recent developments and trends in psychology. May be replaced.

3.161 Nonverbal Communication 3 2 a)
Recent developments and trends in psychology. May be replaced.

3.162 Recent Trends in Psychology 3 2 a)
Recent developments and trends in psychology. May be replaced.

3.163 Research and Practice in Psychology 3 2 a)
Recent developments and trends in psychology. May be replaced.

3.164 Research and Practice in Psychology 3 2 a)
Recent developments and trends in psychology. May be replaced.

3.165 Research and Practice in Psychology 3 2 a)
Recent developments and trends in psychology. May be replaced.

3.166 Research and Practice in Psychology 3 2 a)
Recent developments and trends in psychology. May be replaced.

3.167 Research and Practice in Psychology 3 2 a)
Recent developments and trends in psychology. May be replaced.

3.168 Research and Practice in Psychology 3 2 a)
Recent developments and trends in psychology. May be replaced.

3.169 Research and Practice in Psychology 3 2 a)
Recent developments and trends in psychology. May be replaced.

3.170 Research and Practice in Psychology 3 2 a)
Recent developments and trends in psychology. May be replaced.

3.171 Research and Practice in Psychology 3 2 a)
Recent developments and trends in psychology. May be replaced.

3.172 Research and Practice in Psychology 3 2 a)
Recent developments and trends in psychology. May be replaced.

3.173 Research and Practice in Psychology 3 2 a)
Recent developments and trends in psychology. May be replaced.

3.174 Research and Practice in Psychology 3 2 a)
Recent developments and trends in psychology. May be replaced.

3.175 Research and Practice in Psychology 3 2 a)
Recent developments and trends in psychology. May be replaced.

3.176 Research and Practice in Psychology 3 2 a)
Recent developments and trends in psychology. May be replaced.

3.177 Research and Practice in Psychology 3 2 a)
Recent developments and trends in psychology. May be replaced.

3.178 Research and Practice in Psychology 3 2 a)
Recent developments and trends in psychology. May be replaced.

3.179 Research and Practice in Psychology 3 2 a)
Recent developments and trends in psychology. May be replaced.

3.180 Research and Practice in Psychology 3 2 a)
Recent developments and trends in psychology. May be replaced.
Required Course Work
To graduate with a B.A. in religion, students must take 15 semester hours in foundation studies in historical religious traditions distributed among the following three areas:

WESTERN RELIGIOUS TRADITIONS
Six semester hours from the following:
32:1 Judaism-Christianity Tradition
32:2 Christian Nature
32:3 World Religions
32:6 Hinduism
32:7 Buddhist Traditions
32:9 Judaism
32:10 Judaism and Christianity
32:11 Judaism and Christianity
32:12 Judaism and Christianity
32:13 Judaism and Christianity
32:14 Judaism and Christianity
32:15 Judaism and Christianity
32:16 Judaism and Christianity
32:17 Judaism and Christianity
32:18 Judaism and Christianity
32:19 Judaism and Christianity
32:20 Judaism and Christianity

ASIAN RELIGIOUS TRADITIONS
Six semester hours from the following:
32:21 Christianity in Asia
32:22 Christianity in Asia
32:23 Christianity in Asia
32:24 Christianity in Asia
32:25 Christianity in Asia
32:26 Christianity in Asia
32:27 Christianity in Asia
32:28 Christianity in Asia
32:29 Christianity in Asia
32:30 Christianity in Asia
32:31 Christianity in Asia
32:32 Christianity in Asia
32:33 Christianity in Asia
32:34 Christianity in Asia
32:35 Christianity in Asia
32:36 Christianity in Asia
32:37 Christianity in Asia
32:38 Christianity in Asia
32:39 Christianity in Asia
32:40 Christianity in Asia

THEORETICAL APPROACHES TO RELIGION
Three semester hours from the following:
32:31 Theology of Religion
32:32 Theology of Religion
32:33 Theology of Religion
32:34 Theology of Religion
32:35 Theology of Religion
32:36 Theology of Religion
32:37 Theology of Religion
32:38 Theology of Religion
32:39 Theology of Religion
32:40 Theology of Religion

Advanced Requirements
Students must take 12 semester hours of continuing studies in one of the following nine areas of concentration, grouped in three divisions: historical traditions, thought and culture, and cross-cultural studies. Each of the approved courses for each concentration is available from the School of Religion. The concentration areas are designed to give students greater flexibility in fulfilling requirements for the degree.

HISTORICAL RELIGIOUS TRADITIONS
Judaism, Christianity, and Islam
Religions of India
Religions of China
Religions of Japan
Religions of Korea

RELIGIOUS THOUGHT AND CULTURE
Theology and ethics
Methodology and research
Religion, literature, and the arts

CROSS-CULTURAL STUDIES IN RELIGION
Religion in ancient civilizations
Religion in medieval societies
Religion in modern societies

Senior Seminar
All students must take 32:196 Senior Seminar for 3 semester hours.

Honors
Students with a 3.20 overall grade-point average are eligible to register for the honors program in religion. To complete the religion major with honors, students must complete 32:197 Honors Tutorial (3 s.h.) and 32:198 Honors Essay (3 s.h.) under supervision of a faculty advisor who must approve the completed honors essay. Copies are submitted both to the School of Religion and to the University Honor Program.

Minor
A minor in religion requires 15 semester hours of credit in religion courses with a minimum grade-point average of 2.00. Of the 15 semester hours, at least 12 must be taken at The University of Iowa in courses numbered 32:100 and above.

Graduate Programs
The School of Religion prepares a select number of graduate students to become specialists in the study and teaching of religion.

Master of Arts
There are two Areas, Theses and Nonthesis, toward the M.A. In both, students must earn a minimum of 36 semester hours in the School of Religion. Most of these will be earned in courses that fall into one of five areas of concentration: the Hebrew Bible and its early interpretations; Judaism and Christianity in the Greco-Roman world; history of religion and religious thought in the West; theology, ethics, and culture; and history of Asian religions.

Students in the thesis program take at least one semester of thesis work each year and must choose the thesis for the final semester. Students in the nonthesis program take at least two seminars.

A maximum of 6 semester hours of graduate work in religion may be transferred to the program from another accredited graduate or professional school. The student's committee must approve a program of study, including course work and plans for language and other research tests.

All students are required to take a written M.A. examination that tests competence in the area of concentration.

Master of Arts in Religion and Health
Study of the role of religion in illness and health requires a combination of theoretical and clinical investigations. The University of Iowa Hospital and Clinics provides the primary setting for research and training in this program.

Students must receive at least 20 semester hours of credit. Students must have a 3.00 GPA at the end of their first year of graduate study. Students may receive a maximum of 20 semester hours of credit, including 9 semester hours of research and 1 semester hour of seminar in the program.

A requirement for the program is passing a comprehensive examination in the area of concentration.

Doctor of Philosophy
The broad-based Ph.D. program places a high priority on the academic study of religion in its broad intellectual and cultural contexts. The program is structured to facilitate development of the research skills necessary to undertake effective teaching and to foster the generation of new knowledge. As teaching assistants, Ph.D. students have maximal opportunity to develop teaching skills.

Candidates for the doctorate must complete a minimum of 72 semester hours of graduate course work, of which 9 semester hours must be taken outside the School of Religion. A maximum of 12 semester hours is allowed for the dissertation.

The graduate areas of concentration are the Hebrew Bible and its early interpretations; Judaism and Christianity in the Greco-Roman world; history of religion and religious thought in the West; theology, ethics, and culture; and history of Asian religions.

No later than the middle of the student's fourth semester, the academic advisor decides whether to grant candidacy to the student, taking the student's committee and faculty committee of one of the Ph.D. programs. The student must:

1. Take 32:200 Colloquium: Introduction to the Graduate Study of Religion;
2. Have evidence of the ability to write scholarly papers: judgment is based on a seminar paper, one for each completed semester of residence, which the program faculty has previously judged to represent satisfactory progress toward the degree; and
3. Have a cumulative grade-point average of at least 3.00;
4. Pass the comprehensive examination in the language requirement appropriate to his or her program; and
5. Pass a plan of study that lists course work and language and research tools in preparation for the written and oral comprehensive examinations.

Doctoral candidates also must pass an oral examination on the dissertation.

More detailed information on graduate programs in religion is provided in Graduate Studies in the School of Religion, available from the department office or the University's Office of Admissions.
Financial Aid

The School of Religion offers two types of departmental financial aid for graduate students: teaching assistantships and research assistantships. The department also may nominate eligible students for University of Iowa Fellowships.

The Climacus Scholarship has been established for doctoral students interested in the relationship of religion, the visual arts, and humanistic values.

Financial aid and awards are made annually on a competitive basis. First-year students are appointed only on research assistance.

Admission

Applicants for admission to graduate study must meet the general requirements of the Graduate College. In addition, the School of Religion ordinarily requires a combined verbal-quantitative score of 1050 on the Graduate Record Examination (GRE) General Test and a 3.00 grade-point average for admission to the M.A. program, and a combined verbal-quantitative score of 1100 on the GRE General Test and a grade-point average of 3.20 for admission to the Ph.D. program. Applicants must submit three letters of recommendation and a writing sample demonstrating the ability to engage in critical thinking.

Resources

In addition to courses in Greek, Latin, and modern languages, the University offers courses in Jewish, Christian, Hindu, and Buddhist traditions. The School of Religion offers Hebrew and other Semitic and Hinduic languages as an option.

The University of Iowa Hospitals and Clinics provides extensive opportunities for students in the M.A. program in religion and health. Individual courses on such topics as death and dying and medical ethics also utilize hospital personnel and facilities.

Courses

221. Jesus-Christian Tradition 3 hrs.


230. Religion and Society 3 hrs.


231. Course in Human Ecology 3 hrs.

The role of the human individual in society; the relation of man to his culture; social groups and social organization; the role of the individual in society. Seminar in human ecology. Seminar in sociological research.

234. Living Religion of the East 3 hrs.

Religious beliefs, institutional beliefs, culture, ideas. GED through cross-cultural study, sociological research. Seminar in human ecology. Seminar in sociological research.

236. Asian Humanities I-III 3 hrs.


237. Introduction to Religious Studies 3 hrs.

An introduction to the study of religion. Focus on the writing of religious traditions through the 20th century, with emphasis on major world religions. Seminar in comparative religious studies. Seminar in advanced comparative religious studies.

238. Middle Eastern History 3 hrs.

The role of the Middle East in world history. Seminar in comparative religious studies. Seminar in advanced comparative religious studies.

239. Biblical Hebrew I 3 hrs.


240. Biblical Hebrew II 3 hrs.


260. Biblical Archaeology 3 hrs.


310. Jewish Philosophy 3 hrs.


312. Jewish Experience 3 hrs.

The Jewish experience from the early Jewish period to the 20th century. Seminar in Jewish studies. Seminar in advanced comparative religious studies.

314. Religion in American History 3 hrs.

The role of religion in American history. Seminar in American religious history. Seminar in advanced comparative religious studies.


325. The Synoptic Gospels 3 hrs.

An introduction to the life of Jesus according to the synoptic gospels, with emphasis on their literary and historical contexts.


331. Christianity II: The Schismatics and Inheritor 3 hrs.

The rise of Christianity in the west. Seminar in American religious history. Seminar in advanced comparative religious studies.

332. Christianity III: The Roman Empire 3 hrs.

The rise of Christianity in the Roman Empire. Seminar in American religious history. Seminar in advanced comparative religious studies.

333. Christianity IV: The Middle Ages 3 hrs.

The rise of Christianity in the Middle Ages. Seminar in American religious history. Seminar in advanced comparative religious studies.


335. Christianity VI: The Protestant Era 3 hrs.


The rise of Christianity in the modern era. Seminar in American religious history. Seminar in advanced comparative religious studies.

337. Christianity VIII: The Contemporary Era 3 hrs.

The rise of Christianity in the contemporary era. Seminar in American religious history. Seminar in advanced comparative religious studies.


341. Religion in the Contemporary World 3 hrs.


343. Religion in the Contemporary World 3 hrs.


345. Religion in the Contemporary World 3 hrs.


347. Religious and Liberal Arts 3 hrs.

Religious beliefs, institutional beliefs, culture, ideas. GED through cross-cultural study, sociological research. Seminar in human ecology. Seminar in sociological research.

348. Literature and Psychology 3 hrs.


349. Value in the Contemporary World 3 hrs.

Three of the following:
41:151 Russian Literature in Translation 1860-1917 3 s.h.
41:152 Russian Literature in Translation 1917-1957 3 s.h.
41:153 Trotsky and Russian Revolutions 3 s.h.
41:155 Soviet Literature since Stalin 3 s.h.
41:156 Russian Culture 3 s.h.
41:159 Russian History 3 s.h.
41:191 Russika Civilization 3 s.h.

Students majoring in Russian are urged to choose elective courses in economics, geography, history, or political science. Nearly every avenue of professional training and employment requires a solid background in Russian area studies. For example, career for U.S. Government employment include substantive knowledge in history, economics, political science, sociological disciplines, scientific specialties, demography, military-related skills, and in some cases cultural and religious background. In-depth knowledge of literature or linguistics without other substantive background may be of limited practical use in gaining employment.

Honors
Russian majors of junior or senior standing with a grade-point average of at least 3.20 both in Russian and overall may enroll in the honors program in Russian. An extensive reading program with discussions, regular reports, and a semester paper constitute each honors work unit of 3 semester hours. Students may take up to 9 semester hours of honors in Russian.

Minor
A minor in Russian requires 15 semester hours with a minimum grade-point average of 2.00. Of these, 12 must be taken at The University of Iowa. At least 9 semester hours must be advanced Russian. For students who wish to study the language at advanced levels, a minimum of 21 semester hours is required.

Graduate Program
Offered with or without thesis, the M.A. program to Russian offers two major areas, 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 in advanced seminars to present literary criticism which is audible, relevant, rigorous, and creative. The program is designed to prepare students for teaching and research in Russian language, literature, and culture.

Candidates for the M.A. must have completed at least 24 semester hours of work in Russian and be in residence for at least 6 of these semester hours at The University of Iowa. Inquiries should be directed to the Russian Department office.
undergraduate in area studies of the Commonwealth of Independent States, Eastern Europe, and Central Asia. It also provides:

- education in advanced Russian-language skills.
- REIES is a constituent program of the Center for International and Comparative Studies.

For more than four decades, the Soviet bloc countries have greatly affected the lives of Americans. Throughout the Cold War era, U.S.-Soviet relations were the linchpin of American foreign policy and shaped many domestic policies in the United States as well as in the eastern bloc. The monolithic economic, political, and social structures that began sweeping Central and Eastern Europe and the former Soviet Union at the turn of the 1990s continues to make this area pivotal to U.S. interests.

Undergraduate Program

The Bachelor of Arts in Russian, Eastern European, and Eurasian Studies is a multidisciplinary program that builds on the strengths of the University’s Department of Russian, key faculty in the social sciences and humanities, and institutional emphases on interdisciplinary programs. Currently participating in the program are 15 faculty members from the Departments of Economics, History, Political Science, and Russian as well as the School of Journalism and Mass Communication and Social Work. Students in the program seek training for a wide variety of professions requiring specialized knowledge about Russia, Eastern Europe, and Eurasian Studies.

The large number of government agencies that annually interview job candidates for positions in translation and interpretation, research, information analysis, and policy formulation almost inevitably give preference to applicants who couple a well-grounded background in area studies with strong language proficiency. For this reason, the REIES major at Iowa requires three years of college-level Russian, or the equivalent. For majors in Russian language and literature, the two-year requirement found in comparable programs is extended to four years. For majors in the area the major provides to graduates with a comprehensive career opportunities and appointments.

Curriculum

Students pursuing the Bachelor of Arts in Russian, Eastern European, and Eurasian Studies must meet the general College of Liberal Arts degree requirements (see the College of Liberal Arts introductory section of the Catalog and earn at least 12 more hours of credit in the major.

The major requires:

- an introductory undergraduate course 410:1 Introduction to the Commonwealth of Independent States (3 s.h.);
- achievement of intermediate-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 one additional course (27 s.h.) in a core area including two courses each in history and political science, one area-related course in economics, and one

area-related course in other journalism and mass communication or Russian, and

- 410:100 Senior Seminar (3 s.h.).

The existing core courses for Russian, Eastern European, and Eurasian Studies represent regularly offered undergraduate and graduate courses.

Sample Course of Study

FRYEAR

Fall Semester

410:100 Introduction to the Commonwealth of Independent States 3 s.h.
410:335 Post-Year in Russian 4 s.h.
66:1 Principles of Microeconomics General education electives 4 s.h.

Spring Semester

66:2 Principles of Macroeconomics 3 s.h.
66:177 Imperial Russia 1801-1917 4 s.h.
410:335 Post-Year in Russian 4 s.h.
General education electives 4 s.h.

SECONDYEAR

Fall Semester

68:176 Imperial Russia 1789-1801 3 s.h.
66:176 Soviet Union 1917-1993 Revolution and the New Regime 3 s.h.
410:335 Second-Year in Russian 4 s.h.
General education electives 4 s.h.

Spring Semester

66:184 The Soviet Economy in Transition 3 s.h.
41:2 Second-Year Russian 4 s.h.
General education electives 4 s.h.

JUNIOR YEAR

Fall Semester

19:155 Mass Media and Society 3 s.h.
36:117 Soviet and Post-Soviet Politics 3 s.h.
41:11 Third-Year Russian 4 s.h.
General education electives 4 s.h.

Spring Semester

19:154 Comparative Communication Systems 3 s.h.
36:142 Government and Politics in Post- Communist Societies of Eastern Europe and Asia 3 s.h.
41:11 Third-Year Russian 4 s.h.
General education electives 4 s.h.

SENIOR YEAR

Fall Semester

66:125 International Economics 3 s.h.
66:175 Monetary Russia 1290-1596 3 s.h.
36:157 Nuclear Strategy and Arms Control 3 s.h.
41:155 Russian Culture General education electives 3 s.h.

Spring Semester

36:068 Foreign Policies of the Former Soviet Bloc 3 s.h.
41:82 Soviet Literature since Stalin 3 s.h.
410:190 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 3.20. To graduate with honors, students must maintain a grade-point average of at least 3.55 in the Russian, Eastern European, and Eurasian Studies program and a cumulative grade-point average of at least 3.20. Honors students must take, 12 semester hours of course work with a grade of 3 or higher in every course. Course include honors seminars and/or projects in economics, history, journalism and mass communication, political science, Russian, Special topics, social work, as appropriate. The last 3 semester hours may be completed at an honors research project directed by faculty member from at least two REIES disciplines.

Students interested in seeking a B.A. degree with honors should contact the University Honors Program and the REIES program director before they begin their junior year.

Joint Programs

Joint programs leading to a double major in Russian, Eastern European, and Eurasian Studies and another discipline can be managed without difficulty. Double majors are appropriate in all the program’s constituent disciplines, especially in the Russian language. Other combinations are possible as well. In most cases, at least two courses count toward requirements in each major.

Supplementary Study Programs

The REIES program encourages all participants to consult with the Program director for planning purposes. REIES has established formal curricular agreements with the Department of Political Science, with the Department of Economics and the Department of History.

Study Abroad

Students who wish to work their education through study abroad are strongly encouraged to do so. The REIES faculty works hard to attract qualified students in selecting foreign-study programs and helps them design study-abroad programs that will meet their interests in the realm of the REIES.

Joint programs leading to a double major in Russian, Eastern European, and Eurasian Studies and another discipline can be managed without difficulty. Double majors are appropriate in all the program’s constituent disciplines, especially in the Russian language. Other combinations are possible as well. In most cases, at least two courses count toward requirements in each major.

The REIES program encourages all participants to consult with the Program director for planning purposes. REIES has established formal curricular agreements with the Department of Political Science, with the Department of Economics and the Department of History.

Students who wish to work their education through study abroad are strongly encouraged to do so. The REIES faculty works hard to attract qualified students in selecting foreign-study programs and helps them design study-abroad programs that will meet their interests in the realm of the REIES.
FINANCE Area Courses

Course descriptions are available in the appropriate departmental sections of the Course Guide.

ECONOMICS
- "68:001 Principles of Microeconomics" 3 s.h.
- "68:002 Principles of Macroeconomics" 3 s.h.
- "68:125 International Economics" 3 s.h.
- "68:133 Comparative Economic Systems" 3 s.h.
- "68:144 The Soviet Economy in Transition" 3 s.h.
- "68:197 Honor Seminar" arr.

These courses are prerequisites to the economics curriculum at the area of concentration, they do not count toward the 33 semester hours of coursework required for the Bachelor of Arts.

HISTORY
- "16:51 Colonialism for History Majors" 3 s.h.
- "16:174 Medieval Russia" 3 s.h.
- "16:175 Modern Russia 1800-1917" 3 s.h.
- "16:176 Imperial Russia 1500-1800" 3 s.h.
- "16:177 Imperial Russia 1817-1917" 3 s.h.
- "16:179 Soviet Union 1917-1952" 3 s.h.
- "16:179 Soviet Union 1953-1991" 3 s.h.

JOURNALISM AND MASS COMMUNICATION
- "19:155 Mass Media and Society" 3 s.h.
- "19:156 Comparative Communication Structures" 3 s.h.
- "19:181 Readings in Communication and Mass Communication" 1-3 s.h.
- "19:190 Honors Reading" 1-3 s.h.

POLITICAL SCIENCE
- 30:41 Introduction to the Politics of European World 3 s.h.
- 30:44 Soviet and Post-Soviet Government and Politics 3 s.h.
- 30:45 Politics of Post-Communist Eastern Europe and Asia 3 s.h.
- 30:47 Ethnicity, Language, and Politics in the Former Republics of the Soviet Union 3 s.h.
- 30:48 Politics of Ethnic and Cultural Conflict 3 s.h.
- 30:60 Strategic Thinking and Area Control 3 s.h.
- 30:68 Foreign Policies of the Former Soviet Bloc 3 s.h.
- 30:183 Honor Seminar on Comparative Politics 3 s.h.
- 30:184 Honors Seminar on International Politics 3 s.h.

RUSSIAN
- 41:151 Russian Literature in Translation 1050-1800 3 s.h.
- 41:152 Russian Literature in Translation 1800-1917 3 s.h.
- 41:155 Russian Literature and Society 3 s.h.
- 41:181 Soviet Literature to 1954 3 s.h.
- 41:182 Soviet Literature since Stalin 3 s.h.
- 41:185 Russian Culture 3 s.h.
- 41:186 Russian Poetry 3 s.h.
- 41:191 Russian Civilization 2.5 s.h.
- 41:199 Russian 3 s.h.

FINANCIAL AID

Students are encouraged to apply for a Stature Undergraduate Scholarship for International Research and Study among the Center for International and Comparative Studies. The scholarships are awarded on the basis of University of Iowa undergraduate students, who, at least concurrently with a faculty member, propose a well conceived research or fieldwork project on an international topic.

Courses

418:100 Introduction to the Commonwealth of Independent States 3 s.h.
418:102 Foreign Affiliates and Policy 3 s.h.
418:104 Comparative Vista: Japan, Europe and the West 3 s.h.
418:195 Independent Study 1 s.h.
418:196 Senior Seminar 3 s.h.
418:199 Honors 3 s.h.

SCIENCE EDUCATION

Coordination: John E. Foskett
Professors: John E. Foskett, Howard L. Peterson, Jean L. Schreiber, Robert E. Yager
Associate professors: Richard T. Carr, George W. Currens, Daniel O. Phillips, Daniel S. Shearer, John T. Wilson

Undergraduate Program

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 in three years or six semesters of sequential study.
- Preparation in a second area of science equivalent to two years or four semesters of sequential study.
- Introduction to at least two other fields of science.
- A specific proficiency in mathematics as a tool of science (with more mathematics study required for the physical science emphasis only).
- A view of science from a historical, philosophical, cultural perspective.
- Experience with the application of scientific knowledge.

Biology

The B.S. in science education requires a minimum of 56 semester hours earned in selected courses in College of Liberal Arts science departments, science applications courses, and courses in the history, philosophy, and sociology of science. Students may choose from six emphasis areas within the science education major: biological sciences, earth sciences, chemistry, physics, physical science, and general science. The requirements for the major with each of the six emphasis areas are as follows.

Biological Science Emphasis

At least 25 semester hours must be taken in 100-level courses.

Science
- 21:1 Introduction to Botany 4 s.h.
- 21:2 Principles of Animal Biology (in botany, microbiology, or zoology, including work in genetics, ecology, and physiology) 15 s.h.
- 41:14 Principles of Chemistry I (with laboratory) 5 s.h.
- 41:12 Organic Chemistry I 3 s.h.
- 41:13 Organic Chemistry II 3 s.h.
- 41:5 Introduction to Geology 4 s.h.
- Geology elective 4 s.h.
- 29:1 College Physics Mathematics course at the level of 22:MI-11 or 22:5-11 is more advanced 3 s.h.

Application of Science

97:103 Societal and Industrial 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.
97:140 Problems in Integrating the Teaching of Environmental Science 3 s.h.

Transfer courses from areas such as engineering, agronomy, and technical schools may be substituted for 97:103 or 97:105 with the advisor's approval.

History/Philosophy/Sociology of Science

97:126 Meaning of Science 2 s.h.
Earth Science Emphasis
At least 25 semester hours must be earned in 100-level courses.

Science
12-15 Introduction to Geology 4 s.h.
12-25 Environmental Geology Problems 4 s.h.
12-6 Evolution of the Earth 4 s.h.
12-4 Evolution and the History of Life 4 s.h.
12-41 Mineralogy 4 s.h.
12-109 Advanced Physical Geology: An Lava Perspective 3 s.h.
29-111 College Physics 4 s.h.
29-12 College Physics or 12-180 Solid Earth Geophysics 3 s.h.
29-41 General Astronomy 4 s.h.
46-103 Climatology 3 s.h.
4-14 Principles of Chemistry I 6 s.h.
4-16 Principles of Chemistry Lab I 2 s.h.
12-149 Elements of Geochemistry 3 s.h.
Earth science electives 3 s.h.

Application of Science
97-102 Societal and Educational Applications of Earth Sciences and Environmental Sciences 3 s.h.
97-103 Societal and Educational Applications of Biological Sciences or 97-105 Societal and Educational Applications of Physical Sciences or 97-140 Problems in Integrating the Teaching of Environmental Science 3 s.h.
Transfer courses from applied areas such as engineering, agriculture, and technical schools may be substituted for 97-102 or 97-103 with the 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.

Science
29-11-12 College Physics 8 s.h.
29-17-18 Introductory Physics I and II 8 s.h.
29-19-20 Introductory Physics III 4 s.h.
22M-33-34 Engineering Calculus III 12 s.h.
4-14 Principles of Engineering Physics I 6 s.h.
4-16 Principles of Chemistry Lab I 2 s.h.
4-121 Organic Chemistry I 3 s.h.
4-151 Physical Chemistry 3 s.h.
4-152 Physical Chemistry Laboratory 3 s.h.

Application of Science
97-102 Societal and Educational Applications of Physical Sciences or 97-105 Societal and Educational Applications of Physical Sciences or 97-140 Problems in Integrating the Teaching of Environmental Science 3 s.h.

History/Philosophy/Sociology of Science
97-128 Meaning of Science 2-3 s.h.
97-130 Science in Historical Perspective 2-3 s.h.

Chemistry Emphasis
At least 25 semester hours must be earned in 100-level courses.

Science
4-15-14 Principles of Chemistry I 6 s.h.
4-16 Principles of Chemistry Lab I 2 s.h.
4-21 Organic Chemistry I 3 s.h.
4-211 Organic Chemistry I Laboratory 3 s.h.
4-152 Physical Chemistry 3 s.h.
29-11-12 College Physics and Physics electives 8 s.h.
or
29-17-18 Introductory Physics I and II 12 s.h.
and Physics electives 3 s.h.
22M-33-34 Engineering Calculus III 8 s.h.

Application of Science
97-102 Societal and Educational Applications of Physical Sciences or 97-105 Societal and Educational Applications of Physical Sciences or 97-140 Problems in Integrating the Teaching of Environmental Science 3 s.h.

Physics Emphasis
Science
4-15-14 Principles of Chemistry I 6 s.h.
4-16 Principles of Chemistry Lab I 2 s.h.
29-11-12 College Physics and Physics electives 8 s.h.
12-5 Introduction to Geology 4 s.h.
Physics electives 4 s.h.
Chemistry electives 4 s.h.

Additional physical science electives (geology, geography, chemistry, physics) 11 s.h.

Application of Science
97-102 Societal and Educational Applications of Earth Sciences and Environmental Sciences 3 s.h.
97-105 Societal and Educational Applications of Physical Sciences or 97-140 Problems in Integrating the Teaching of Environmental Science 3 s.h.

History/Philosophy/Sociology of Science
97-128 Meaning of Science 2 s.h.
97-130 Science in Historical Perspective 2 s.h.

General Science Emphasis
Science
4-13-14 Principles of Chemistry I 6 s.h.
4-16 Principles of Chemistry Lab I 2 s.h.
4-12 Organic Chemistry I 3 s.h.
29-11 College Physics 4 s.h.
29-12 College Physics 4 s.h.
12-5 Introduction to Geology 4 s.h.
2-1 Introduction to Astronomy 2 s.h.
2-3 Principles of Animal Biology 3 s.h.
Science electives 9 s.h.
Electives must be chosen so there are at least 21 semester hours in either biological sciences, chemistry, physics, or geology.

Application of Science
Two of the following:
97-102 Societal and Educational Applications of Earth Sciences and Environmental Sciences 3 s.h.
97-105 Societal and Educational Applications of Biological Sciences 3 s.h.
97-105 Societal and Educational Applications of Physical Sciences 3 s.h.
97-140 Problems in Integrating the Teaching of Environmental Science 3 s.h.

History/Philosophy/Sociology of Science
97-128 Meaning of Science 2 s.h.
97-130 Science in Historical Perspective 2 s.h.

Teacher Licensure
Conditions for a bachelor's degree in science education may, but are not required to, be admitted to the teacher education program (TEP). In order to be considered for admission to the TEP, students must have completed a minimum of 25 semester hours of course work with a minimum cumulative grade-point average of 2.3. A limited number of applicants are accepted into the TEP, so having a 3.5 grade-point average does not ensure admission.
Admission decisions are based on grade point average, test scores, and other criteria relevant to teaching.
Procedures and deadlines for TEP applications are described under "Curriculum and Instruction" in the College of Education section of the General Information manual students must apply
Special Programs

The Iowa Chautauqua Program bring 250 science teachers grades K-12 to live workshops, which focus on introducing teachers to new science/technology/society materials and approaches. The Chautauqua Program also provides year-long, service support to teachers across Iowa. The Iowa/utils Organizations, in cooperation with The University of Iowa, sponsor the Iowa Chautauqua Program.

Other programs include Project STEPS, which helps upper elementary and middle school students use and evaluate logical and higher order thinking skills, and Project PCOCS, a recently funded NSF program that allows middle school teachers to conduct educational research. Additional efforts focus on strategies for teachers who work with gifted and talented students and programs that simulate international faculty exchanges.

Many Science Education Center activities are funded by NSF, Title II, the Iowa lottery program, and industries such as the Iowa Utility Association. Many teachers involved in our programs are invited to design degree programs.

International Programs

Science education faculty members have collaborated on a number of international research and development projects in countries including Brazil, India, Spain, Portugal, Israel, Nigeria, Malaysia, Indonesia, Korea, Australia, Taiwan, South Africa, Mexico, and India. Several have published papers and presentations in Chinese and Japanese, and many have participated in interchange programs.

International students offer the opportunities for our students to expand their understanding of the Science Education Center. Many have returned to their home countries—Brazil, India, Malaysia, Filipina, Taiwan, and others around the world. Relationships are maintained and new collaborative efforts are under way each year.

Facilities

The facilities for science education programs at The University of Iowa are exemplary. They include a two-field office, faculty, secretarial, and graduate assistant offices; a self-instructional computer laboratory; a photographic laboratory; instructional classrooms, including space for elementary and secondary school science methods courses; applications-oriented course, a large seminar room 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, superintendents, and administrators; a common area for small-group meetings and conference work; and a lounge.

The Science Education Center is located in Van Allen Hall near the center of the University campus.

Courses

The following are special courses offered by the Science Education Program in support of the undergraduate emphasis areas in Science education and to provide science options for elementary education majors.

Primarily for Undergraduates

97.35 Cooperative Education Internship 6 s.h.
97.27 Practicum in Science Education 4 s.h.
97.32 Research Methods in Science Education 3 s.h.
107.30 Research in Science Education 6 s.h.
97.26 Secondary Science Research 3 s.h.

For Undergraduates and Graduates

107.26 Social and Psychological Aspects of Science and Environmental Education 3 s.h.
107.95 Environmental Education 3 s.h.
107.96 Social and Psychological Aspects of Science and Environmental Education 3 s.h.
107.97 Social and Psychological Aspects of Science and Environmental Education 3 s.h.
107.98 Social and Psychological Aspects of Science and Environmental Education 3 s.h.
107.99 Social and Psychological Aspects of Science and Environmental Education 3 s.h.
107.10 Social and Psychological Aspects of Science and Environmental Education 3 s.h.
107.11 Social and Psychological Aspects of Science and Environmental Education 3 s.h.
107.12 Social and Psychological Aspects of Science and Environmental Education 3 s.h.
107.13 Social and Psychological Aspects of Science and Environmental Education 3 s.h.
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107.45 Social and Psychological Aspects of Science and Environmental Education 3 s.h.
107.46 Social and Psychological Aspects of Science and Environmental Education 3 s.h.
107.47 Social and Psychological Aspects of Science and Environmental Education 3 s.h.
107.48 Social and Psychological Aspects of Science and Environmental Education 3 s.h.
**SCHOLAR WORK**

**Director:** Catherine F. Allen  
**Professors:** Paul L. Harrison, Loycine Doehne, H. Wayne Nelson, Thomas R. Wilh  
**Associate Professor:** Marie Stewart  
**Adjunct Professor:** Robert A. Misner  

**Graduate Program:**
The department offers the M.A. with or without thesis.  
Graduate students in the M.A. program are classroom teachers and members of the M.A. social work program. Some courses are offered in the summers, while others are offered in the winters. All graduate students must be members in good standing in the college community.  
A few have found the degree to be excellent preparation for professional work in correctional and penal institutions. For those few, the program has also provided access to clinical services positions at various levels of government.

**Doctor of Philosophy**
Graduates of the Ph.D. program hold administrative posts in institutions of higher education, serving as presidents, provosts, or deans of faculty or graduate studies. Some are department chairs in colleges of education or curriculum directors in large school districts. Many are in teacher education programs in colleges and universities, while others are college instructors in their areas of academic concentration.  
Requirements and admission criteria for the Ph.D. program 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 15 credit hours 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 course numbered 42:100 and above. 42:02, or its equivalent at another institution, 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 December. Admission to the undergraduate program in social work requires:

- completion of 42:22 Introduction to Social Work with a grade of C or higher (can be taken the sophomore year);
- a cumulative grade-point average of at least 2.50; and
- completion of the application process.

Exceptions may be made for persons who do not meet the grade-point average requirement if they are strong candidates on the basis of other criteria.

More information is available from the School of Social Work admission coordinator.

Graduate Program

The Master of Social Work program prepares social workers for leadership in the profession and for advanced social work practice in one of two concentrations. The program’s general focus is on family systems and social change, both domestic and international. Its common goals, to be met through the establishment of core requirements, are to enable all students to understand the dynamics of human development and change; to learn how to enhance the responsiveness of human service within society and the individual; and to acquire intervention skills for working with individuals, families, social groups, organizations, and communities in public and private agencies and institutions.

The program is accredited by the Council on Social Work Education (CSWE). The Master of Social Work includes 25 semester hours of foundation level courses and 35 semester hours of advanced-level courses. Students who have a B.S.W. from a CSWE-accredited program receive 15 semester hours of advanced standing and earn the degree with 45 semester hours. A limited number of students are admitted to a 36-hour, full-time program. All students must earn a minimum of 36 hours after admission to the M.S.W. program.

Up to 14 semester hours of partial advanced standing is possible for students who have completed courses in a CSWE-accredited program but who do not have the degree. Students with equivalent foundation course content taken in departments or programs other than accredited social work programs must pass a qualifying exam for the social foundation course in order to receive partial advanced standing. Nine to 12 semester hours of graduate study may be allowed for previous graduate work.

The school operates a year-round, segmented program that begins in the fall semester for full-time students who need the fall 60 semester hours. The program continues through the summer, which is a full semester. Full-time students who complete the entire 60 semester hours after admission generally earn the M.S.W.-spring semester of their second year. Those who require 45 semester hours enter the program in the second semester (January). Students in the 36-hour plus-hour program begin their course work in the third semester (May). The 36 semester-hour program is available only for full-time students.

Part-time students go through the program at a slower pace. Students who need the full 60 semester hours complete the program in four years.

A special introductory summer program has been designed to enable students from Iowa Western and the Grand Islands to spread clients in Iowa City.

Students must maintain a minimum 3.00 cumulative grade-point average; must be proficient each semester in compliance with the Student Advancement Policy; and must successfully complete a master’s comprehensive examination, an integrative paper involving evaluation of practice, prepared in conjunction with a practicum seminar in the final semester. Students may elect a thesis option for credit and use the oral defense as their final examination.

The following is an outline of the full-time -60 semester-hour program.

FIRST-YEAR FOUNDATION

Fall Semester
- 42:12 Human Behavior in the Social Environment 4 s.h.
- 42:14 Fundamentals of Social Work Practice 3 s.h.
- 42:142 Intersessional Skills Laboratory 1 s.h.
- 42:143 Social Welfare Policy and Practice 3 s.h.
- 42:144 Microgroup Laboratory 1 s.h.
- Elective 3 s.h.
- Total 15 s.h.

Spring Semester
- 42:144 Social Work Research 3 s.h.
- 42:145 Organization and Community Practice 3 s.h.
- 42:147 Groups and Discrimination 3 s.h.
- 42:201 Foundation Practicum in Social Work 3 s.h.
- 42:201 Foundation Practicum Seminar Elective 1-2 s.h.
- Total 13 s.h.

Summer Semester
- Electives—including placement field practice courses 4-11 s.h.

SECOND-YEAR CONCENTRATION

Fall Semester
- 42:250 Family Systems Theory 3 s.h.
- 42:264 (interdisciplinary Systems Theory 3 s.h.
- 42:270 Advanced Research 3 s.h.
- 42:280 Advanced Practicum in Family Systems 3 s.h.
- 42:285 Advanced Practicum in Interdisciplinary Systems 5 s.h.
- 42:285 Advanced Practicum Seminar in Family Systems I 1 s.h.
- 42:285 Advanced Practicum Seminar in Interdisciplinary Systems I 1 s.h.
- Total 12-13 s.h.

Spring Semester
- 42:321 Family Therapy 3 s.h.
- 42:325 Social Work Practice in Interdisciplinary Settings 3 s.h.
- 42:325 Family Policy: Domestic and International 3 s.h.
- 42:325 Social Policy and Interdisciplinary Systems: Domestic and International 3 s.h.
- 42:285 Advanced Practicum in Family Systems 3 s.h.
- 42:285 Advanced Practicum in Interdisciplinary Systems 5 s.h.
- 42:285 Advanced Practicum Seminar in Family Systems II 1 s.h.
- 42:285 Advanced Practicum Seminar in Interdisciplinary Systems II 1 s.h.
- Thesis or elective 2-3 s.h.
- Total 12-13 s.h.

Concentrations

After admission, students choose between two concentrations: family systems or interdisciplinary systems.

Family and Individual Systems

Designed to prepare students for direct service practice with individuals, families, and small groups, this concentration focuses on therapeutic endeavors with individuals and families.

This type of social work practice, called clinical social work, requires specialized training in various theoretical frameworks of psychosocial assessment and treatment of individuals and families facing psychological and social problems. It is currently a required curriculum within the schools of medicine, dentistry, veterinary medicine, nursing, and public health education. In this specialty focus on both individual and social factors and serve clients who are generally not served by other therapists (i.e., the economically deprived, the mentally ill, and the chronically ill).

The theoretical basis for this concentration is family systems theory, which emphasizes interdependence among people in a family system. Several approaches exist under this theoretical framework, but they share common assumptions and practice methods and are often integrated. In several elective recommended courses, other
approaches (e.g., psychoanalytic, behaviorism) are studied and couples are considered as fundamental units of analysis, including families and friendship groups. Family therapy and its effects on direct practice are studied as are research methodologies, including especially effects in clinical work, client as a unit of analysis, and outcome studies.

Interdisciplinary Systems
This concentration emphasizes theoretical knowledge and skills for indirect and direct social work practice in multi-disciplinary settings, such as public and private human service organizations, hospitals and clinics, schools, businesses, and industry, and corrections. It is designed to enable students to collaborate with professionals from diverse disciplines, serve on interdisciplinary treatment and assessment teams, do case management, coordinate services in intra- and interorganizational systems, and create programs and policy change that will improve services to clients.

Students learn to assess the needs of clients and to be advocates for their needs across departments and organizational boundaries, as well as across other professions and disciplines. The effectiveness of social workers as service providers and agency of change requires an understanding of organizational and interactional dynamics as well as knowledge of policy and program development. Students acquire skills related to assessment, integration of service theory with direct and indirect practice, program development, planning, policy making, administration, evaluation, community organization, and social action.

Off-Campus Centers
The full time program is available in Iowa City and Des Moines. At the end of the first calendar year, some students stay in the Iowa City Cedar Rapids area for the remainder of their program, including practicum, and some are assigned to Des Moines or the Quad Cities for practicum. Students may need to relocate.

The Des Moines Center, 115 miles west of Iowa City, is located in Iowa's state capital and largest city. The Des Moines Center is based at the Des Moines Civic Center. Part-time students who have a practicum assignment in the Quad Cities usually commute to Iowa City for required courses during the second year of the program. Some electives are available in the Quad Cities.

Part-Time Program
The School of Social Work also has a part-time program in three locations: Iowa City, Des Moines, and Cedar Rapids. In Iowa City and Des Moines, students are admitted each fall semester. In the Quad Cities, a group of part-time students is admitted every three years; the next group will start in August 2004. The School of Social Work encourages part-time students to take related courses in all centers and are available for faculty advising.

The off campus programs have been evaluated by CSWE and The University of Iowa Graduate Council as providing a comparable program to that available on the Iowa City campus.

Part-time students complete two courses each spring and fall semester for three or four years. Electives may be taken concurrently with the fall and spring semester courses and in the summer. A full range of summer courses is available in Iowa City, and some courses are available in Des Moines. The format for most Iowa City summer courses is intensive, short-term, and part-time, enabling students from other centers to take campus courses.

Joint Degree Programs
The School has formal agreements with the College of Law and the Department of Urban and Regional Planning for joint degrees. Students must be accepted to each department through its regular admission process. Up to nine semester hours in each program are applied to requirements of the other, thus reducing the time it would usually take to pursue two degrees. Individual arrangements may be made with other departments. Students have pursued joint degrees with the College of Business Administration, College of Education, American Studies Program, School of Religion, School of Journalism and Mass Communications, and others. Students are encouraged to take courses in other departments whether or not they are pursuing joint degrees.

Cooperative Programs
In cooperation with the Consortium 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. Credits are not automatically accepted; graduates need to demonstrate that they meet requirements, usually by sending course outlines.

The School of Social Work participates in the Aging Studies Certificate Program through the College of Liberal Arts. Students can earn the certificate concurrently with the M.S.W. program; their thesis may be related to the field of aging studies.

The school also participates with the College of Education to provide curricula that meet requirements for school social work certification in Iowa. Students can earn certification concurrent with the M.S.W. program. Students apply for certification at the end of the degree 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 Board Services and the School of Social Work gerontology programs.

The school also offers students the opportunity to participate in travel/study seminars in Urban, rural, national, and international settings are available.

Admission
The criteria for admission for full-time and part-time study in the 40 and 45 semester-hour M.S.W. programs are as follows:

- a bachelor's degree from an accredited college or university, with a reasonable distribution of courses in the social sciences and humanities;
- a 3.00 or higher grade-point average for the junior and senior years of undergraduate study, or 12 semester hours of a letter-graded graduate course work in mathematics or a cognate field;
- a Graduate Record Examination (GRE) score;
- three positive letters of recommendation, including one regarding academic abilities and one or more regarding social service or volunteer work experience; and
- a personal statement addressing criteria specified by the School of Social Work.

Previous experience in the human services (volunteer, paid, or employment) is desirable. Previous matching life experience (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).

Applicants who are especially strong candidates on the basis of other criteria may be admitted even if their grade-point average is below 3.00. Since the school seeks to maintain a heterogeneous student body, it makes special efforts to admit students who represent a diversity of social, ethnic, and socioeconomic backgrounds. Students with disabilities also are encouraged to apply. Applicants must complete the following by January 1:

- Applications for admission must be completed by February 1 to be considered for the next academic year. Students who complete their application during the fall semester may be accepted during the fall semester. Applications for the 30-semester-hour program must be completed by January 1.
- The School of Social Work participates in the Aging Studies Certificate Program through the College of Liberal Arts. Students can earn the certificate concurrently with the M.S.W. program; their thesis may be related to the field of aging studies.
- The school also participates with the College of Education to provide curricula that meet requirements for school social work certification for M.S.W. programs. Students apply for certification at the end of their degree in the College of Education.
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- The school also offers students the opportunity to participate in travel/study seminars in urban, rural, national, and international settings are available.
225:153 Introduction to Probability 3 s.h.
225:154 Introduction to Mathematical Statistics 3 s.h.

All majors are required to take 3 semester hours of course work in at least one of these departments: anthropology, economics, geography, political science, or psychology. A list of complete requirements for a sociology major is available in the department office.

To encourage development of a broad knowledge of sociology, the department requires that majors complete at least one course numbered 200 or above in each of three areas selected from the following list: "Advanced Courses" in this section of the Undergraduate catalog; sociology; statistics and methods of research; social psychology; deviance, deviants, control, crime, and law; family; life-stresses, children, and aging; social institutions and social change; community and population; social class, inequality, race, and organizations. This requirement does not apply to minors in sociology.

Departmental requirements are the same for transfer students as for other students. While some courses taken 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 while majoring in sociology should contact the Director of Curriculum and Instruction in the College of Education.

Honors

The University Honors Program provides a stimulating and integrative educational experience for undergraduates, and psychology performs at a high level. You qualify for the honors degree if you have a grade-point average of 3.25 overall and in sociology courses. The honors curriculum consists of limited-enrollment classes in which we explore in depth issues of current interest with Faculty and with each other.

The special requirements for honors degree in sociology are consistent with 34:100 Honors Program. Prospective in the junior year, one advanced undergraduate course or graduate course, supervised by the honors director, and an honors thesis. The honors thesis provides you with an opportunity to do sociological research in consultation with a faculty mentor of the student's choice. As an option, honors students may take the honors section of 24:1 Introduction to Sociology. Practice thereby waiving the course requirements of 24:2 Introduction to Sociology. Problems for a degree in sociology.

Minor

In addition to its programs for majors, the department provides supportive course work and seminars for students of value to undergraduate students who want to become a minor in sociology, particularly those in 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 grade-point average of 3.00 or higher;
- At least 12 of the 15 semester hours must be taken at The University of Iowa in courses numbered 34:100 and higher; and
- no course accepted toward the minor may be a course that is acceptable for any major.

A brochure describing minors in sociology is available in the department office.

Graduate Programs

The graduate programs in sociology prepare students for professional careers. Master's degree students can choose programs that prepare them for doctoral studies 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 positions in academic, private, and government institutions. Opportunities for research using survey, experimental, and observational methods are readily available in the department.

Master of Arts

The M.A. requires 36 semester hours of study or 39 semester hours without a thesis. The program without thesis is intended for persons wishing to complete a terminal degree and for whom a wider range of course content in sociology is appropriate.

All candidates for the M.A. must complete the following with grades of B or better:

- 34:201 History of Sociological Theory 3 s.h.
- 34:202 Sociological Theory 3 s.h.
- 34:214 Elementary Statistics and Data Analysis 3 s.h.
- 34:215 Sampling, Measurement, and Observation Techniques 3 s.h.

M.A. in Criminal Justice and Corrections

This program is designed for individuals who wish to work in criminal justice. Since it is assumed that a sociological orientation and background is extremely valuable for such work, the major emphasis of the program is sociological. The program includes a required course in criminology, an elective course in criminal justice, and a seminar in the research methods and statistical analysis of crime. The program is designed for students in law and public policy.

Admission

Applicants to graduate study in sociology usually possess a minimum undergraduate grade point average of 3.00 and a total score of 1100 from the Joint Program in Sociology and

Students may obtain a Master of Arts in sociology and a Juris Doctor by fulfilling the basic requirements of both programs. They may apply to one program and graduate credit, earned to satisfy the requirements of either degree, toward both the M.A. in sociology and the 90 semester hours required for the J.D. This crossexamination program at the discretion of the Department of Sociology and the College of Law, allows students to receive the J.D. and the M.A. by taking more course work than would be necessary if the two degrees were pursued independently. This program is highly individualized, allowing students to explore various aspects of the relationship between law and society.

Doctor of Philosophy

The Ph.D. degree in sociology requires a minimum of 72 semester hours of graduate-level course work, including the post-M.A. course 34:316 Introduction to Statistics and Data Analysis and 3 credit semester hours in methodological statistics. Candidates must pass comprehensive examinations and write a dissertation.

All doctoral candidates are examined in the basic tool areas of sociology-theory, history of sociology, methodology, and statistics-and on one major and one minor area chosen from the ones represented by the faculty, such as social psychology, deviance, race, gender, social stratification, organizations, political sociology, theory, methods, and surveys. A detailed statement of regulations for graduate study also is available upon request. Prospective doctoral candidates should examine these materials carefully.

Special Workshops

The department organizes a series of workshops each semester on new and interesting research methods that are part of the standard methods sequence. Each workshop informs students about the problems for which the method is applicable, gives an introduction to its theory, and shows how the method is actually used in a research setup. Topics covered in recent years include LREI, meta-analysis, statistical techniques, survey history analysis, and time-series analysis.

A biweekly workshop on theory and methods is attended by both faculty members and graduate students in the department.
The department provides core coursework for undergraduate and graduate majors in Spanish or Portuguese, for the satisfaction of foreign language requirements for baccalaureate and advanced degrees in other fields, and for the satisfaction of the second language requirement for undergraduate majors in comparative literature.

Knowledge of foreign language and culture is indispensable in many career areas. Students majoring in Spanish or Portuguese may find opportunities in fields such as business, transportation, industry, journalism, international broadcasting, publishing, teaching, research, library work, and translation.

Undergraduate Programs

Bachelor of Arts in Spanish

Elementary and intermediate coursework in Spanish introduces five performance goals—listening, reading, speaking, writing, and culture knowledge—in a staged progression that has an overall goal of developing and profiting.

Emphasis is given to the acquisition of Spanish language skills in communicative contexts and enrichment of vocabulary through an introduction to Hispanic culture, and the development of grammatical accuracy in speaking and writing. Elementary and intermediate Spanish courses meet daily and are taught in Spanish.

The undergraduate major in Spanish may be completed with an emphasis in Spanish language and linguistics, Latin American studies, or Spanish and Spanish-American literature and culture. The Latin American studies track of the Spanish major requires study of Spanish language and literature, and culture, in addition to study of Spanish language and Spanish-American literature and culture.

Language and Linguistics Track

Designed for students interested in pursuing in-depth study of Spanish as an language, and linguistics, and for those who wish to prepare

35:107 Advanced Spanish Language 4 s.h.
35:111 Introduction to Hispanic Linguistics 3 s.h.
Spanish, Spanish-American, Portuguese, or Brazilian Literature 6 s.h.

At least 15 semester hours must be taken from the courses listed below, at least 9 of the three groups of courses must be represented.

Spanish and Portuguese

35:103 Written and Oral Expression in Spanish 3 s.h.
35:105 Cultural and Communicative Skills in Spanish 3 s.h.
35:106 Problems in Spanish Grammar 3 s.h.
35:109 Senior Spanish Language 1 4 s.h.
35:110 Senior Spanish Language 2 3 s.h.

Spanish and Portuguese

35:106 Technical Communication 3 s.h.
35:116 Business Spanish 3 s.h.
35:120 Techniques of Spanish-English Translation 3 s.h.

Linguistics

35:112 Spanish Phonology 3 s.h.
35:115 Structures of the Spanish Language 3 s.h.
35:119 Introduction to Linguistics 3 s.h.
35:171 Spanish Syntax 3 s.h.
35:188 History of the Spanish Language 3 s.h.

Portuguese

35:100 Accelerated Elementary Portuguese 5 s.h.
35:118 Foundations in Sociolinguistics 3 s.h.
35:119 Topics in Portuguese Linguistics 3 s.h.
35:124 Portuguese for the Professionals 3 s.h.
35:122 Topics in Portuguese Language 3 s.h.

The remaining 6 semester hours of elective course work must be taken at the 300 level in either the Department of Spanish and Portuguese or the Department of Linguistics. No more than 4 of the 34 semester hours required for the language and linguistics track may be taken in English.

Latin American Studies Track

The Latin American studies track is designed for students interested in pursuing interdisciplinary study of Spanish-American and Portuguese linguistics, and for those who wish to prepare themselves for graduate work in the humanities or social sciences, for study at professional schools such as law, journalism, or business, or for a variety of business careers. It requires 35 semester hours of credit in course work, as follows.

35:100 Accelerated Elementary Portuguese 5 s.h.
35:116 Business Spanish 3 s.h.
35:120 Techniques of Spanish-English Translation 3 s.h.

Additional Spanish or Portuguese language and linguistics courses in Spanish-American or Brazilian culture 3 s.h.

Spanish-American literature 3 s.h.
Brazilian Literature 3 s.h.

Latin American Studies Seminar or another advanced undergraduate seminar 3 s.h.

Elective courses approved by the Latin American Studies Program 9 s.h.

No more than 9 of the 35 semester hours required in the Latin American studies track may be taken in English.

Students completing the Latin American studies track of the undergraduate major in Spanish also may count their work toward completion of the Latin American Studies Certificate Program. Contact an undergraduate advisor or the chair of the Latin American Studies Program for more information.

Literature and Culture Track

The literature and culture track is designed for students interested in pursuing in-depth study of Spanish-American literature, history, and contemporary society, and for those

35:103 Written and Oral Expression in Spanish 3 s.h.
35:105 Cultural and Communicative Skills in Spanish 3 s.h.
35:106 Problems in Spanish Grammar 3 s.h.
35:109 Senior Spanish Language 1 4 s.h.
35:110 Senior Spanish Language 2 3 s.h.

35:103 Written and Oral Expression in Spanish 3 s.h.
35:105 Cultural and Communicative Skills in Spanish 3 s.h.
35:106 Problems in Spanish Grammar 3 s.h.
35:109 Senior Spanish Language 1 4 s.h.
35:110 Senior Spanish Language 2 3 s.h.

The literature and culture track is designed for students interested in pursuing in-depth study of Spanish-American literature, history, and contemporary society, and for those
before enrolling in the required senior seminar. Further information on the Latin American Studies Program, see "Latin American Studies Program" in this section of the Catalog.

Courses for Undergraduate Nonmajors

Undergraduate students in other disciplines may partake of the College of Liberal Arts General Education Requirements in humanities and foreign civilization and culture with 20-20 Contemporary Latin American Literature and 20-20 Contemporary Spanish Literature, in which the readings are in English. The departments offer several upper-level literature, film, and culture survey courses that are taught in English and are of general interest.

Graduate Programs

Master of Arts in Spanish

Candidates for the M.A. must have completed the equivalent of the undergraduate Spanish major with at least a 3.0 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 3.0

34-200 Spanish and Linguistics (200 level) 3.0

34-200 Spanish literature 3.0

34-200 Spanish-American literature 3.0

Fifteen semester hours of elective courses at the 200 level or the advanced 100 level, no more than 6 semester hours of which may be taken outside the department; the required minimum is 36 semester hours for the M.A.

Maximum Study Loads

Maximum course registration is 15 graduate semester hours during fall or spring semesters and 16 graduate semester hours during summer sessions. Prior written consent from the appropriate teaching authorities are permitted to register for the maximum study loads. One-half-time teaching assignments may register for not less than 12 semester hours in fall or spring semesters, and for not more than 6 semester hours during summer sessions. Additional semester hours may be taken only with Graduate College approval.

Transfer Credit

A maximum of 9 semester hours of graduate credit in approved courses may be transferred from other institutions toward the M.A. requirement.

Teaching Certification

Exclusion of the student teaching requirement, graduate students may take the course necessary for secondary teaching certification while completing M.A. requirements in the department.

Examinations

The M.A. comprehensive examination is administered in both written and oral parts. The written portion consists of a two-hour examination in three areas; an oral examination follows, usually lasting one hour and a half hours. The examinations may be taken in any language and/or two languages, or three languages, or three or four languages, respectively. If more than one language area is represented at a minimum must be in a Spanish language and at least one must be in a Spanish-American language. One field area may be substituted for another in a language or literature area. The examining committee is comprised 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 before well-qualified and to specialization is Portuguese-American program (especially recommended), complete the equivalent of a year of college Portuguese; and complete the equivalent of one year of college study of another approved foreign language. This language must be Latin for those who will write the dissertation on a pre-1700 topic.

The second doctoral program provides for specialization in Spanish linguistics. Before taking the comprehensive examination, candidates must complete the equivalent of one year of college Latin, the equivalent of three years of college Portuguese, and the equivalent of two years of college-level study of a third approved foreign language.

Program A: Literature Track

The following course work is required.

M.A. courses or equivalent transfer credits 36.0

A course in literary theory, 200 level or above 3.0

Two 200-level seminars 6.0

35-200 Thesis 3.0

Eight elective courses at the 200 level or the advanced 100 level, no more than three (9.0) of which may be taken outside of the department, bringing the total semester hours to the required minimum of 72 in the Ph.D. program.

Program B: Linguistics Track

The following course work is required.

M.A. courses or equivalent transfer credits 36.0

Department of Linguistics

103-110 Analytical and Acoustics Phonetics 3.0

113-111 Syntax Analysis 3.0

113-112 Phonological Theory and Analysis 3.0

103-121 Sociolinguistics 3.0

Department of Spanish and Portuguese

One course in advanced Spanish 3.0

One course in advanced Portuguese 3.0

One course in comparative literature 3.0

One course in Spanish and/or 3.0

Two additional courses in linguistics 6.0

(Or may be taken in the Department of Linguistics)

1 or 200-level seminar in Spanish 3.0

35-200 Thesis 6.0

Total semester hours required 74.0

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 a doctoral student's potential for scholarly research, abilities in analytical thinking and critical reasoning, and level of sophistication in literary or linguistic specialization. The exam marks the formal occasion on which doctoral students begin to give intellectual focus to their program of study. Because it affords opportunities for both student initiative and faculty advice in defining a doctoral student's academic goals, the Ph.D. qualifying examination is significant in preparing doctoral students to take the Ph.D. comprehensive examinations and to write the Ph.D. dissertation.
Speech Pathology and Audiology • Liberal Arts 233

**71:106 Child Development** 3 s.h.
**31:165 Developmental** 3 s.h.
**31:170 Behavior Modification** 3 s.h.

Students seeking a B.A. also must complete or have had the equivalent of college algebra and trigonometry, college physics dealing with light and sound, and a college course in the biological sciences.

Students have the opportunity and are encouraged to obtain 25 hours of supervised, clinical observation, a prerequisite for clinical practice. This requirement is satisfied by completion of independent observations or required observation made for elective departmental courses.

**Honors**

The senior-year program leading to the B.A. with honors in speech and hearing science is open to students who are members of their senior year have completed at least 10 semester hours of course work that can be counted toward a major in the department and have earned at least a 3.20 grade-point average in all major course work and all course work at the University.

At any time during their undergraduate study, students who have earned a minimum grade-point average of 3.20 and who did not enter the University as honors students may apply to the University Honors Program and the department's honors program upon recommendation of the department honors advisor. Consultation with honors, students must be classified as honors students in the College of Liberal Arts and must complete 3-39 Honors Seminar and 3-98 Honors Thesis.

**Graduate Programs**

**Master of Arts**

The M.A. program in speech-language pathology and audiology may be a professional program to prepare the student for immediate placement in clinical practice or in public experience, or it may be a general program of graduate study leading to additional study for the Ph.D. degree. The program of study for an M.A. with professional emphasis is designed to ensure that upon graduation the student will meet requirements for immediate professional employment.

M.A. candidates usually have a background of undergraduate courses in speech and hearing science, psycholinguistics, and human behavior essentially equivalent to an undergraduate major in this field at The University of Iowa.

Before first registering in the program, entering M.A. candidates receive descriptive materials about basic science core courses considered to be required preparation for the M.A. program, and clinical core courses considered to be the M.A. program for which comparable courses taken at the undergraduate level will be required. Decisions about incorporating background course work in these areas are made by the faculty advisor in consultation with the student and the instructors of the basic science or clinical core courses.

The M.A. program with professional emphasis prepares clinicians in speech-language pathology or audiology whose actions are based independently on a variety of clinical settings.

General counsel on 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.

All M.A. students must complete at least 4 semester hours of work related to research. This may be accomplished by any combination of employment in research (at least 2 semester hours each) and/or research hours. Completion of the research hours may count toward a thesis or preparation of a paper based on one or a combination of the following: literature review, project preparation, and presentation of data. A paper is required at the end of each student's enrollment. An exception to this requirement may be made in the case of research hours leading to a thesis.

Candidates for an M.A. with professional emphasis are not required to complete a thesis, although all students demonstrating research aptitude and interest are encouraged to do so. All candidates preparing for the M.A. without thesis are required to take final written comprehensive examinations.

**M.A. with Research Emphasis (General Program)**

The general M.A. program for students intending to continue to the Ph.D. usually includes a substantial portion of the courses in the professional M.A. program. Students in the professional M.A. program may require a thesis and successfully complete a final oral examination.

The M.A. with research emphasis requires a minimum of 38 semester hours of graduate course work. It typically takes two years to complete the required course work and thesis research.

**M.A. with Professional Emphasis**

A typical M.A. program with professional emphasis usually takes two years to complete but may take longer depending on the student's background and personal interests.

**CORE REQUIREMENTS**

All students entering the M.A. with professional emphasis must take the following:

- **31:199 Counseling Theories and Techniques** 3 s.h.
- **31:130 Basic Neuroscience for Speech and Hearing** 3 s.h.
- **31:125 Principles of Assessment** 3 s.h.
- **31:140 Mutual Communication I** 1 s.h.
- **31:145 Speech-Language Pathology I: Pharmacology, Developmental Language Disorders, and Stuttering** 1.5 s.h.
- **31:146 Speech-Language Pathology II: Neurological Disorders, Voice Disorders, Child Behavior, and Related Disorders (speech-language pathology major only)** 1.5 s.h.
- **165 Hearing Loss and Auditory** 4 s.h.
- **32:444 Rehabilitative Audiology** 4 s.h.
- **3.300 Professional Practice of Audiology and Speech-Language Pathology** 0 s.h.
- **3.515 Seminar: Introduction to Research in Speech and Hearing** 0 s.h.
- **Advanced seminars or research** 4 s.h.

**Additional semester hours of practicum registration sufficient to meet supervised, direct clinical experience requirements for the Certificate of Clinical Competence of the American Speech-Language-Hearing Association and the Iowa Board, and to provide broad supervised practicum experience.**

*With program requirements and options may be accepted at meeting requirements.*

**Speech-Language Pathology Requirements**

In addition to the core requirements, all students preparing to be speech-language pathologists must take a minimum of 14 semester hours from the following:

- **2.301 Principles of Voice Production** 3 s.h.
- **2.302 Medical and Surgical Voice** 3 s.h.
- **3.306 Speech and Language Disorders of Young Children: Birth to Five Years** 2 s.h.
- **3.207 Speech and Language Disorders of Older Children: Five to Eighteen Years** 2 s.h.
- **3.208 Communication Problems of Developmental Disorders and Dysarthria** 2 s.h.
- **2.322 Voice Disorders** 2 s.h.
- **3.225 Voice and Respiratory Dysfunction** 2 s.h.
- **3.226 Principles of Speech Emphasis** 2 s.h.
- **3.221 Instrumentation for Voice Analysis** 2 s.h.
- **3.223 Communication Problems Associated with Head and Neck Cancer** 1 s.h.
- **3.233 Neurogenic Disorders of Language** 2 s.h.
- **3.234 Neurogenic Disorders of Speech** 2 s.h.
- **3.235 Dysphagia** 1 s.h.
- **3.236 Eating, Gastrointestinal and Related Disorders** 2 s.h.
- **3.238 Somatoform and Developmental Disabilities** 1.5 s.h.
- **3.239 Developmental and Learning Disabilities** 1 s.h.
- **3.240 Learning and Study Skills** 1 s.h.
- **3.530 Seminar: Communication Disorders and** 3 s.h.
- **SE 14 Remedial Methods to Speech and Hearing** 2 s.h.
- **49.125 Voice for the Actor** 3 s.h.

Students preparing to be speech-language pathologists may elect to follow one of three specialty tracks: schools, hospitals and allied agencies, and vocotory; however, selection of a specialty track is not required. Two of the tracks provide an especially strong preparation for students preparing to work in specific settings. Each track offers preparation for speech-language pathologists in pediatrics, elementary schools, and secondary schools. The
hospitals and health agencies track prepares
students for work as speech-language pathologists in hospitals, small clinics, and other
health-care settings. The voice work track prepares specialists in disorders of the voice, with
emphasis on disorders of professional voice users, such as singers, actors, and announcers.

The requirements and recommended electives for each track are listed below. In addition, prerequisite experiences are structured to fit the needs of students within each track.

School Track

Required (total of 15 semester hours):
3:206 Speech and Language Disorders of Young Children: Birth to Five Years 2 s.h.
3:207 Speech and Language Disorders of Older Children: Five to Eighteen Years 2 s.h.
3:282 Physiological Development and Disorders 2 s.h.
3:283 Stuttering 2 s.h.
7E:104 Remedial Methods in Speech and Hearing 2 s.h.

Recommended:
3:200 Communication Problems of Developmental Disorders and Disabilities 2 s.h.
3:205 Developmental Aphasias of Speech 2 s.h.
3:260 Designing Adaptive Devices 2 s.h.
3:500 Psychotherapy in Augmentative Communication 1 s.h.

Hospital and Health Agencies Track

Required (total of 9 semester hours):
2:123 Voice Disorders 2 s.h.
3:211 Communication Problems Associated with Head and Neck 1 s.h.
3:233 Neuromotor Disorders of Language 2 s.h.
3:244 Neuromotor Disorders of Speech 2 s.h.
3:277 Cleft Palate and Related Disorders 2 s.h.

Recommended:
3:200 Communication Problems of Developmental Disorders and Disabilities 2 s.h.
3:205 Developmental Aphasias of Speech 2 s.h.
3:254 Stuttering 1 s.h.
3:260 Designing Adaptive Devices 1-3 s.h.
3:282 Physiological Development and Hearing 2 s.h.
3:283 Nursing 2 s.h.
3:150 Psychotherapy in Augmentative Communication 1 s.h.

Vocology Track

Required (total of 9 semester hours):
3:201 Principles of Voice Production 3 s.h.
3:212 Voice Disorders 2 s.h.
3:213 Voice Training and Rehabilitation 2 s.h.
3:221 Instrumentation for Voice Analysis 2 s.h.

Recommended:
3:203 Methods of Teaching Voice 3 s.h.

3:221 Communication Problems

Associated with Head and Neck Cancer 1 s.h.
3:234 Neuromotor Disorders of Speech 2 s.h.
3:237 Cleft Palate and Related Disorders 2 s.h.
3:283 Stuttering 2 s.h.
49:125 Voice for the Actor 3 s.h.

AUDIOLoGy REQUIReMEnTS

In addition to the core requirements, all students preparing to become audiologists must take the following:
3:120 Fundamentals of Laboratory Instrumentation 3 s.h.
3:240 Clinical Audiology and Hearing 4 s.h.
3:241 Advanced Audiology 4 s.h.
3:242 Clinical Audiology and Hearing 4 s.h.
3:245 Pediatric Audiology 2 s.h.

Additional practicum, research, and elective courses.

Students planning to work as audiologists in a school setting must take 7E:104 Remedial Methods in Speech and Hearing along with appropriate practical experiences.

Requirements for Employment

A number of states, including Iowa, require a state license in speech-language pathology or audiology for persons who work in settings other than the public schools. Students who meet the requirements listed above for the M.A. with professional emphasis also meet the academic requirements for the license to teach, as well as to sit in most other states.

Public School Certification

Students preparing for clinical positions 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 or school audiology in Iowa and most other states.

A master's degree with professional emphasis in speech-language pathology or audiology

Completion of the requirements in speech-language pathology or audiology and the professional education sequence, including 7E:104 Remedial Methods in Speech and Hearing and student teaching/internship as a speech-language pathologist or audiologist; courses in the following areas are 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 measures, measurement and evaluation of instruction)

Educational psychology (e.g., educational psychology, counseling theories and techniques)

Special education (e.g., introduction to special education, exceptional persons, learning disabilities)

Child development (e.g., human growth and development, principles and theories of child development, history and theories of early childhood education)

(General education courses, e.g., introduction to psychology, sociology, and economics, are not credited as meeting the professional education sequence.)

Completion of an approved human relations component

Completion of courses that cover the evaluation of the disabled and the gifted and talented (e.g., exceptional persons, education of the gifted)

Doctor of Philosophy

The Ph.D. program provides flexible, comprehensive training for the doctoral education of speech-language pathologists and audiologists. Students with diverse backgrounds in the natural and behavioral sciences are encouraged to apply and develop their skills in an atmosphere of interdisciplinary research.

The program reflects the broad interests and diverse backgrounds of its multidisciplinary faculty, whose members have backgrounds in speech, language, hearing, engineering, physiology, physics, psychology, linguistics, and bioengineering. Faculty members are committed to an interdisciplinary approach to questions at every level of the speech and language production/perception system.

The purpose of the doctoral program is to provide the integrated knowledge necessary for a productive career in the field of speech-language pathology and audiology, consultation, research, and related areas.

The department encourages candidates with special interests, goals, or backgrounds to develop individualized programs of study. You are encouraged to apply for the Ph.D. or, rather, to pursue individual programs of study. Students interested in specific areas of research should consult the faculty members associated with these areas.

3:120 Fundamentals of Laboratory Instrumentation 3 s.h.
3:201 Principles of Voice Production 3 s.h.
3:218 Psycholinguistics 3 s.h.
3:220 Advanced Laboratory Instrumentation 3 s.h.
3:224 Synesthesia and Signal Theory for Speech and Hearing Sciences 3 s.h.
3:225 Science of Phonetics 3 s.h.
3:250 Auditory and Articulatory Mechanics of Speech 5 s.h.
3:252 Physiology of Speech Production 3 s.h.
3:254 Prosodics 3 s.h.
3:255 Psycholinguistics and Language 4 s.h.
3:261 Phonetics of Hearing 4 s.h.
3:258 Digital Signal Processing 2 s.h.
3.10 Cautious Therapy and Techniques
3.10.1 Cautious pharmacotherapy as a treatment of psychopathologic disorders. Antidepressant drugs are generally considered safe and effective, especially in patients with severe depression or bipolar disorder. However, careful monitoring and withdrawal may be required in some cases.
3.10.2 Cautious dietary management is important, as some foods may trigger or worsen symptoms of certain psychiatric conditions. Patients should be advised to follow a balanced diet and avoid substances that may contribute to mental health issues.
3.10.3 Cautious exercise and physical activity are recommended for patients with depression, anxiety, and other mental health conditions. Regular exercise can improve mood and cognitive function. However, patients should consult with their healthcare provider before starting a new exercise regimen.
3.10.4 Cautious use of alternative therapies, such as meditation, yoga, and acupuncture, may be beneficial for some patients. However, these therapies should be used with caution and in consultation with a healthcare professional.

3.11 Knowledge and Practice of Psychosurgery
3.11.1 Psychosurgery is a surgical procedure that involves the removal or destruction of specific brain areas to treat severe mental illness. This procedure is considered a last resort and is typically reserved for patients who have not responded to other treatments.
3.11.2 Psychosurgery is usually performed under general anesthesia and involves the use of specialized equipment. The procedure is typically done on an outpatient basis and requires a hospital stay.
3.11.3 Psychosurgery is controversial and has been the subject of much debate in the medical community. Critics argue that the procedure is too risky and that there are safer and more effective treatments available.
3.11.4 Psychosurgery is still used in some cases, but it is not widely accepted as a treatment for mental illness. Patients and their families should be fully informed about all treatment options before making a decision.

3.12 Anxiety and Phobia of Speech Production
3.12.1 Anxiety and phobia of speech production, also known as speech anxiety, is a type of social anxiety disorder. It can manifest as fear of public speaking, fear of being evaluated by others, or fear of social situations.
3.12.2 Anxiety and phobia of speech production can be treated with a variety of methods, including exposure therapy, cognitive-behavioral therapy, and medication. Treatment should be tailored to the individual needs of the patient.
3.12.3 Anxiety and phobia of speech production can also be managed through lifestyle changes, such as regular exercise, adequate sleep, and a healthy diet.

3.13 Speech and Language Pathology
3.13.1 Speech and language pathologists are professionals who specialize in the assessment and treatment of speech, language, and swallowing disorders. They work with individuals of all ages to help them communicate effectively.
3.13.2 Speech and language pathologists use a variety of techniques to evaluate and treat speech, language, and swallowing disorders. These techniques include observation, assessment tools, and treatment plans.
3.13.3 Speech and language pathologists work closely with other healthcare professionals, such as audiologists and otolaryngologists, to provide comprehensive care.

3.14 Autonomic Nervous System
3.14.1 The autonomic nervous system is a part of the central nervous system that controls involuntary functions, such as heart rate, blood pressure, and digestion.
3.14.2 The autonomic nervous system is divided into two parts: the sympathetic nervous system, which prepares the body for action, and the parasympathetic nervous system, which promotes rest and digestion.
3.14.3 The autonomic nervous system is involved in a wide range of functions, including sexual function, appetite, and sleep.

3.15 Speech and Language in Children
3.15.1 Speech and language development in children is a critical area of research. It is important to identify speech and language delays and disorders early to provide appropriate intervention.
3.15.2 Speech and language intervention for children with speech and language disorders should be individualized and based on the specific needs of the child.
3.15.3 Speech and language intervention can be provided by speech-language pathologists, audiologists, and other healthcare professionals.

3.16 Communication Disorders
3.16.1 Communication disorders, also known as speech or language disorders, can affect individuals of all ages. They can include conditions such as stuttering, aphasia, and learning disorders.
3.16.2 Communication disorders can be diagnosed through a combination of medical, psychological, and educational assessments.
3.16.3 Communication disorders can be treated with a variety of methods, including therapy, medication, and assistive technology.

3.17 Speech and Language in Adults
3.17.1 Speech and language in adults is an important aspect of communication. It can be affected by a variety of factors, including age, gender, and cultural background.
3.17.2 Speech and language in adults can be assessed through a variety of methods, including observation, self-report, and standardized tests.
3.17.3 Speech and language in adults can be treated with a variety of methods, including therapy, medication, and assistive technology.

3.18 Treatment of Speech and Language Disorders
3.18.1 Speech and language disorders can be treated with a variety of methods, including therapy, medication, and assistive technology.
3.18.2 Speech and language therapy is often provided by speech-language pathologists and audiologists.
3.18.3 Speech and language therapy can be tailored to the specific needs of the individual and can be provided in a variety of settings, including clinics, schools, and homes.

3.19 Communication and Language Disorders
3.19.1 Communication and language disorders are a broad category of conditions that affect how individuals communicate. They can include difficulties with spoken or written language, as well as problems with understanding or expressing的意思.
3.19.2 Communication and language disorders can be assessed through a variety of methods, including observation, self-report, and standardized tests.
3.19.3 Communication and language disorders can be treated with a variety of methods, including therapy, medication, and assistive technology.

3.20 Communication and Language in Children
3.20.1 Communication and language in children is a critical area of research. It is important to identify communication and language delays and disorders early to provide appropriate intervention.
3.20.2 Communication and language intervention for children with communication and language disorders should be individualized and based on the specific needs of the child.
3.20.3 Communication and language intervention can be provided by speech-language pathologists, audiologists, and other healthcare professionals.

3.21 Communication and Language in Adults
3.21.1 Communication and language in adults is an important aspect of communication. It can be affected by a variety of factors, including age, gender, and cultural background.
3.21.2 Communication and language in adults can be assessed through a variety of methods, including observation, self-report, and standardized tests.
3.21.3 Communication and language in adults can be treated with a variety of methods, including therapy, medication, and assistive technology.
Two of these (total 6 s.h.):
49-121 Advanced Acting I 3 s.h.
49-122 Acting with Voice 3 s.h.
49-123 Alternative Approaches to Acting 3 s.h.
Two of these (total 4-6 s.h.):
49-28 Basic Stage Combat 2 s.h.
49-120 Voice for the Actor I 3 s.h.
49-116 Movement for the Actor II 2 s.h.
49-156 Stage Makeup 2 s.h.

Directing Emphasis
49-120 Acting I 3 s.h.
49-125 Voice for the Actor I 3 s.h.
49-127 Movement for the Actor II 2 s.h.
49-130 Directing I 3 s.h.
49-131 Directing II 3 s.h.
49-133 Stage Management 2 s.h.
49-28 Basic Stage Combat 2 s.h.
49-177 Playwrights, Directors, Designers 3 s.h.
49-194 Emphasis 3 s.h.

Design Emphasis
49-40 Stagecraft Practice I 3 s.h.
49-41 Costume Practice I 3 s.h.
49-141 History of Fashion and Decor I 3 s.h.
Two of these (total 6 s.h.):
49-134 Scene Design I 3 s.h.
49-135 Costume Design I 3 s.h.
49-136 Lighting Design I 3 s.h.
One of these:
49-137 Scene Design II 3 s.h.
49-138 Costume Design II 3 s.h.
49-139 Lighting Design II 3 s.h.
One of these:
49-144 Acting I 3 s.h.
49-145 Drawing and Rendering for the Theaters 3 s.h.
49-146 Model Building 3 s.h.
49-149 Stage Painting 3 s.h.
Final project: An independent advanced design project in area of specialization

Undergraduates in the design emphasis may meet with the graduate design director in 245 Studio in Theatrical Design.

Playwriting Emphasis
49-42 Basic Playwriting 3 s.h.
49-165 Advanced Playwriting 3 s.h.
49-120 Acting I 3 s.h.
49-130 Directing I 3 s.h.
Three of these (total 9 s.h.):
49-131 Directing II 3 s.h.
49-153 Adaptation 3 s.h.
49-164 Playwriting for Other Media 3 s.h.
49-156 Playwriting: The Dramaturg 3 s.h.
49-167 Experimental Playwriting 3 s.h.
49-168 The One-Person Play 3 s.h.
49-150 Children’s Plays 3 s.h.
49-170 Political Plays 3 s.h.
49-164 Emphasis 3 s.h.
Final project: A full-length play or ten equivalent in diverse forms. One five-act scene must be staged for the faculty.

History/Literature/Dramaturgy Emphasis
49-2 Theatre and Society 3 s.h.
49-144 World Drama in Translation 3 s.h.
49-194 Emphasis 3 s.h.
One of these:
49-182 Shakespeare: Selected Plays 3 s.h.
49-186 English Renaissance Drama 3 s.h.
49-185 Shakespeare 3 s.h.

Transfer Students
Students who transfer to The University of Iowa from other accredited two- or four-year institutions must demonstrate that they have successfully completed course work equivalent to the basic requirements of the theatre arts department and the University before they may undertake advanced-level electives or seek admission to a special emphasis program.

Transfer students from another institution may present course work equivalent to 49-47 180 for review. All transfer students are required to complete Production I, Production II, 49-45-46, 46, and 48 in the department.

Honors
Honors students complete an honors project under the sponsorship of a faculty member. Projects may be analytical or creative in an appropriate combination of the two. All require oral presentation or performance for the faculty.

Senior majors who qualify for the University Honors Program and have earned a 3.00 in the major area, with the approval of the faculty, qualified to undertake an honors project. Students who wish to complete an honors project must meet with the department honoree advisor, who advises them or finds an appropriate faculty project advisor. Projects must involve a critical investigation of a select body of work, and may involve a minimum of 18 s.h.

Minor
A minor in theatre arts requires 15 semester hours of course work in theatre arts, excluding 49-1 and 49-2, with a minimum grade-point average of 2.00. At least 12 of these semester hours must be taken at The University of Iowa in advanced courses. Advanced courses accepted by the department include 49-20, 49-42, 49-46, 49-48, 49-52, and 49-54, and any course numbered 49-100 and above.

**Transportation Studies • Liberal Arts**

40-121 American Writers: Parvaneh: 10th and 11th Century. 3 s.h.
Briefly introduces androids in non-fictional literary setting, including Barzanji, Veitch, Swenson, and Asian-American novels, films, poems. Aims to focus on Aldous Huxley's, Jonathan Swift's, and Willa Cather's emotional experiences. 50% quizzes, 50% exam

40-120 C-21: Drama to Tragedies. 3 s.h.
Syllabus: Acts 9:1-11:36. 50% quizzes, 50% exam

40-184 Shakespearean Select Plays. 3 s.h.
Syllabus: Acts 1:3-18. 50% quizzes, 50% exam

40-164 English Renaissance Drama. 3 s.h.
Syllabus: Acts 1:3-18. 50% quizzes, 50% exam

40-165 Renaissance Drama. 3 s.h.
Syllabus: Acts 1:3-18. 50% quizzes, 50% exam

40-162 English Renaissance Drama. 3 s.h.
Syllabus: Acts 1:3-18. 50% quizzes, 50% exam

40-160 English Renaissance Drama. 3 s.h.
Syllabus: Acts 1:3-18. 50% quizzes, 50% exam

40-160 English Renaissance Drama. 3 s.h.
Syllabus: Acts 1:3-18. 50% quizzes, 50% exam

40-190 Music, Art, Theater. 4 s.h.
Offices: Acts 1:3-18. 50% quizzes, 50% exam

40-191 Black Art in Theatre. 3 s.h.
Syllabus: Acts 1:3-18. 50% quizzes, 50% exam

40-192 Afro-American Drama. 3 s.h.
Syllabus: Acts 1:3-18. 50% quizzes, 50% exam

40-194 Dramaturgy. 3 s.h.
Theater, practice, theory, and the United States. 50% quizzes, 50% exam

40-195 Advanced Playwriting: Audible. 3 s.h.
Create aesthetically engaging, performable plays, address cultural biases, and explore a range of plays, including the work of established playwrights. 50% quizzes, 50% exam

40-196 Theatre Survey of Works to 1593. 3 s.h.
Syllabus: Acts 1:3-18. 50% quizzes, 50% exam

40-197 Performance Theory. 3 s.h.
Syllabus: Acts 1:3-18. 50% quizzes, 50% exam

40-217 Shakespeare in Performance. 3 s.h.
Syllabus: Acts 1:3-18. 50% quizzes, 50% exam

40-218 Shakespeare in Performance. 3 s.h.
Syllabus: Acts 1:3-18. 50% quizzes, 50% exam

40-219 History of Theatre in the 20th Century. 3 s.h.
Syllabus: Acts 1:3-18. 50% quizzes, 50% exam

40-220 History of Theatre in the 20th Century. 3 s.h.
Syllabus: Acts 1:3-18. 50% quizzes, 50% exam

40-221 Workshop in Theatre: Design. 3 s.h.
Syllabus: Acts 1:3-18. 50% quizzes, 50% exam

**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. can be either thesis or non-thesis, requiring a minimum of 30 semester hours of credit, or with a thesis, a 36-semester hour program that includes up to 6 semester hours of credit for research. Non-thesis students usually require to complete a comprehensive examination that covers the M.S. degree examination. The Ph.D. degree requires a minimum of 72 semester hours beyond the B.S. degree, with up to 36 semester hours of credit for research. A minimum of one year of campus residence is required.

Individuals with degrees in transportation-related disciplines as well as civil engineering are encouraged to apply. Depending on the student's background, it may be necessary to complete courses in statistics, computer science, mathematics, and糟糟-sor programs. The courses must be approved by the program coordinator before admission to the degree program. A total of 68 credits is required for Ph.D. degree. The Ph.D. program includes the following courses:

**FIRST SEMESTER**

53-262 Urban Transportation Planning. 3 s.h.
52-260 Transportation Policy and Planning. 3 s.h.
52-367 Transportation Program Seminar 3 s.h.
44-134 Methods of Transportation Analysis. 3 s.h.
Technical elective 3 s.h.

**SECOND SEMESTER**

53-265 Transportation Systems Analysis. 3 s.h.
Degree Programs in Geography

The Department of Geography offers Master of Arts and Doctor of Philosophy degrees with a specialization in geographical science. The transportation specialty offers the opportunity to study the economics and land use planning, the Department of Geography. The specialty has a strong quantitative orientation and is designed to provide students with a broad range of skills relevant to transportation and urban and regional analysis. It also helps students develop an appreciation of the relationships of the environment, urban, and regional decision making.

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 major in transportation. During the first year, students complete an integrated core curriculum, consisting of courses in planning economics and public finance, analysis methodology, planning theory, collective decision making, law, and information presentation. The second year is devoted to a sector major, such as transportation, whereas core concepts are applied to a chosen area of specialization. The planning curriculum is intended to provide students with the capability to evaluate the policy issues in transportation, devise workable options, analyze these options and their effects, and work toward implementation of policy solutions.

Students complete a total of 48 semester hours and an internship. Twenty-seven semester hours are devoted to the core; the remaining 21 hours are assigned. Students may elect to complete additional 2 semester hours of course work to meet the internship, bringing the total to 50 semester hours. A typical transportation sector major program includes the following courses.

UNIFIED PROGRAM

Coordinator: Richard Selman

Required Core Courses (6 hours)

- 102.260 Problems in Transportation
- 102.269 Transportation Program Seminar

First and Second Semesters

Students select the optional transportation course according to individual interests. Elective courses typically include the following courses.

- 102.263 Project Impact Analysis
- 102.264 Transportation Planning Models
- 102.265 Energy and Public Utility Policy and Planning
- 102.266 Economic Development Policy
- 102.267 Development Finance and Financial Analysis

Applications should be made through the Graduate College and the Graduate Program in Urban and Regional Planning.

Unified Program (U) is a four-year graduate program in transportation. Students must be in good academic standing with a minimum grade point average of 3.0 on a 4.0 scale. The program consists of 54 semester hours, including a thesis. Students may elect to complete additional 2 semester hours of work to meet the internship, bringing the total to 50 semester hours. A typical transportation sector major program includes the following courses.

First and Second Semesters

Core courses (see "Urban and Regional Planning" in the section of the Catalog)

- 102.260 Problems in Transportation
- 102.269 Transportation Program Seminar

Two of the following:

- 44.134 Methods of Transportation Analysis
- 102.260 Transportation Policy and Planning
- 102.264 Transportation Program Seminar
- 102.263 Planning elective

Fourth Semester

- 102.261 Problems in Transportation and Land Use
- 102.262 Transportation Systems Analysis
- 102.263 Transportation Regulation and Finance
- 102.264 Transportation Planning Models

Fifth Semester

- 102.265 Energy and Public Utility Policy and Planning
- 102.266 Economic Development Policy
- 102.267 Development Finance and Financial Analysis

Applications should be made through the Graduate College and the Graduate Program in Urban and Regional Planning.

Unified Program (U) is a four-year graduate program in transportation. Students must be in good academic standing with a minimum grade point average of 3.0 on a 4.0 scale. The program consists of 54 semester hours, including a thesis. Students may elect to complete additional 2 semester hours of work to meet the internship, bringing the total to 50 semester hours. A typical transportation sector major program includes the following courses.

First and Second Semesters

Core courses (see "Urban and Regional Planning" in the section of the Catalog)

- 102.260 Problems in Transportation
- 102.269 Transportation Program Seminar

Two of the following:

- 44.134 Methods of Transportation Analysis
- 102.260 Transportation Policy and Planning
- 102.264 Transportation Program Seminar
- 102.263 Planning elective

Fourth Semester

- 102.261 Problems in Transportation and Land Use
- 102.262 Transportation Systems Analysis
- 102.263 Transportation Regulation and Finance
- 102.264 Transportation Planning Models

Fifth Semester

- 102.265 Energy and Public Utility Policy and Planning
- 102.266 Economic Development Policy
- 102.267 Development Finance and Financial Analysis

Applications should be made through the Graduate College and the Graduate Program in Urban and Regional Planning.
Courses

140-45 Human Behavior 
Course principles of behavior, with emphasis on the biological basis of human behavior. For introductory students. C: Biol. behav. basis.

140-44 Sociology 
A study of the social institutions of peace and order, population growth and regulation, economic structure and dynamics, social classes and groups, stratification and mobility, and social interaction and deviant behavior. Soc. stud. inst. peace. Pop. growth.

140-42 Development I 
Development of major ideas about the nature and culture of the child in infancy, early childhood, and adolescence. Soc. stud. child. develop.

140-41 Development II 
Major social and behavioral issues, including Chinese, Mexican, and European. G: Soc. stud. behav. issues.

140-40 Consumerism I 
Reading from texts that review economic and social systems and their influence on our everyday lives. Soc. stud. econom. consumer.

140-39 Political Science I 
Focus on principles and the basis of political institutions; development of public policies in economic, social, and political issues; comparative and international settings. Gov. internat. stud.

140-38 Political Science II 
Governments and politics in contemporary political systems from ancient and modern regimes. Gov. internat. stud.

140-37 Historical Perspectives I 
Theatre of 'museum' and 'reconstruction,' involving students in geographical areas from ancient to modern-world history. H: world history.

140-36 Historical Perspectives II 
Interdisciplinary themes and topics in world history. H: world history.

140-35 Biblical Studies 
Analysis of the history and development of the Bible. Bible. develop. history.

140-34 Jewish Studies 
Judaism and its role in the world. Judaism. world.

140-33 Latin American Studies 
Introduction to the cultures and societies of Latin America. Latin. America.

140-32 Asian Studies 
Introduction to the cultures and societies of Asia. Asia.

140-31 African Studies 
Introduction to the cultures and societies of Africa. Africa.

140-30 European Studies 
Introduction to the cultures and societies of Europe. Europe.

140-29 Middle Eastern Studies 
Introduction to the cultures and societies of the Middle East. Middle East.

140-28 Hindu Studies 
Introduction to the cultures and societies of India. India.

140-27 Islamic Studies 
Introduction to the cultures and societies of the Islamic world. Islam.

140-26 Gender Studies 
Introduction to the cultures and societies of the Americas. Amer. cultures.

140-25 Environmental Studies 
Introduction to the cultures and societies of the environment. Envir. studies.

140-24 Women's Studies 
Introduction to the cultures and societies of women. Women.

140-23 Jewish Studies 
Introduction to the cultures and societies of Jewish. Jewish.

140-22 African Studies 
Introduction to the cultures and societies of Africa. Africa.

140-21 Latin American Studies 
Introduction to the cultures and societies of Latin America. Latin. America.

140-20 Asian Studies 
Introduction to the cultures and societies of Asia. Asia.

140-19 European Studies 
Introduction to the cultures and societies of Europe. Europe.

140-18 Middle Eastern Studies 
Introduction to the cultures and societies of the Middle East. Middle East.

140-17 Islamic Studies 
Introduction to the cultures and societies of the Islamic world. Islam.

140-16 Environmental Studies 
Introduction to the cultures and societies of the environment. Envir. studies.

140-15 Women's Studies 
Introduction to the cultures and societies of women. Women.

140-14 Jewish Studies 
Introduction to the cultures and societies of Jewish. Jewish.

140-13 African Studies 
Introduction to the cultures and societies of Africa. Africa.

140-12 Latin American Studies 
Introduction to the cultures and societies of Latin America. Latin. America.

140-11 Asian Studies 
Introduction to the cultures and societies of Asia. Asia.

140-10 European Studies 
Introduction to the cultures and societies of Europe. Europe.

140-9 Middle Eastern Studies 
Introduction to the cultures and societies of the Middle East. Middle East.

140-8 Islamic Studies 
Introduction to the cultures and societies of the Islamic world. Islam.

140-7 Environmental Studies 
Introduction to the cultures and societies of the environment. Envir. studies.

140-6 Women's Studies 
Introduction to the cultures and societies of women. Women.

140-5 Jewish Studies 
Introduction to the cultures and societies of Jewish. Jewish.

140-4 African Studies 
Introduction to the cultures and societies of Africa. Africa.

140-3 Latin American Studies 
Introduction to the cultures and societies of Latin America. Latin. America.

140-2 Asian Studies 
Introduction to the cultures and societies of Asia. Asia.

140-1 European Studies 
Introduction to the cultures and societies of Europe. Europe.

140-11 Environmental Studies 
Introduction to the cultures and societies of the environment. Envir. studies.

140-10 Women's Studies 
Introduction to the cultures and societies of women. Women.

140-9 Jewish Studies 
Introduction to the cultures and societies of Jewish. Jewish.

140-8 African Studies 
Introduction to the cultures and societies of Africa. Africa.

140-7 Latin American Studies 
Introduction to the cultures and societies of Latin America. Latin. America.

140-6 Asian Studies 
Introduction to the cultures and societies of Asia. Asia.

140-5 European Studies 
Introduction to the cultures and societies of Europe. Europe.

140-4 Middle Eastern Studies 
Introduction to the cultures and societies of the Middle East. Middle East.

140-3 Islamic Studies 
Introduction to the cultures and societies of the Islamic world. Islam.

140-2 Environmental Studies 
Introduction to the cultures and societies of the environment. Envir. studies.

140-1 Women's Studies 
Introduction to the cultures and societies of women. Women.

URBAN AND REGIONAL PLANNING

Urban and regional planning is a dynamic, multidisciplinary profession that combines the study of urban and regional systems with the application of social, economic, environmental, and physical sciences to the development of sustainable urban and regional settings. The program is designed to provide students with a broad understanding of the principles and practices of urban and regional planning, as well as the skills necessary to analyze and resolve complex urban and regional problems. The program emphasizes the development of analytical and problem-solving skills, as well as the ability to communicate effectively with a wide range of stakeholders, including government officials, developers, community leaders, and the general public.

Program Goals

1. To provide students with a comprehensive understanding of urban and regional systems and their development, including the physical, social, economic, and environmental aspects.
2. To develop students' analytical and problem-solving skills, enabling them to identify and address complex urban and regional issues.
3. To foster students' ability to communicate effectively with a wide range of stakeholders, including government officials, developers, community leaders, and the general public.
4. To prepare students for careers in urban and regional planning, as well as related fields such as environmental planning, urban studies, and public policy.

Graduate Programs

The planning curriculum is a 48-50 semester-hour program incorporating two academic years of 27 semester hours of core courses, 9 semester hours of elective courses, and 12-14 semester hours of internship. The curriculum is based on the philosophy that planners must develop the theoretical and practical skills that will permit them to analyze social problems and evaluate public policies as well as the professional skills (e.g., report writing, presentations, team management) that will allow them to function effectively in various organizational and political environments.

Core Curriculum

At the heart of The University of Iowa planning program is a unique Integrated Core Curriculum, which comprises the first academic year. This is a core curriculum that integrates the case study method, which provides the foundation for recognizing and addressing the complexity of urban and regional problems. The curriculum provides a framework for understanding the interactions between social, economic, political, administrative, and legal environments — that provide the context for policy analysis and construe public choices. A number of courses are drawn from traditional disciplines, particularly economics and statistics, together with an understanding of the theories and practice of planning. As students proceed through the core, increasing emphasis is placed on the development of critical judgment and insight in the application of theory through the planning of projects and actual case studies. Students may select a major in a core course on the basis of previous coursework.

Course in the Core curriculum are as follows:

First Semester

120.200 History and Theories of Planning
120.203 Economics for Policy Analysis
120.216 Introduction to Analytical Methods
120.212 Planning Information and Communication

Second Semester

120.204 Collective Decision Making
120.206 Economics for Policy Analysis II
120.211 Intermediate Analytical Methods
120.213 Land Use Planning: Law and Practice

Third Semester

Electives

Fourth Semester

120.215 Fiscal Problems in Planning
Electives

The Sectoral Major

The second year of the program is directed toward developing an area of concentration, required for the degree, by requiring the concepts and skills developed in the core to a specific 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.

Current classes are divided among majors supported by faculty and course offerings within the planning program, or professional and environmental planning, housing and environmental, and social policy planning. Students may select other Sectoral Majors, subject to faculty approval for example, a student may enter a health science program with appropriate coursework in the Department of Public Health Administration or Preventive Medicine and Environmental Health, or in human services planning with courses in the School of Social Work. Alternatively, students are required to follow a curriculum designed to accommodate their professional interests and career goals, including the opportunity to complete a degree in the field.
Options

THEIS

A fresh is not required, although students may position to waive one. Students may register up to 5 semester hours of thesis credit. In addition, they may take up to 8 semester hours of reading to develop a thesis topic and prepare a literature review. Students may apply any 3 semester hours of readings to the senior major requirement and must register for the thesis for the fall term.

INTERNSHIP

Students are encouraged to complete an internship in a planning or related agency or organization. To obtain the 2 semester-hour credit reduction, the student must submit a brief paper summarizing and evaluating the experience. Internships usually offer paid staff positions and are completed during the summer between the junior and senior years.

PRACTICUM

An extended internship, consisting of at least five months of full-time employment in a planning-related organization. May qualify as a practicum. A practicum generally takes place during the summer and into the fall semester of the second year. The practicum carries 3 semester hours of course credit and satisfies some of the required field problems course, IES 215, as well as satisfying the 2 semester-hour reduction in degree requirements for the internship.

Other Requirements

Students who complete the optional internship must also complete the planning degree. Students may complete an additional 2 semester hours in lieu of the internship, bringing the total to 50 hours. All core and general major courses must be completed with a grade of C or better, and students must attain an overall graduate grade-point average of 3.00 or better.

Joint Programs

Law

The Urban and Regional Planning Program and the Law School offer joint program leading to a degree in planning and a J.D. in law. The program usually requires five years to complete, a reduction of one academic year from the total requirements of the two programs taken separately. It may be completed in four years if the student chooses the accelerated law program. Separate admission to each academic unit is required.

The law is the most popular of the joint degree programs. Students in this planning and law program typically work employment as attorneys, especially in firms that specialize in land use or environmental law, as city managers in city planning or planning administrators, or in advocacy organizations.

Engineering

A program combining a bachelor's degree in engineering with a master's degree in urban and regional planning has been developed for students who want to pursue a planning career in the public or private sector. Students in the program may earn a B.S. in engineering and a M.A. or M.S. in planning in a total of five or more academic years.

Students should apply for the joint program when they apply for admission to the engineering college or before they complete their sophomore year following matriculation. Applicants should submit a letter requesting admission to the program in the College of Engineering, The University of Iowa.

Students apply to the graduate planning program near the fall term when they are completing the B.S.E. degree requirements. They should be made aware of the admission requirements of the graduate program at that time.

Engineering students complete the planning core in the last two years of their undergraduate program. After graduating from the College of Engineering and while enrolled in the graduate program in urban and regional planning, students fulfill the second major requirement by completing 9 semester hours of credits in courses offered by various departments and schools of the University, including for graduate planning program and the engineering college.

Each combined degree student is assigned an advisor from the engineering and one from planning. During the first year of the program, the student works closely with their engineering advisor and the assistant to the director of the College of Engineering. For the following year, students confer with their graduate planning advisor.

Preventive Medicine and Environmental Health

Students may elect the master's degree option in urban and rural planning and the Department of Preventive Medicine and Environmental Health in the College of Medicine. This option requires the M.A. in planning and a M.S. in preventive medicine or environmental health. Students of the program typically find employment in the public health field, with successive positions in health service departments, or as health environmental planners.

A total of 60 semester hours of credit is required; the degree 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 switch 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, leading to a certificate in hospital and health administration. Course work is reduced by one year from the separate requirements of the two programs. Separate admission to each program is required.

The hospital and health administration degree enables students to strengthen their credentials as health planners or exploit their job options to include administrative positions in the health field as well as health planning jobs. Graduates of the joint degree program typically find employment in health service agencies, state department of health, and other public health agencies.

Social Work

For those interested in careers in social service delivery or human service planning, a joint program is offered in urban and regional planning and the School of Social Work, leading to an M.A. in planning and a J.S.D. in social work. Planning positions are available with city planning agencies, social service agencies, and state human service departments.

A total of 60 semester hours is required for the two-year program. Up to 22 semester hours from the requirements of the two programs can be transferred to complete the program in three years, although this is rare. Separate admission to each academic unit is required.

Transportation

A transportation research and training program is offered through the Center for Transportation Studies, administered through the Urban and Regional Planning Program. A transportation certificate is awarded to students who satisfactorily complete a prescribed set of courses in transportation. These courses are taught in urban and regional planning, engineering, geography, and economics. The certificate program allows planning students with sectoral majors in transportation to extend their training and obtain an additional credential. For more information, see "Transportation Studies" in this section of the Catalog.

Financial Aid

Students in the Urban and Regional Planning Program receive financial support primarily in the form of teaching or research assistantships and contact or grant-funded research assistantships. Assistantships typically require 10 hours of work per week under the direction of
WOMEN'S STUDIES

Cherise Brown

Professor: Florence Bass (English), Pascale Carter (Lair), Martha H. Chutkowski (History), Carolyn Cusimano (English), Linda Gluck (Psychology), Ronald Peterson (Philosophy), Mary Siuda (Laurel), Rhonda Baker (Psychology), and Patricia P. Ryan (Philosophy)


Associate Professors: Florence Bass (English), Margaret B. Davis (English), Tim Holt (History), Rebecca P. Kimball (English), and Roberta K. Walker (English)


In order to graduate from the Women's Studies Program, students must complete a minimum of 131 units of coursework. This includes at least 12 units of courses taken at The University of Iowa in at least 100-level courses, as well as a 3.0 grade-point average in these courses.

All students majoring in women's studies must take at least one course in Women's Studies and complete at least two courses in the Women's Studies Program.


Graduate Study

Graduate courses will be offered in the departmental programs in the Women's Studies Program. Students must have completed a minimum of 12 units of coursework in Women's Studies and have a minimum grade-point average of 3.0 in the Women's Studies Program.


Associated Courses

Students may substitute courses in other departments for Women's Studies courses. However, no more than two courses in any one department may be substituted for Women's Studies courses.


African-American World Studies

100 300: History of Black Women in Modern American Fiction

3.0


Anthropology

113:120 Latin American Studies Seminar (film and the politics of gender)

3.0

113:140 Anthropological Studies of Everyday Forms of Resistance

3.0

113:147 Special Topics in Anthropology and women in the middle and older age

2.5


Art and Art History

119:199 Themes in Art History

3.0


COMMUNICATION STUDIES

380:615 Seminar: Film Theory (Seminar in French Film)

1.5

380:622 Seminar: History of Scientific Revolution (Seminar in Science, Society, and Technology)

1.5


ENGLISH

415:15 Women and Literature

3.0

415:110 Selected Authors: Wolf and Gender

3.0

81:118 Black Women Writers

2.25

415:192 Modernist Constructions: Modernity and Gender

3.0

415:433 Gender Studies: Victorian Literature: Gender and the Other Scholar: Social Issues and Narrative Form

3.0

415:434 Seminar: Twenty-First-Century British Literature

3.0


HISTORY

16:138 Issues in Human History: Gender in Hungarian Perspective

3.0

16:139 Medicine, Science and Social Change

3.0

16:210 Readings: Medieval Women

3.0

16:210 Readings: Women in European History

3.0


JOURNALISM

15:256 Gender and Mass Communication

3.0

15:291 Master's Practicum (Women and the Media)

3.0

15:391 Ph.D. Research Practicum (Women and the Media)

3.0


LAW

91:307 Legal Context of Sexuality and Sexual Conduct

3.0

91:309 Sex Based Discrimination

2.5


SOCIOLOGICAL AND QUANTITATIVE FOUNDATIONS

71:305 Seminar: Experimental Approaches to Scientific Research

3.0


RELIGION

32:716 Religious Ethics

3.0

32:621 Topics in Religious Ethics: Feminist Ethics and Theology

3.0


SPANISH AND PORTUGUESE

35:173 Latin American Women Writers

3.0

35:280 20th Century Spanish Women Writers

3.0


*Only certain sections of these courses are open to women's studies students.

Courses

Core Courses

113:101 Introduction to Women's Studies

4.0

*Offers instruction in basic, introductory subjects of women's issues, including women's health, policy, and social change, and social, sexual, and psycho-cultural traditions.
131:381 Feminist Theory: Historical Perspectives
Same as 16:391.
131:384 Seminar: History of American Women
Same as 16:384.
131:395 Women and Politics
Same as 16:395.
The College of Business Administration comprises six academic departments: accounting, economics, finance, management and organizations, management sciences, and marketing.

The undergraduate and graduate programs of the college are accredited by the American Assembly of Collegiate Schools of Business.

Research, executive development, and continuing education activities are supported by the centers and institutes of the college: Executive Development Center, Financial Services Market Institute, Industrial Relations Institute, Institute for Economic Research, Management Center, Manufacturing Productivity Center, Institute for Entrepreneurial Management, Ira B. McCormick Institute for Accounting Research, and Small Business Development Center.

**Undergraduate Program**

**Bachelor of Business Administration**

The college offers the Bachelor of Business Administration (B.B.A.) in all six departments and in business administration. B.B.A. students must complete background studies either in the College of Liberal Arts at The University of Iowa or at another institution and usually enter the College of Business Administration as juniors.

The college's B.B.A. curriculum requires 120 semester hours for graduation, with at least 48 semester hours in business courses and at least 45 credits toward a business major. Specialization is effected through the student's major.

The last 30 or 45 of the last 60 semester hours must be earned in residence following admission to the College of Business Administration. At least 24 semester hours of credit in courses offered by the College of Business Administration and at least two-thirds of the semester hours of credit in the student's major must be earned at The University of Iowa. Nonresident instruction includes courses that are approved for credit by the student's home institution and courses offered by external providers. The University of Iowa and all work by correspondence, including University of Iowa Guided Correspondence Study courses.

To graduate, B.B.A. candidates must have at least a 2.00 grade-point average in college course work overall, in all business course work, and in all course work in the major, both at The University of Iowa and at other institutions.

**Common Requirements**

B.B.A. candidates must satisfy the following minimum common requirements or approved equivalents:

- Economics 10:1 and 10:2, or 10:3 4-6 s.h.
- 22M:17 and 22M:58 Quantitative Methods I and II
- or 22M:25, 22M:56, and 225:120 6-8 s.h.
- 46:1 Principles of Microeconomics 3-4 s.h.
- 46:2 Principles of Microeconomics 3-4 s.h.
- 46:4 Introduction to Financial Accounting 3 s.h.
- 46:5 Managerial Cost Accounting 3 s.h.
- 46:8 Advanced Financial Accounting 3 s.h.
- 46:9 International Business 3 s.h.
- 46:10 International Business 3 s.h.
- 46:100 Administrative Management 3 s.h.
- 46:100 Introductory Financial Management 3 s.h.
- 46:100 Introduction to Marketing 3 s.h.
- 46:163 Business Policy 3 s.h.

In addition, students must complete a major area of study. The majors offered by the college are business administration, accounting, economics, finance, industrial relations and human resources, management sciences, and marketing. With the exception of the major in business administration, the requirements for each are established by the departments of the college.

**STUDENTS WITH ASSOCIATE OF ARTS DEGREES**

Students who receive Associate of Arts (A.A.) degrees and enter the college's community College-Business Agreement Program are considered to have met certain science, social science, historical perspectives, and humanities requirements, but not the foreign language and culture effective Fall semester 1992 for usual sophomore status. The program of study for which the A.A. was awarded must include:

- A minimum of 60 semester hours (or 90 quarter hours) of credit acceptable toward graduation from The University of Iowa
- 22M:2 Basic Algebra I and 22M:2 Basic Geometry
- 22M:2 Basic Algebra II and 22M:2 Basic Geometry
- 46:100 Introduction to Financial Management

Students who use the provisions of the articulation agreement are granted a maximum of 60 semester hours of transferable credit from all courses toward the 120 semester hours required for a B.B.A. B.A. students who have earned more than 60 semester hours of credit in completing the A.A. are exempt from using the spring or summer to complete the degree requirements, but it does not count toward the bachelor's degree.

Transfer credits for business course taken during the freshman or sophomore years are considered toward the B.B.A. only if each course, is approved by the college of business at The University of Iowa.

**TRANSFER STUDENTS**

Transfer students who have taken courses elsewhere that are similar to those approved for the common business requirements at Iowa may receive that courses are evaluated.

Students who transfer fewer than enough hours to meet a common requirement may only receive approved courses to complete the semester of the required. Only judge as whether the course taken at another university institution may be used in the student's business curriculum must be approved and should.

**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 a major in which majors are not available, but in which courses are offered in departments within the college (e.g., international business).

**Business Courses**

- 46:113 Business and Decisions
- 46:113 Microeconomics
- 46:113 Personnel Management
- 46:114 Individual Behavior in Organizations
- 46:120 Management Information Systems
- 46:134 Marketing Research

In addition, the required grade-point average listed above, students in this major must have a 2.00 grade-point average on all courses taken from the list above and on all business courses numbered above 100. Students in this major may not take business courses numbered below 100 unless permitted.

The business administration major degree may not be combined with any other business major.

**Minors**

**Nonbusiness Minors**

Undergraduate students in the College of Business Administration may elect to complete a minor in another college of the University. For example, students interested in international business might choose a foreign language as a minor. For the minor requirements, students should consult with an advisor in the relevant department. To have the minor recorded on their transcripts, students must complete the "minor" section on the B.B.A. degree application form before submitting it to the Office of the Registrar early in the student's final semester.

**Business Minor**

Students majoring in another college of the University may elect to minor in business administration. Students must complete below, or their equivalent, satisfy all requirements for the minor. At least 15 semester hours of courses taken for the minor must be completed in residence at The University of Iowa. A 2.00 grade-point average is required on all courses taken for the minor and on all of those courses taken at Iowa. Courses for the minor may not be taken pass/optional.

Business calculus (22M:17, 22M:25, or 22M:35) 3-4 s.h.

Electricity (22M:8 or 225:120) 3-4 s.h.
Graduation Honors

High scholastic achievement is recognized in two ways upon graduation: graduation with distinction based on grades only, and graduation with honors in Business Administration based on both grades and the completion of special work approved by the Advisory Board.

To be eligible for either form of recognition, a student must complete 60 semester hours in residence as an undergraduate at The University of Iowa, 45 of which must be completed prior to the final registration.

Graduation with Distinction

The Office of the Registrar certifies to the dean of the college the names of students eligible to graduate with distinction. The college awards degrees "with highest distinction" to students in the highest two percent of the graduating class, "with high distinction" to students in the next highest three percent, and "with distinction" to the next highest five percent. Ranking is based on students' grade-point averages for all college-level study undertaken prior to their final registration.

Admission

Admission standards are set by the undergraduate program committees. The college usually admits undergraduate students at the beginning of their senior year. Students are eligible for admission to the college after they have completed 60 semester hours; have satisfied the common requirements in quantitative methods, accounting, and economics; and have a grade-point average of 2.50 by the deadline (May 1 for summer or fall admission, December 1 for spring admission).

Students are granted admission to the College of Business Administration if they meet the above admission requirements and have a 2.60 minimum grade-point average on the common requirements in quantitative methods, accounting, and economics. All college-level courses taken (including transfer courses) and all courses undertaken at The University of Iowa.

Students who have grade-point averages below 2.60 for one or more of the categories and above 2.25 for each of the categories are considered for conditional admission. The college considers the following factors in a comparative evaluation of applicants for admission:

grade-point averages for each of the categories listed above;
the pattern of grades over time; and
other factors relevant to predicting success in the college.

The college provides information about characteristics of recently admitted students, thus enabling those interested in the program to judge how they are progressing toward admission.

Credit and Grading

Credit by Examination

Students may earn up to 32 semester hours of credit by examination. Selected tests from the College-Level Examination Program (CLEP) and the Advanced Placement Program (APP) of the College Board in each case are used. It is possible to receive credit for some of the courses required of the minimum. Information on the CLEP and APP examinations is available from the University's Examination Services.

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 Courses

Courses may be added during the first three weeks of the semester or first one and one-half weeks of the summer session with approval of the advisor and instructor. Courses may be dropped during the first two weeks of the semester or first three 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 adds or drops after these deadlines is granted in extraordinary circumstances.

Undergraduates will receive the mark of W for any course dropped after the third week of the semester or the first one and one-half weeks of the summer session.

Pass/Fail

Of the total semester hours required for a B.B.A., up to 15 may be taken on a pass/fail basis with the consent of the advisor and instructor. However, students may not use more than 8 semester hours of pass/fail credit in the last 60 semester hours of course work. Students must be in good academic standing to be eligible for the pass/fail option. A maximum of two pass/fail courses may be taken in one semester.

Courses taken pass/fail may not be used to satisfy general education, major, or minor business requirements. Major business requirements include any course that could serve as a major course requirement. A pass/fail 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 passed on a pass/fail/pass basis, an exam grade of (C- or above is recorded as a P. When grade of D- or below is recorded as an N.

Second-Grade-Only Option

This option is not available to students who were admitted to the college for spring semester 1990 or thereafter. Students admitted to the college prior to spring semester 1990 may elect to repeat a course with only the second grade being computed in
the grade-point average, except in cases of regression. Regression occurs when a student takes a lower-level course after having completed a more advanced course to which the lower-level course was a prerequisite. Regression adds the possibility of the second-grade-only option. For students admitted to the University prior to summer session 1967 and to the college before spring semester 1960, this option may be applied to a maximum of 16 semester hours of course work.

For students admitted to the University for summer session 1967 and to the college before spring semester 1960, this option is limited to a maximum of three courses. The second-grade-only option is applicable only to courses taken both times at The University of Iowa for a constant letter grade. It may be used only once per course.

Students who want to use the second-grade-only option rule should register in 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). They must declare their intent to use the option by reporting in the College of Business Administration Academic Programs Office. This must be done by the end of the third week of the semester (or first one and one-half weeks of the summer session). Liberal arts prerequisites majors must adhere to second-grade-only option procedures and deadlines set by the College of Liberal Arts Office of Academic Programs.

Under the provisions of this option, the registrar marks these courses not on the transcript. If a particular course has been repeated, both grades remain or the permanent record, but only the second one is used in calculating the grade-point average and honors for the major.

The repealed procedure of counting both grades in business where students repeat a course is eliminated unless students follow the above procedure.

Corresponding Course Work
B.B.A. candidates may not satisfy any requirement—general education, common, or major—through correspondence courses.

Probation and Dismissal
Students are placed on academic probation when their grade-point average in any of the following courses is less than 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 at The University of Iowa to satisfy requirements for the major.

When all of the above grade-point averages equal or surpass 2.00, students are removed from the probation list. Usually, students are allowed only one semester to return to good academic standing. Students on academic probation who withdraw after the deadline for dropping courses are automatically dismissed.

Students may be dismissed from the college at any time for unsatisfactory scholarship. While some probability period usually provides a deterrent, even students in good academic standing who complete a term with extremely unsatisfactory grades may be dismissed immediately. Students dropped from the college for poor scholarship may petition for permission to reenroll, but only after the expiration of one calendar year following the end of the term in which the dismissed took place.

International Business Certificate
The College of Business Administration and the College of Liberal Arts offer a minor program leading to a Certificate in International Business. This program entails study of international business and economics, international relations and institutions, a foreign language, and related area studies.

It has been designed not only for undergraduate students who intend to pursue careers in international business but for any undergraduate interested in gaining a better understanding of the global economy and a broader awareness of the political, economic, and social environment in which international business operates. The range of electives in the program permits students to select areas of specialization related to their individual interests and to complement majors in both liberal arts and business administration.

Completion of requirements result in the issuance of the "Certificate in International Business" on the student's transcript. Questions should be directed to the College of Business Administration Academic Programs Office.

Application Information
Interested students must declare their intention to pursue the certificate and file a copy of their statement of purpose to the Academic Programs Office. In order to receive the Certificate in International Business, students must receive an undergraduate degree from The University of Iowa, maintain a 2.00 cumulative grade-point average on all course work taken for the certificate, and take at least 20 semester hours of course work (other than language) for the Certificate at The University of Iowa or in approved study-abroad programs. A course may not be used to satisfy more than one certificate requirement.

Requirements
A complete listing of courses satisfying the following requirements is available from the Academic Programs Office.

International Business
68:1 Principles of Microeconomics
68:2 Principles of Macroeconomics
Three courses in International Business

International Relations and Institutions
Two courses in international relations and institutions

Foreign Language
Two to three years of college-level work (or equivalent) in one of the following languages: Chinese, German, French, Hindi, Italian, Japanese, Portuguese, Russian, or Spanish

Area Studies
Two courses that pertain to countries or areas in which the chosen language is spoken

Interdepartmental Graduate Programs
The following interdepartmental graduate programs are offered through the College of Business Administration: Master of Arts (M.A.) in accounting, industrial relations and human resources, and management information systems; Master of Business Administration (M.B.A.); and Doctor of Philosophy (Ph.D.) in business administration. Joint degree options allow M.A. or M.B.A. candidates to pursue a second graduate degree in another college. For information on M.A. programs, see the respective departmental listings in this section of the Catalog. For information on graduate programs in economics, see "Economics" in this section of the Catalog.

Master of Business Administration
The Master of Business Administration (M.B.A.) program is designed to prepare students for professional administrative careers in the business environment. It is designed to identify organizational problems, develop and evaluate potential solutions to them, and implement the solutions. These activities require analytical skills and an ability to communicate with and help people adapt constructively to change. The program emphasizes student's career opportunities and provides the commercial and government sectors with the professional personnel needed in a complex, modern economy.

The curriculum is designed for graduate students in any field. Previous course work in business is not required for admission. The curriculum consists of 36 semester hours of course work, including 12 semester hours of concentration courses, and 12 semester hours of elective course work. The M.B.A. degree requires 60 semester hours of course work. No more than 9 semester hours may be taken in the Office of graduate studies, and students must complete the Master of Business Administration (M.B.A.) degree at the University of Iowa.

Accelerated Professional Track
Highly qualified undergraduate students in the College of Liberal Arts or Engineering at The University of Iowa may be admitted to the Accelerated Professional Track (APT) program. These students begin taking the M.B.A. course as freshmen in their undergraduate program so they can earn both the bachelor's and M.B.A. degrees in just five years.
Interested students should have completed 60 semester hours of study, earned a 3.50 minimum grade-point average, and indicated the intent to pursue both degree programs on a full-time basis. More information on the AP program is available from the Academic Programs Office.

CORE COURSES
First Semester
2N-210 Models for Decision Support 3 s.h.
2N-211 Marketing Management 3 s.h.
2N-212 Administrative Science I 3 s.h.
2N-213 Administrative Economics 3 s.h.
2N-215 Accounting for Managers I 3 s.h.
Total 15 s.h.
Second Semester
2N-225 Managerial Finance 3 s.h.
2N-255 Statistical Methods 3 s.h.
2N-277 Administrative Science II 3 s.h.
2N-228 The Economic Environment of the Firm 3 s.h.
2N-229 Operations Management 3 s.h.
Total 15 s.h.
Third Semester
2N-230 Applied Statistical Analysis 2 s.h.
2N-235 Accounting for Managers II 1 s.h.
Electives 6 s.h.
Concentration(s) 6 s.h.
Total 15 s.h.
Fourth Semester
2N-240 Strategic Management and Intellectual Property 3 s.h.
Electives 6 s.h.
Concentration(s) 6 s.h.
Total 15 s.h.

CONCENTRATION OPTIONS
M.B.A. students choose an individual area of concentration after the first-year curriculum is completed. The concentration consists of 12 semester hours in a specific discipline. Three areas of concentration include accountancy, corporate finance, investments, international finance, international management, leadership and empirical, management information systems, marketing and operations, and marketing. Individual students may devise their own concentration areas, subject to approval by the Graduate Programs Office.

ELECTIVES
The student chooses 12 semester hours of graduate-level electives. Courses outside the College of Business Administration must be approved by the Graduate Programs Office.

DROP POLICY
The M.B.A. program has an early departure for students to drop any 6th departmental course. The last day to drop is the University's last day to add courses. This policy falls at the end of the third week of fall or spring semester and at the end of the first week and half of the summer sessions. Drop after this date will be allowed only upon successful petition to the Graduate Programs Office.

OFF-Campus M.B.A.
Courses are offered during evening hours in Cedar Rapids and the Quad Cities. This program is sponsored jointly by the College of Business Administration and the Division of Continuing Education in Cedar Rapids. These courses are offered in conjunction with the Continuing Education Association, and in the Quad Cities with the Quad Cities Graduate Student 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.

Executive M.B.A. Program
The Executive M.B.A. also leads to the Master of Business Administration degree. Admission is limited to experienced executives who want to broaden their management skills without interrupting their professional career. Course work is presented in two academic years. Classes begin with one full week in Iowa City followed by classes one day a week on alternating Fridays and Saturdays. Participants progress through the program together as a single group. Enrollment is limited to 35 students per year.

Information about the program, fees, and application procedures may be obtained by writing or calling the College of Business Administration, Graduate Programs Office.

Master of Arts
The Master of Arts program in business administration is designed for students seeking specialization in one of three areas of business administration. It provides students with skills that qualify them for professional positions in business.

The program is available with or without thesis and is flexible, permitting specialization according to students' interests and objectives. Students may select a major in accounting, industrial relations and human resources, and management information systems. A minor may be developed from approved course combinations within the College of Business Administration or from other available colleges. Specific program requirements are stated in the individual departmental listings in this section of the Catalog.

Doctor of Philosophy
The Ph.D. program in business administration is designed for students preparing for research careers in business and government, or for research and teaching positions at academic institutions. The program is flexible, permitting students to design an area of specialization according to their interests. Suitable course work and related experience are provided so that students achieve competence in economic theory, statistical methods, teaching, and/or research, as well as expertise in a major and minor area of study.

Course work in the Ph.D. program consists of prerequisites (as necessary), the Ph.D. core, major and minor areas of study, and dissertation research. Master's students (including all with master's degrees from ACBSP-accredited programs) take 60 semester hours of course work. Additional course requirements may be imposed or guaranteed selection of business prerequisites or the Graduate College minimum total credit-hour requirement (72 semester hours of graduate credit, including courses taken before entering The University of Iowa Ph.D. program).

PREREQUISITE COURSES
The core body of knowledge requirements of the M.A. and M.B.A. must be fulfilled. Core courses include courses in accounting, finance, marketing, organizational behavior, quantitative methods, and the economic and legal environment pertaining to profit and/or nonprofit organizations.

CORE COURSES
Core courses are designed to develop competence in research and to provide necessary background for study in more specialized courses. Graduate courses are required as follows: behavioral sciences (3 semester hours), economics (6 semester hours), issues in scientific inquiry (3 semester hours), and research methods/statistics/quantitative analysis (12 semester hours). To reflect the background and interests of individual students, doctoral candidates consult with their advisors to establish satisfaction of core requirements.

MAJOR AREA OF STUDY
A minimum of 12 semester hours of approved courses in one of the following areas: accounting, finance, human resource management, industrial relations, management science, marketing, or organizational behavior.

MINOR AREA OF STUDY
A minimum of 9 semester hours of doctoral-level courses beyond the Ph.D. core courses must be taken. Available areas include all major areas of study listed in addition to concentrations outside the College of Business Administration.

COMPREHENSIVE EXAMINATIONS
Students must successfully complete a written examination in both the major and minor areas of study. The examination committee is made up of a minimum of three faculty members. Upon satisfactory completion of the written comprehensive examinations, students must pass an oral comprehensive examination encompassing subject matter in the major, minor, and related areas. The examination committee is made up of at least five faculty members.

DISSOLUTION
A dissertation proposal must be presented before a seven-member advisory committee. This committee is comprised of interested faculty members and graduate students selected by
Admissions
Applicants seeking admission to graduate study in business must submit the Graduate College application form and fee, official transcripts of all undergraduate and graduate course work, and official Graduate Management Admission Test (GMAT) scores to the Office of Admissions. Three letters of recommendation from former instructors or employers should be submitted to the College of Business Administration Graduate Programs Office as well. The supplemental application for MBA applicants will also be submitted. Graduate Record Examination (GRE) Aptitude Test scores may be submitted in lieu of GMAT scores for the Ph.D. program in business administration. See the Graduate College section of the Catalog for more information.

Application Information
A complete application requires the following:
- a completed application form and the submitted nonrefundable fee to the Office of Admissions;
- official transcripts of all undergraduate and graduate course work submitted to the Office of Admissions for each institution attended;
- official Graduate Management Admission Test (GMAT) scores submitted to the Office of Admissions;
- the completed supplemental application form with essay responses and a resume; and
- at least three references from former instructors or employers submitted to the Graduate Programs Office.

Foreign nationals whose 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). A graduate application packet may be obtained from the Office of Admissions.

Application Deadlines
The application deadlines for M.B.A., M.M.A., and Ph.D. programs in business administration are as follows:
- M.B.A. Program (Full and Spring Entrance Only)
  - March 1: Foreign applicants (for Fall admission) or spring applicants (January 15 is the usual acceptable GMAT test date).
  - July 1: U.S. citizens and permanent residents applying for fall (August) enrollment, late to the latest acceptable GMAT test date. Applications received by April 15 receive priority for financial aid consideration.

M.A. and Ph.D. in Economics
See “Economics” in this section of the Catalog.

M.A. in Industrial Relations and Human Resources
See “Management and Organizational Behavior” in this section of the Catalog.

M.A. in Management Information Systems
See “Management Sciences” in this section of the Catalog.

Facilities
The College of Business Administration is located in Phillips Hall, at the heart of the campus. Phillips Hall contains seminar and conference rooms, computer laboratories, a auditorium, a business library, and a history of classrooms.

A new College of Business Administration building, currently under construction, is scheduled for completion in spring 1993. Interdisciplinary research materials on business and economics are maintained in the Main Library, and the facilities at the Engineering Computing Center are available to all students. Students also have direct access to a complete computer laboratory in Phillips Hall. The laboratory serves the instructional programs of the college, and the staff maintains a current library of computational and instructional software and data tapes to accommodate user needs.

Management and Business Development
Executive Development Center
The Executive Development Center conducts training and development conferences for executive and senior-level management personnel in business, the Midwest, and the nation. The programs, ranging from two days to two weeks, offer the latest research and strategy-based knowledge in the functional aspects of business as well as the economic, social, and international issues and forces that affect American business and industry. In addition to these public programs, specially tailored executive programs are offered for particular industries and/or businesses.

Financial Markets Institute
The Financial Markets Institute has two primary objectives: to disseminate recent advances in knowledge about the operation of financial markets to the academic and financial community, and to support basic research that investigates the risks and returns of financial
Industrial Relations Institute

The Industrial Relations Institute is designed to bring faculty and students together with people in industrial relations to explore curriculum matters and do research. It also conducts education seminars and workshops for practitioners in the field of industrial relations.

Institute for Economic Research

The Institute for Economic Research engages in continuing economic research and establishes a formal mechanism for providing interaction with and economic advice to industry and government. The Institute's major objectives are to provide economic information, service, and advice on a contractual basis to business and public agencies; to provide a base for applied economic research; 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 size and viability of a market, producing pro forma financial statements, and writing the business plan. The Institute also offers noncredit courses on how to manage the entrepreneurial process.

Management Center

The Management Center is a major continuing education branch of the college that provides relevant information to management and government representatives in Iowa. It disseminates current administrative, behavioral science, and management knowledge related to the working life of people in organizations through on- and off-campus conferences.

Manufacturing Productivity Center

The Manufacturing Productivity Center facilitates commercial arrangements with Iowa manufacturing firms. The appointments enable business faculty and graduate students, working with the firm's managers and engineers, to jointly address ways to improve manufacturing productivity.

Ira B. McCladrey Institute for Accounting Research

The Ira B. McCladrey 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 1984 to provide management assistance without change to small business owners and persons interested in starting a small business. The center provides individual counseling to small businesses and conducts workshops on topics related to small business management.

Placement Services

The placement needs of the college are served by the Office of Business and Liberal Arts Placement, located in Phillips Hall. A placement media library, student career planning advising, and interview facilities provide students and recruiting organizations with a full range of placement services.

Alumni Relations

The college maintains an Office of Alumni Relations to act as host during visits from alumni, friends, recruiters, and others interested in the college.

Interdepartmental Courses

For Undergraduates

6000 Cooperative Education Internship 3 s.h.
0500 Cooperative Education Internship 0 s.h.
151 Business Practice 3 s.h.
150 Business Practice • Responsibilities of general managers; functional aspects of business management through planning, organizing, and controlling.
158 Business Project • Independent research project for seniors in business administration, subject to approval.
159 Undergraduate Seminar - Business • Preparation and discussion of business topics/projects. Open only to business administration seniors. May be repeated.

For M.B.A. Students

See individual department listings for additional M.B.A. courses.
0800 Cooperative Education Internship 0 s.h.
0800 Cooperative Education Internship 0 s.h.

M.B.A. • Council of Graduate Programs Office requires.
21220 Models for Decision Support • Qualitative skills required in subsequent M.B.A. courses, including linear algebra and calculus, mathematical modeling for decision support, including linear and integer programming, decision models, matrices, other optimization software topics.
2131 Management • Understanding leadership in business and society, environmental impact on marketing, strategic and tactical decision tools for the operating manager.
21221 Administrative Science I 3 s.h.
21222 Administrative Science II 3 s.h.
51220 Advanced Economics 3 s.h.
51221 Marketing 3 s.h.
business, government, and public accounting. It also qualifies students for the Certified Public Accountant (CPA) and Certified Management Accountants (CMA) examinations.

Completion of prerequisite coursework and acceptance into the College of Business Administration are required before entry into the professional program in accounting. Separate applications to the College of Business Administration and the professional program in accounting are made at the end of the sophomore year. If an applicant is accepted into the program at the beginning of the fall semester, the student enters a B.B.A. after the successful completion of the first two years of the program. The sophomore B.B.A. requires 30 graduate semester hours beyond the 120 undergraduate hours required for the B.B.A. in accounting. For more information, see "Program I," below.

The first and second years of the professional program, taken during the junior and senior years, provide concentrated coverage of professional accounting subjects and closely related topics in economics, commercial law, behavioral science, and operations research.

The third year, taken during M.A. candidacy, emphasizes the theoretical and conceptual foundations of accounting. The program consists of a series of courses that merge concepts and techniques with applications to current and potential problems of professional practice. Students are exposed to contemporary accounting practice through the Accounting Issues Series course and the M.A. Speaker Series. Graduate accounting courses are supplemented by a strong program of interaction between students and outstanding professional accountants. Oral and written communication skills are emphasized during the third year through class presentations and papers.

Students in the first and second year of the professional program must maintain a 2.00 grade-point average in all graduate courses. Students who do not maintain these grade requirements are placed on academic probation for one semester. If the minimum grade requirements are not met at the end of the fall semester, the student's academic record is reviewed by the department faculty to determine whether the student will be permitted to remain in the professional program in accounting.

Students who have earned a B.B.A. in accounting at the University of Iowa but have acquired a B.A.-level degree from another department, college, or university must apply to the University of Iowa Graduate College. Candidates applying for admission to the Graduate College with the objective of an M.A. in accounting must include scores obtained on the Graduate Management Admission Test (GMAT). Admissions are considered throughout the year to accommodate students who wish to enter the program during the second year.

Students accepted into the master's program in accounting enter the third year of Program 1 (B.B.A. in accounting from another university) or Program 2 (B.B.A. in business but not in accounting, or Program 3 (B.A. or not in business). All programs are adjusted to reflect the particular academic background or deficiencies of the successful applicant.

Program 1

This program is for students who have completed the preprofessional program at the University of Iowa or qualified students from other institutions.

Graduate students entering the professional program must complete 60 semester hours of course work, including the following general preprofessional core courses, prior to admission to the professional program.

- 0A-1: Introduction to Financial Accounting (with a grade of B or higher) 3 s.h.
- 0A-2: Managerial Cost Accounting (with a grade of B or higher) 3 s.h.
- 0B-1: Principles of Microeconomics 3 s.h.
- 0B-2: Principles of Macroeconomics 3 s.h.
- 2296: 17 Quantitative Methods I 4 s.h.
- 2298: Quantitative Methods II 4 s.h.
- 0E-70: Computer Analysis 3 s.h.
- 0E-71: Statistical Analysis 3 s.h.

After successful completion of the first two years of the professional program, students receive the B.B.A. During the first two years of the program, undergraduate accounting students are expected to complete the Graduate Management Admissions Test (GMAT). If they have been highly successful during the first two years of the program and have completed the GMAT, they are admitted to graduate study and the third year of the program. After successfully completing the third year of the professional program (including an oral exam), students receive the M.A. in accounting.

FIRST YEAR (JUNIOR)

Fall Semester

6A-131: Financial Accounting I 3 s.h.
6A-100: Introductory Financial Management 3 s.h.
5A-100: Administrative Accounting 3 s.h.
100:100: Introductory to Marketing, Elective 3 s.h.

Spring Semester

6A-115: Introduction to Taxation 3 s.h.
6A-132: Financial Accounting II 3 s.h.
6A-170: Introduction to Financial Management 3 s.h.

SECOND YEAR (SENIOR)

Fall Semester

6A-130: Cost Accounting for Management Analysis and Control 3 s.h.
6A-144: Auditing 3 s.h.
5A-030: Microeconomics 3 s.h.
Elective 3 s.h.

Spring Semester

6A-144: Advanced Tax Topics electives 3 s.h.
6A-100: Financial Accounting III 3 s.h.
5B-165: Business Policy 3 s.h.
6A-168: Law and Business 3 s.h.
Elective 3 s.h.

Program 2

This program is for students who have earned an undergraduate degree in business but who have completed their undergraduate accounting courses. Students take no more than 12 credits of course work from the professional level and the remaining credits are from the undergraduate level. Students may complete the professional program in accounting within 12 semester hours beyond the B.B.A. in accounting.

Program 3

This program is for students who have earned a bachelor's degree in business who have concentrated their study in an area other than accounting (e.g., finance, marketing, or management).

Typically, 45 semester hours are required for the master's degree in accounting, including 15 semester hours of undergraduate accounting courses (6A-115, 6A-130, 6A-132, 6A-134, and 6A-144), 15 semester hours of 200-level accounting courses, and 15 semester hours of other graduate level courses. Specific content of elective course work is determined by each student's background and areas of interest.

Program 4

This program is for students who have earned a bachelor's degree in business who have completed their undergraduate accounting courses. Students take no more than 12 credits of course work from the professional level and the remaining credits are from the undergraduate level.

Program 5

This program is for students who have earned a bachelor's degree in business who have completed their undergraduate accounting courses. Students take no more than 12 credits of course work from the professional level and the remaining credits are from the undergraduate level.
Graduate Program

Doctor of Philosophy

See "Interdepartmental Graduate Programs" in the College of Business Administration section of the Catalog.

Courses

Primarily for Undergraduates

6A.090 Cooperative Education: Internship 3 s.h.
6A.099 Cooperative Education: Internship 1 s.h.

6A.111 Introduction to Taxation 3 s.h.
6A.133 Management Information Systems 3 s.h.
6A.139 Financial Accounting Reporting 3 s.h.
6A.151 Advanced Financial Accounting 3 s.h.
6A.152 Financial Accounting Standards and Analysis 3 s.h.
6A.170 Advanced Tax Accounting for Graduate Students 3 s.h.
6A.179 Accounting Information Systems 3 s.h.
6A.181 Financial Accounting 1 3 s.h.
6A.211 Federal Income Taxation 3 s.h.
6A.212 Financial and Managerial Accounting 3 s.h.
6A.221 Accounting Information Systems 3 s.h.
6A.222 Auditing and Reporting of Accounting Information 3 s.h.
6A.223 International Accounting 3 s.h.
6A.224 Masters Comprehensive Exam 0 s.h.
6A.225 Advanced Corporate Finance 4 s.h.
6A.231 Financial Accounting 1 3 s.h.
6A.232 Financial Accounting 2 3 s.h.
6A.241 Advanced Corporate Finance 4 s.h.
6A.242 Advanced Corporate Finance 4 s.h.
6A.243 Advanced Corporate Finance 4 s.h.
6A.244 Advanced Corporate Finance 4 s.h.
6A.245 Advanced Corporate Finance 4 s.h.
6A.246 Advanced Corporate Finance 4 s.h.
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College of Liberal Arts and the B.B.A. in the College of Business Administration.

The B.B.A. program is designed to achieve a balance between economic theory, mathematical tools, and field applications. The B.B.A. program maintains the same balance but places more emphasis on developing analytic tools; it prepares students for graduate work in economics or related business and technical fields. The B.B.A. emphasizes the economic foundations of the various business fields: accounting, finance, marketing, business law, and management.

The requirements for the B.B.A. are described below; those of the B.B.A. and B.A. are described in the College of Liberal Arts sections of the Catalog. In planning a program of study, students should consider which courses are prerequisites for others. The Handbook for Economics Majors, available from the department office, offers help in planning an economics degree program.

Bachelor of Business Administration

In addition to the common requirements of the College of Business Administration, the B.B.A. in economics requires 18 semester hours in 100-level economics courses, including the following:

60:103 Macroeconomics 3 s.h.
60:104 Microeconomics 3 s.h.
60:105 Microeconomic Theory 3 s.h.
60:106 Macroeconomic Theory 3 s.h.

Two field courses numbered from 60:170 through 60:180 6 s.h.

Students are advised to pursue the heavier requirements in the first two years with 60:103 and 60:104 if they anticipate switching degree programs in economics (e.g., from a B.B.A. to a B.A.).

Graduate Programs

Master of Arts

The Master of Arts is offered only to students working toward a Ph.D. or to those who earn a joint M.A. with geography or a joint M.A.J.D. with law.

Joint M.A. Programs

The department collaborates with the Department of Geography in a joint M.A. and with the College of Law in a joint M.A.J.D. In these programs, the economics department accepts up to 9 semester hours of course work from the other departments as credit toward the M.A. in economics, but the other departments award no greater credit in economics toward their degree.

Doctor of Philosophy

The Ph.D. program is designed to provide rigorous training in microeconomic theory, macroeconomic theory, mathematical economics, and econometrics. In addition, students select a major area for intensive study and specialization. The program has three components: a coordinated sequence of core courses, a major area dissertation, and a dissertation.

COURSE SCHEDULE

First Semester

60:200 Mathematics for Economics I 3 s.h.
60:201 Microeconomics I 3 s.h.
60:204 Macroeconomics I 3 s.h.
60:215 Introduction to Probability 3 s.h.

Second Semester

60:201 Mathematics for Economics II 3 s.h.
60:206 Microeconomics II 3 s.h.
60:206 Macroeconomics II 3 s.h.
220:154 Introduction to Mathematical Statistics 3 s.h.

Third Semester

60:221 Econometrics 3 s.h.

Fourth Semester

60:232 Applied Economics 3 s.h.

Written examinations in microeconomics and macroeconomics before the second year and a substantial research paper before the beginning of the third year complete the core requirements.

FIELD COURSES

Each student chooses a major area of study in addition to the core courses. The requirement for the major area is a minimum of 24 semester hours of intensive study in a field and to enable students to understand the relationship between their specialty and related fields. Students must achieve a 3.20 minimum grade point average in the major area courses.

DISCUSSION

Students must present and defend a dissertation prospectus during their third year. Approval to candidacy is granted upon successful defense of the prospectus. Subsequent to the completion of the dissertation and oral defense of the dissertation research committee plans the Ph.D. program.

Courses

Primarily for Undergraduates

Note: 60:1 and 60:2 may be taken in either order or simultaneously.

60:101 Cooperative Education Internship 0 s.h.
60:102 Principles of Microeconomics 3 s.h.
Organization, modeling of modern microeconomic systems, role of markets, prices, efficiency and welfare, welfare and distribution of income, and wealth. Interrelations in economic systems. (CEE social science honors B.B.A. students.)
60:202 Principles of Macroeconomics 3 s.h.
National income and output, employment and inflation, costs, monetary, government, international, financial, fiscal policy, economic growth, government and international finance, social welfare and senior honors B.B.A. students.
60:203 When money matters 3 s.h.

60:84 Economic Statistics 3 s.h.

60:85 Economic Statistics 3 s.h.

60:91 Internship 3 s.h.

60:92 Internship 3 s.h.

60:103 Microeconomics 3 s.h.

60:104 Macroeconomics 3 s.h.

60:105 Monetary Economics 3 s.h.

60:106 Labor Economics 3 s.h.

60:107 Money, Banking, and Financial Markets 3 s.h.

60:110 Economics of the Government Sector 3 s.h.

60:111 Urban Economics 3 s.h.

60:125 International Economics 3 s.h.

60:126 Economic Growth and Development 3 s.h.

60:131 Environmental Economics 3 s.h.

60:133 Environmental and Natural Resources Economics 3 s.h.

60:135 Money, Banking, and Financial Markets 3 s.h.

60:136 Introduction to the international trade, role of central banks, financial markets, and monetary policy.

60:137 Regional and Urban Economics 3 s.h.

60:140 Urban Economics 3 s.h.

60:141 Economic Analysis of Urban Systems 3 s.h.

60:142 Urban Economics 3 s.h.

60:143 Urban Economics 3 s.h.

60:144 Urban Economics 3 s.h.

60:145 Urban Economics 3 s.h.

60:146 Urban Economics 3 s.h.

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60:176 Urban Economics 3 s.h.

60:177 Urban Economics 3 s.h.

60:178 Urban Economics 3 s.h.

60:179 Urban Economics 3 s.h.

60:180 Urban Economics 3 s.h.

60:181 Urban Economics 3 s.h.
Courses

Primarily for Upper-Division Undergraduates

6F06 Cooperative Education Internship 0.5 h.
6F10 Introductory Financial Management 3 h.
6F12 Financial Planning: Personal, Family, and Group in Business Ethics and Society: Justifying Managerial Actions 6 F12
6F10 Directed Readings in Finance 3 h.
6F11 Internships 3 h.
6F11 Security Analysis 3 h.
6F12 Financial Markets and Institutions 3 h.
6F14 Corporate Banking 3 h.
6F18 Futures Trading 3 h.
6F17 Intermediate Financial Management 3 h.
6F17 Intermediate Business Finance 3 h.
6F13 International Finance 3 h.
6F18 Emerging Markets and Small Business 3 h.
6F13 International Finance 3 h.
6F20 Directed Readings in Finance 3 h.
6F20 Research Methods 3 h.
6F12 Investment Management 3 h.
6F13 International Finance 3 h.
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Students majoring in industrial relations and human resources take courses of study that deal with labor relations, human resources management, organizational behavior, and collective bargaining. The program is designed to give students a thorough understanding of the field as well as an understanding of the techniques available to resolve situations. Specific courses, research projects, and other experiences, such as internships, are included to build such theoretical and pragmatic aspects of the field.

The industrial relations and human resources major prepares students for a variety of line, staff, and professional positions in business, government, nonprofit institutions, and education. Work areas for which graduates are qualified include personnel in wage and salary administration, staff benefits, selection and development, performance appraisal, industrial training, manpower issues, related bargaining, record administration, grievance handling, dispute resolution, and labor legislation areas, such as equal employment opportunity, social insurance, equal pay, age discrimination, and labor relations law.

## Undergraduate Program

### Requirements for the Bachelor of Business Administration with a major in industrial relations and human resources are as follows:

- 61:155 Personnel Labor Legislation 3 s.h.
- 61:153 Collective Bargaining 3 s.h.
- 61:159 Personnel Management 5 s.h.
- Specialized area (industrial relations and human resources) management 5 s.h.

Total 15 s.h.

Students select courses in the specialized area based on the advice and consent of their advisors.

## Graduate Programs

### Master of Arts

A Master of Arts with a major in industrial relations and human resources is available as a special master's program for students who seek a professional degree in the field. The degree provides concentrated graduate study in labor relations and personnel management.

The M.A. requires 30 to 42 semester hours, depending on the student's previous academic work, and is designed to allow maximum flexibility in developing a plan of study that meets the student's needs. Courses are organized in five basic groups: a major area, an optional minor area, foundation courses, common body courses, and a research requirement.

### MAJOR AREA

The student's career goals and previous academic work are considered in the selection of courses for the major area of study. With the approval of the advisor, six courses are selected from the following graduate courses in industrial relations and human resources, for a total of 18 semester hours.

- 62:205 Contemporary Topics in Management and Organization
- 62:245 Total Quality Management
- 62:245 Total Quality Management
- 62:269 Industrial Relations Systems
- 62:251 Concepts of Fair Employment
- 62:322 Collective Bargaining
- 62:252 Public Sector Labor Relations
- 62:355 Management Decision Making
- 62:356 Dynamics of Negotiations
- 62:357 Labor Administration
- 62:360 Personnel Selection
- 62:262 Administrative Science B.
- 62:271 Compensation Management

### OPTIONAL Minor

When the course of their advisor, students may take 6 of the 18 semester hours for the major area from a minor area outside the department. Minor areas of study may be arranged in related fields, such as law, management sciences, psychology, sociology, economics, or history.

### FOUNDATION COURSES

A maximum of 12 semester hours of foundation courses are required of all master's students in the College of Business Administration. These requirements may be fulfilled through completion of courses in industrial relations management, economics, and statistics. Students who have fulfilled these requirements through previous course work may reduce their required semester hours to the 30-semester-hour minimum.

### COMMON BODY COURSES

Students with extensive previous course work in accounting, finance, and economics must complete two 1-semester-hour courses in each of the three areas. Students who have previous course work in these areas may take additional electives or reduce their total required semester hours to the 30-semester-hour minimum.

### RESEARCH REQUIREMENT

A critical part of each student's graduate education is the development of research skills. The program's research component consists of a 3-semester-hour research methodology course and one 1-semester-hour independent research project course, for a total of 3 semester hours. The program's research component includes a research paper that is evaluated by a panel of three faculty members, who also serve as the student's examination committee.

### Doctor of Philosophy

Students seeking a Ph.D. in industrial relations and human resources will find the degree requirements specified as part of the "Graduate Program Plan" in the College of Business Administration section of this Catalog.

## Courses

### Primarily for Upper-Division Undergraduates

- 3:00 Introductory to Management and Organizational Behavior
- 3:04 Introduction to Law
- 3:10 Introduction to Management
- 3:10 Organizational Behavior in Action
- 3:10 Organizational Behavior: Leadership and Decision Making
- 3:10 Organizational Behavior and Human Resource Management
- 3:10 Strategic Management in Industrial Relations and Human Resource Management
- 3:10 Principles of Labor Legislation
- 3:10 International Business Environment
- 3:10 Employment Discrimination and Equal Employment Opportunity
- 3:10 Labor Law and Labor Legislation
- 3:10 Collective Bargaining
- 3:10 International Industrial Relations
- 3:10 Compensation Administration
- 3:10 Compensation Theory and Practice
- 3:10 Training and Development
- 3:10 Training and Development
- 3:10 Group Behavior in Organizations
- 3:10 Current Issues in Industrial Relations
- 3:10 Current Issues in Industrial Relations
- 3:10 Professional Development and Training
- 3:10 Organizational Behavior
- 3:10 Industrial Behavior in Organizations
- 3:10 Organizational Behavior in Organizations
- 3:10 Organizational Design and Operations
- 3:10 Organizational Design and Operations
- 3:10 Strategic Problems in Administrative Science
- 3:10 Strategic Problems in Administrative Science

### Business Administration: Management and Organizations

- 3:10 Strategic Management in Industrial Relations and Human Resource Management
- 3:10 Principles of Labor Legislation
- 3:10 International Business Environment
- 3:10 Employment Discrimination and Equal Employment Opportunity
- 3:10 Labor Law and Labor Legislation
- 3:10 Collective Bargaining
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- 3:10 Industrial Behavior in Organizations
- 3:10 Organizational Design and Operations
- 3:10 Organizational Design and Operations
- 3:10 Strategic Problems in Administrative Science
Operations Management Track
5/161 Individual Behavior in Organizations
5/163 Organizational Design and Operations
5/170 Managerial Decision Models
5/480 Management Information Systems
6/184 Production Planning and Control
One of the following:
6/153 Quantitative Management
6/154 Systems Analysis and Design
6/152 Applications of Database Management Systems

Graduate Programs

Master of Arts
A nonthesis Master of Arts in management information systems is available to students with appropriate computer science experience, including a rigorous background in structured programming (for example, 22C:16-17), subject to the following requirements: (1) at least 15 semester hours of foundation courses; (2) at least 30 additional semester hours of course work selected from the following.

Economics and Behavioral Science
Total of 3-semester hours.
6/213 Management Economics 3 s.h.
6/227 Administrative Science 3 s.h.
6/228 The Economic Environment of the Firms 3 s.h.

Research Methodology
6/235 Statistical Analysis 3 s.h.

Management Information Systems
Total of 12-18 semester hours.
6/280 Management Information Systems—M.B.A. 3 s.h.
6/282 Management Systems Design 3 s.h.
6/283 Applied Database Management Systems 3 s.h.
6/286 Business Telecommunication 3 s.h.
One or more of these:
6/283 Organizational Decision Behavior 3 s.h.
6/274 Organizational Behavior 3 s.h.
6/285 Planning and Control 3 s.h.
6/286 Research Seminar in Information Management Systems 3 s.h.
6/287 Scientific Basis for Management 3 s.h.
6/289 Operations Management 3 s.h.

Computer Science
Total of 6 semester hours.
22C:15-16 Software Engineering I 3 s.h.
22C:144 Database Management Systems 3 s.h.
Students may substitute other computer science courses for 22C:115 and/or 22C:144 with the approval of their advisor.

Electives
Total of 3-9 semester hours.

Doctor of Philosophy
Candidates who want to earn a Ph.D. in management sciences should refer to the description of the Doctor of Philosophy program in "Interdisciplinary Graduate Programs" in the College of Business Administration section of this catalog.

Courses

Primarily for Undergraduates
6/280 Cooperative Education Internship 0-6 s.h.
6/274 Computer Analysis 3 s.h.
The computer and its use as an organizational operator; management, computer systems terminology, programming, management information systems, use of application software. Prerequisites: 22C:16 and 22C:17.
6/271 Statistical Analysis 3 s.h.
Statistics for management mathematics problems; regression, ANOVA, normal theory, sampling. Prerequisites: 22C:17 and 22C:16.
6/284 Production Management 3 s.h.

For Undergraduates and Graduates
6/191 Directed Readings 1-6 s.h.
Candidates of master's degree programs.
6/270 Managerial Decision Models 3 s.h.
Interdisciplinary programming, historic literature, economic, business, management, computer systems terminology, programming, management information systems, use of application software. Prerequisites: 42C:16 and 42C:17.
6/270 Management Information Systems 3 s.h.
Analysis, design, implementation of an information system; work study products in automation of administrative and business systems, data communication systems; economic decision making. Prerequisites: 22C:17 and 22C:16.
6/271 Systems Analysis and Design 3 s.h.
Design, implementation of an information system; work study productivity automation of administrative and business systems, data communication systems; economic decision making. Prerequisites: 22C:17 and 22C:16.
6/280 Applications of Database Management Systems 3 s.h.
Comprehensive examination of a database using relational models; exploration of issues of logic and perspective; design, database administration, secondary storage, implementation. Prerequisites: 42C:16.
6/282 Production Planning and Control 3 s.h.
Computer-based activities for production planning, scheduling, and inventory activity. Computer-based planning systems, methods and their applications in industry, scheduling requirements planning (MRP); see also 22C:17 systems. Prerequisites: 42C:16, 42C:17, and 42C:18.
6/275 Introduction to Data Communications 3 s.h.
Computer communications, computer-intercommunication systems, transmission media, data encoding principles, concepts of existing computer communications networks, related management issues. Prerequisites: 42C:16.

For Graduates

6/275 Standardized Research Institute 3 s.h.
Candidates of master's degree programs.
6/280 A.M.A. Research Report 1 s.h.
Open to students who have A.M. candidates of master's degree programs.
6/275 Analytical Models in Management Science 3 s.h.
Operations research through student case study and problem identification; techniques of multivariate modeling, computer implementation, communications skills.

Doctor of Philosophy: Doctor of Philosophy program in "Interdisciplinary Graduate Programs" in College of Business Administration, section of this catalog.

Courses

Primarily for Undergraduates
6/280 Cooperative Education Internship 0-6 s.h.
6/274 Computer Analysis 3 s.h.
The computer and its use as an organizational operator; management, computer systems terminology, programming, management information systems, use of application software. Prerequisites: 22C:16 and 22C:17.
6/271 Statistical Analysis 3 s.h.
Statistics for management mathematics problems; regression, ANOVA, normal theory, sampling. Prerequisites: 22C:17 and 22C:16.
6/284 Production Management 3 s.h.

For Undergraduates and Graduates
6/191 Directed Readings 1-6 s.h.
Candidates of master's degree programs.
6/270 Managerial Decision Models 3 s.h.
Interdisciplinary programming, historic literature, economic, business, management, computer systems terminology, programming, management information systems, use of application software. Prerequisites: 42C:16 and 42C:17.
6/270 Management Information Systems 3 s.h.
Analysis, design, implementation of an information system; work study products in automation of administrative and business systems, data communication systems; economic decision making. Prerequisites: 22C:17 and 22C:16.
6/271 Systems Analysis and Design 3 s.h.
Design, implementation of an information system; work study productivity automation of administrative and business systems, data communication systems; economic decision making. Prerequisites: 22C:17 and 22C:16.
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Comprehensive examination of a database using relational models; exploration of issues of logic and perspective; design, database administration, secondary storage, implementation. Prerequisites: 42C:16.
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Computer-based activities for production planning, scheduling, and inventory activity. Computer-based planning systems, methods and their applications in industry, scheduling requirements planning (MRP); see also 22C:17 systems. Prerequisites: 42C:16, 42C:17, and 42C:18.
6/275 Introduction to Data Communications 3 s.h.
Computer communications, computer-intercommunication systems, transmission media, data encoding principles, concepts of existing computer communications networks, related management issues. Prerequisites: 42C:16.

For Graduates

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Open to students who have A.M. candidates of master's degree programs.
6/275 Analytical Models in Management Science 3 s.h.
Operations research through student case study and problem identification; techniques of multivariate modeling, computer implementation, communications skills.
Marketing

Marketing is the process of identifying, anticipating and creating customer needs and satisfying these needs with offerings that stimulate demand and create customer satisfaction and loyalty.

Core Concepts:
- Consumer behavior
- Market segmentation
- Marketing mix (4Ps)
- Brand management
- Customer relationship management
- Digital marketing
- Data analytics
- Market research
- Sales management

Key Terms:
- Market
- Customer
- Demand
- Marketing mix
- Brand
- Sales

Marketing Strategies:
- Product development
- Price setting
- Promotion planning
- Distribution channels

Marketing Tools:
- Advertising
- Social media
- SEO
- Content marketing
- Email marketing

Marketing Challenges:
- Changing customer behavior
- Increasing competition
- Technology disruptions
- Economic uncertainty

Marketing Careers:
- Marketing manager
- Digital marketing specialist
- Brand manager
- Market research analyst
- Sales representative

Marketing Books:
- "Marketing Management" by Philip Kotler
- "The $100 Billion Market" by Andrew Zuckerman
- "The Customer-Centric Organization" by Blake And Nierenberg

Marketing Tools:
- Marketing automation software
- CRM systems
- Analytics platforms
- Social media marketing tools

Marketing certifications:
- Certified Marketing Professional (CMP)
- Certified Digital Marketer (CDM)
- HubSpot Inbound Marketing Certification

Marketing case studies:
- Netflix
- Airbnb
- Coca-Cola
- Nike

Marketing trends:
- Personalization
- Artificial intelligence
- Voice search
- Influencer marketing
- Video marketing

Marketing conferences:
- Advertising Week
- South by Southwest (SXSW)
- Cannes Lions
- Marketing Week

Marketing resources:
- American Marketing Association (AMA)
- MarketingProfs
- Moz
- HubSpot

Marketing sites:
- MarketingProfs.com
- HubSpot.com
- Marketing-Mix.com
- MarketingProfs.com
College of Dentistry

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Dean: Teresa M. McAlister
Executive associate dean: John C. Montgomery
Assistant dean for research and director of research: John L. Elverado
Associate dean for academic affairs: Nelson E. Washington
Associate dean for clinical affairs: Thomas V. Cano
Assistant dean for professional affairs: C. Frederic E. Sibley
Assistant dean for business and financial administration: M. L. Brouse
Degrees: D.D.S., M.D.

...
Doctor of Dental Surgery

The College of Dentistry is both administratively and physically an integral part of the University. It draws on and contributes to the University's diverse resources, and its students enjoy all the advantages and privileges enjoyed by the general student body. The college benefits particularly from its cooperative relationship with the Colleges of Medicine, Nursing, and Pharmacy in The University of Iowa Health Care, whose teaching, research, and service activities are superior national recognition.

The basic educational program leading to the Doctor of Dental Surgery (D.D.S.) consists of a three-year period of preprofessional study and four years of study in the College of Dentistry. The dental curriculum consists of five basic units.

Basic sciences: gross anatomy, biochemistry, histology, physiology, general pathology; oral pathology, pharmacology, microbiology

Restorative dental sciences: gross, microscopic, and radiographic dental anatomy; dental materials, endodontics, operative dentistry, fixed partial prosthetics, removable prostheses

Oral medicine: preventive dentistry, oral diagnosis, dental radiology, oral pathobiology and pain control, oral and maxillofacial surgery, periodontology

Community dentistry: ethics, epidemiology, nutrition, preventive dentistry, community health, principles of human behavior, dental economics, dental jurisprudence, geriatrics, communication

Pediatric dentistry: facial growth and development, pediatric dentistry and orthodontics

To achieve a close correlation of the basic sciences with clinical studies, 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.

Thirty-two dental students review through a series of clerkships that expose them to eight clinical disciplines.

Fourth-year dental students are involved in the delivery of comprehensive dental care to an audience that simulates conditions in private dental practice. They also are exposed to various environmental health programs that include hospitals, mental health institutions, nursing homes, and the Special Patient Care Clinic. They are also part of the Colorado Migrant Worker Program or the Foreign Dental School Exchange Program, which give exposure in terms of dentistry usually not observable in an academic setting.

Promotions and Graduation

Students promotions and graduations are determined by the collegiate academic and professional performance committee, which is made up of individuals appointed by the dean from the basic, preclinical, and clinical sciences and from other academic areas of the college. The performance committee may recommend to the dean that a student withdraw from the college or repeat specific courses when the student is deemed generally unsuited to be promoted or to enter the dental profession.

Committee for Appeals

When a student has been advised to withdraw from the college or wishes special consideration of problems concerning promotion or graduation, the student may appeal to the dean. All appeals are heard by an ad hoc committee appointed by the dean. The ad hoc committee investigates new information that previously has not been available or clear, 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 insight that may have been gained, could have influenced the collegiate academic and professional performance committee's decision. The recommendations of the appeals committee is submitted to the dean for final action.

Dentistry Licensure Examinations

Iowa and the states of Colorado, Illinois, Kansas, Minnesota, Montana, Nebraska, North Dakota, South Dakota, Wisconsin, and Wyoming belong to the Central Regional Dental Testing Service, which serves as the testing agency for Council for Dental Education in these states. Examinations are administered at several testing sites in public 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, member states accept successful completion of Central Regional Dental Testing Service requirements in lieu of their individual state's dental examination requirements. The examination is then filed with the individual state board of dentistry. Most states also require the National Board, conducted by the American Dental Association, in lieu of individual state written examinations. A jurisprudence examination also is required in many states, including Iowa.

Facilities

The Dental Science Building, a major unit of the Iowa heart center campus, enables the college to accommodate to research activities and facilities the development of interdisciplinary communications in health center testing, research, and patient care activities. The health center includes the Colleges of Medicine, Nursing, and Pharmacy; the Bowes Science Building; The University of Iowa Hospitals and Clinics; and the Marriott Library for the Health Sciences. The Harris Library houses all of the University's special health science holdings, a total of 194,750 volumes, in more than 18,000 volumes on dentistry and allied scientific subjects, and more than 280 dental journals the college currently receives. This library receives more than 2,000 journals from the combined health professions.

The Dental Science Building consists of two, four-story, brick structures, located one each side of a mall. The south wing is devoted to clinical teaching with various departments' clinic facilities, support laboratories, research space, offices, and a cafeteria. The north wing houses teaching laboratories, research laboratories, the first-class auditorium, educational media center, and programs in preventive and community dentistry.

Student Organizations

All dental students are eligible for membership in the American Student Dental Association through its local chapter. There also are local chapters of the American Association of Dental Schools, the American Association of Women Dentists, the American Society of Dentistry for Children, and the Student National Dental Association. Students who rank in the upper 12 percent of their senior class are eligible for election to Omicron Kappa Upsilon, national scholastic honorary dental society. Two national dental professional associations, Delta Sigma Delta and Psi Chi Omega, have chapter houses at Iowa. Both organizations have housing available to male and female dental students, and in addition to 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 students with instruments and supplies necessary throughout dental training. The SIMS usage fee for the D.D.S. is payable in categorical fees with the rest of the cost of the program.

A fee for expendable laboratory supplies is charged each of the first two years. A $100 breakage fee also may be deposited; the deposit is refundable upon graduation or termination of enrollment.

Financial Aid

Financial assistance for dental students is based on need. Students applying for financial aid should submit the Free Application for Federal Student Aid (FAFSA), which includes an evaluation of parent income and assets. Nearly all dental students are eligible for Health Professions Loans, Perkins Loans, state grants, and Stafford Loans. Interest on these loans is deferable while the student is in school, and the loans are repayable over an extended period of time after the course of study is completed. Short-term loans are available through the financial aid coordinator at the College of Dentistry.

At "See Financial Aid" in the Learning at Iowa section of the Catalog or inquire at the Office of Student Financial Aid for updated information.

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Dentistry
on financial assistance available to dental students.

Dental Research Awards (DRA)

Dental Research Awards are given each year to qualified outstanding dental students. The DRA provides financial support ranging from $1,200 to $5,000 per year for as many as four years, if the student maintains an appropriate level of performance. Awards are engaged as assistance in research work with faculty mentors.

Other Awards

The college offers merit Awards that provide financial support for as many as four years, based on satisfactory performance in school.

Minorities

Financial assistance grants and loans are available to minority students who qualify under The University of Iowa 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 there.

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 admission is made. Completed applications should be on file at AADSAS by November 30. Applicants should apply as early as possible and would not delay until after the Dental Admissions Test (DAT) is taken. Notifications of acceptance are sent beginning December 1.

Prospective dental students are encouraged to enroll in an education program that leads to a baccalaureate 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 law "Combined Liberal Arts-Dentistry Program." This section of the Catalog.

Predental Studies

The basic academic requirements for admission to the College of Dentistry is the completion of no fewer than 94 semester hours of academic study at an accredited college. The predental program of study should include the following:

English: satisfactory accomplishment in English composition, rhetoric, and speech

Mathematics: one year (equivalent to 16 semester hours), of which one year (equivalent to 8 semester hours) may be included in applied mathematics and, of which one year must be in algebraic

Chemistry: two years (equivalent to 18 semester hours), of which one year (equivalent to 8 semester hours) may be included in applied Chemistry, and of which one year must be in General Chemistry.

Biological Sciences: one year (equivalent to 18 semester hours), which must include appropriate ancillary work; this requirement may be satisfied by a one-year course in general mammalian biology. Courses in histology and cell physiology are also recommended.

Electives: 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 baccalaureate program at The University of Iowa may be allowed to include the first year of dentistry to complete their elective hours requirement toward the bachelor's degree.

The requirements for acceptance by the College of Liberal Arts of 36 semester hours of elective credit earned in any other college of the University 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 also fulfill all requirements of the College of Liberal Arts and 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 2.5. The admissions committee gives special consideration to the quality of applicants' course work in the predental sciences in addition to the cumulative grade point average.

Interviews

Personal interviews are required of applicants for admission to the College of Dentistry. Applicants will be contacted to arrange an interview, usually after the AADSAS application is received by the admissions office.

Required Dental Admission Test

All applicants must complete the Dental Admission Test (DAT) as required by the Council on Dental Education of the American Dental Association. Tests are given six times a year. The University of Iowa is a testing center. All applicants must take the test no later than one month prior to the start of the academic year for which they wish to apply. Tests are required at least one year before enrollment. The University of Iowa is a testing center. Applicants must take the test no later than one month prior to the start of the academic year for which they wish to apply. Tests are required at least one year before enrollment.

Deposit by Accepted Applicants

Applicants accepted before February 1 are required to submit a $500 deposit within 30 days after notification of acceptance. Applicants admitted after February 1 must submit the deposit within two weeks after notification of acceptance. This deposit is non-refundable, but is credited toward the first-year fees.

Applicants who fail to make the deposit within the time specified forfeit their place in the entering class.

Additional Admission Considerations

Eligibility requirements for the specific requirements for admission do not ensure admission to the College of Dentistry. Prior applicants meeting minimum requirements, the admissions committee selects those who appear best qualified for the study and practice of dentistry. The committee considers applicants' academic averages, science averages, DAT scores, letters of recommendation, the interview, and other letters.

Early Admissions

The College of Dentistry has an early admissions program set up with The University of Iowa's Colleges of Letters, Social Sciences, and Hebrew and Judaic Studies. This program allows academic experience well in advance of the entrance to the College of Dentistry.

The College of Dentistry has an early admissions program set up with The University of Iowa's Colleges of Letters, Social Sciences, and Hebrew and Judaic Studies. This program allows academic experience well in advance of the entrance to the College of Dentistry. Students from these colleges who are interested in the study of medicine to be admitted as early as the first year of their undergraduate college and are engaged in early admission programs that incorporate the dental health sciences.

Once selected for the program, students must maintain a 3.25 grade-point average to assure maintenance in The University of Iowa College of Dentistry.
Graduate and Postgraduate Study

Programs of study leading to the Master of Science degree are offered by the College of Dentistry’s Departments of Dental Hygiene, Periodontics, Operative Dentistry, Endodontics, Oral Pathology and Diagnosis, Oral and Maxillofacial Surgery, Orthodontics, Pediatric Dentistry, Preventive Dentistry, and Perinatal and Community Dentistry.

Admission to any of the graduate programs requires satisfaction of all requirements for admission to the College of Dentistry, possession of the Doctor of Dental Surgery degree or its equivalent (canopy for dental hygiene), and academic approval.

Departments also offer postgraduate programs of study designed as preparation for clinical specialty practice. These programs do not lead to an academic degree. Prerequisites for admission to the postgraduate programs are the same as for graduate programs. A certificate is awarded upon satisfactory completion of the postgraduate programs.

Basic Sciences in the Dental Curriculum

The following elective courses are offered by departments in other graduate schools and are required of all dental students.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>601 101 Human Cess Anatomy for Dental Students</td>
<td>6 h.</td>
</tr>
<tr>
<td>601 112 General Histology for Dental Students</td>
<td>4 h.</td>
</tr>
<tr>
<td>601 113 Oral Histology and Embryology</td>
<td>4 h.</td>
</tr>
<tr>
<td>611 112 Health Sciences Microbiology</td>
<td>4 h.</td>
</tr>
<tr>
<td>611 113 Introduction to Human Pathology</td>
<td></td>
</tr>
<tr>
<td>611 121 Histology for Health Science</td>
<td>5 h.</td>
</tr>
<tr>
<td>611 122 Microbiology of Pathology</td>
<td>4 h.</td>
</tr>
<tr>
<td>901 101 Biochemistry for Dental Students</td>
<td>4 h.</td>
</tr>
</tbody>
</table>

Courses

Nondepartmental

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>112 201 Dental Fluoride Anticat</td>
<td></td>
</tr>
<tr>
<td>112 211 Issues in International Dental Practice</td>
<td></td>
</tr>
<tr>
<td>112 214 Introduction to Clinical Dentistry</td>
<td>6 h.</td>
</tr>
<tr>
<td>112 215 Introduction to Dentistry</td>
<td></td>
</tr>
<tr>
<td>112 216 Second Year Dental Hygiene</td>
<td>6 h.</td>
</tr>
<tr>
<td>112 218 Basic Nutrition and Dentinal Disease</td>
<td></td>
</tr>
<tr>
<td>112 219 Dental Therapeutics</td>
<td>4 h.</td>
</tr>
</tbody>
</table>

Dental Hygiene

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>112 170 Third Year Continuing Session</td>
<td>0, 12 h.</td>
</tr>
<tr>
<td>112 175 Program Ahmad</td>
<td></td>
</tr>
<tr>
<td>112 180 Fourth Year Lecture and Clinics</td>
<td>0, 12 h.</td>
</tr>
<tr>
<td>112 190 Dental Student Research Project</td>
<td></td>
</tr>
<tr>
<td>112 199 Advanced Clinical Comprensive Dentistry</td>
<td></td>
</tr>
<tr>
<td>112 200 Seminar in Dental Research</td>
<td>1 h.</td>
</tr>
<tr>
<td>112 203 Dental Science Research Methodology</td>
<td></td>
</tr>
<tr>
<td>112 251 Pathology of Skin and Oral Mucosa</td>
<td>2 h.</td>
</tr>
<tr>
<td>112 252 Pathology of Nervous System</td>
<td>2 h.</td>
</tr>
<tr>
<td>112 253 Pathology of Anatomy</td>
<td>2 h.</td>
</tr>
<tr>
<td>112 254 Pathology of Surgery of Dental Materials</td>
<td>2 h.</td>
</tr>
<tr>
<td>112 255 Pathology of Oral Mucosa</td>
<td>2 h.</td>
</tr>
<tr>
<td>112 256 Pathology of Oral Mucosa</td>
<td>2 h.</td>
</tr>
<tr>
<td>112 257 Current Concepts of Carcinogenesis</td>
<td>2 h.</td>
</tr>
<tr>
<td>112 258 Diagnosis and Treatment of Carcinoid Diseases</td>
<td>6 h.</td>
</tr>
<tr>
<td>112 259 Advanced Dental Therapeutics</td>
<td>2 h.</td>
</tr>
<tr>
<td>112 270 Introduction to Quality Assurance</td>
<td>1 h.</td>
</tr>
<tr>
<td>112 271 Clinical Adenomucin Immunology</td>
<td></td>
</tr>
<tr>
<td>112 272 Advanced Topics in Quality Assurance</td>
<td>2 h.</td>
</tr>
<tr>
<td>112 273 Advanced Topics in Clinical Dentistry</td>
<td>2 h.</td>
</tr>
<tr>
<td>112 274 Advanced Topics in Oral Mucosa</td>
<td>2 h.</td>
</tr>
</tbody>
</table>

Dental Hygiene Qualification

Chair: Pauline Brine
Associate professors: Pauline Brine, Ker Meacher
Clinical assistant professor: Sue Flower
Adjunct instructors: Bruce Adams, Martha Steiner, Alice Brown, Jane Davis
Undergraduate degree: B.S. in Dental Hygiene
Graduate degree: M.S. in Dental Hygiene

Poisoning1993 meeting of the Idaho State Board of Regents, the Regents voted to close the Department of Dental Hygiene on June 30, 1992. No new students will be admitted to the professional dental hygiene courses after fall 1993.

Undergraduate Program

Qualification by education and licensure, the dental hygiene applies knowledge of the basic, social, dental, and clinical sciences in providing services for the prevention and control of oral disease.

The Bachelor of Science program in dental hygiene includes two years of general education followed by two years of specialized study. The curriculum is accredited by the Commission on Dental Accreditation of the American Dental Association. Program graduates are prepared to take the national, regional, and state dental hygiene license examination required for dental hygiene practice.

Included in the General Education Requirements are courses in the basic and social sciences. These courses provide the student with educational preparation to disciplines relevant to specialized study in dental hygiene and associated medical and dental sciences.

Students take the specialized courses during the junior and senior years. In the junior year, students take 18 semester hours, and in the senior year, 20 semester hours. Two semester hours are offered during the summer months for each year.

In addition, juniors learn the basic theory and clinical skills required for dental hygiene practice in BDS 101 Dental Hygiene I and BDS 102 Dental Hygiene II. The prerequisites for BDS 101 are Introduction to Dental Hygiene, BDS 105 Dental Hygiene I and BDS 106 Foundation of Dental Hygiene, which integrate content in non-medical-dental follow-up with the theory and practice of dental hygiene.

During the senior year, students advance their clinical skills in BDS 111 Clinical Dental Hygiene and BDS 112 Advanced Periodontal Disease for Dental Hygienists. In BDS 113 Advanced Periodontal Disease for Dental Hygienists, each student is assigned to work with a graduate student in peridontics, who directs the clinical experience of adults who have active periodontal diseases. This experience not only advances dental hygiene clinical skills but promotes both the hygiene and graduate dental practice.
students with a learning experience emphasizing the team approach.

Students are required to complete 120 hours of clinical experience in 80-105: Clinical Dental Radiology for Dental Hygienists. Weekly lectures and seminars reinforce clinical learning in 80-114 Seminar: Dental Hygiene Concepts and Practice. Senior students also are enrolled in 225:101 Biostatistics and 112:145 Introduction to Geriatric Dent.

Courses traditionally taught as isolated subject-oriented units, such as dental health education, public health, and epidemiology, are incorporated into an integrated core, 112:122 Practicum: Comm Dental Hygiene and 80-124 Seminar: Community Dental Health. Learning emphasis is on the relationship between the underlying theory and practical application of community dental health. Students work on community health issues related to the prevention of dental health care. Hands-on experiences enable them to apply knowledge of human behavior, basic principles of communication and marketing, and educational and research techniques in 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 supportive course work for students who want to develop specialization in gerontology. For further information, see "Aging Studies Program" in the Catalog of the Liberal Arts section of the University of Iowa.

Minors and Double Majors

Dental hygiene students have the opportunity to develop a minor in another field or to pursue a double major. Students who select this option should plan their course of study with their dental hygiene advisor in close cooperation with faculty from both the minor or other major department.

Admission

HIGH SCHOOL PREPARATION

Specific high school courses required are four years of English; four years of foreign language (proficiency Spanish); at least three years in mathematics, including two years of high school algebra and one year of high school geometry; and one year of biological sciences and chemistry.

COLLEGE PREPARATION

Eligibility for admission to the professional program in dental hygiene requires fulfillment of the General Education Requirements of the College of Liberal Arts and completion of the following dental hygiene prerequisites:

- Biology or general biology—3 s.h.
- Anatomy—4 s.h.%
- Chemistry—4 s.h.%
- Microbiology—4 s.h.

These prerequisites must be completed with a grade of C or higher.

Organic chemistry, including:

- Biochemistry—4 s.h.
- Microbiology—4 s.h.
- Nutrition—4 s.h.
- Psychology—4 s.h.

Sociology—3 s.h.

These prerequisites provide the educational preparation for the dental hygiene course of study. In addition, students admitted to the professional program of the School must complete one additional course in cardiovascular medicine (CFM) at the basic health care provider level before they enter the program.

Completion of a bachelor's degree or an associate degree from an Iowa Area Community College fulfills the General Education Requirements with the exception of the foreign language requirement and three semester hours of foreign civilization and culture. However, the completion of a two-year associate degree program in dental hygiene does not provide an appropriate background for transfer into the baccalaureate program at Iowa University. Students may begin the professional program in dental hygiene only in the fall. Those enrolled in the University of Iowa College of Liberal Arts need submit only the dental hygiene application. Transfer students must submit both College of Liberal Arts and dental hygiene applications.

Although applications are accepted and reviewed 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 to practice in the advancement of new knowledge in dental hygiene and who are able to work collaboratively 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 concentrations in advanced dental hygiene. In the social sciences area, students consider the implications of applied sociological, psychological, economic, cognitive, and environmental concerns related to health. Selected readings examine societal values, structural elements of dental care delivery systems in relation to individual, familial, and community 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 practicum teaching in dental hygiene.

Approximately 14 semester hours are taken in assigned courses to acquire advanced knowledge in dental hygiene and 14 are taken in research methodology and thesis preparation and defense. The remaining 6 semester hours include electives in the biocultural and social sciences.

Elective course work related to the biocultural sciences may include microbiology, histology, biochemistry, and pathology, periodontology, and ethnomedicine.

Electives emphasize the social, economic, and political aspects of health include epidemiology, medical sociology, health care organization and administration, and health economics.

Students also are encouraged to consider taking electives in higher education, such as educational measurement, theories of learning, and administration.

Dental hygiene graduate students take the following courses:

80-201 Health Care Management 3 s.h.
80-111 Independent Study 3 s.h.
80-311 Seminar: Dental Hygiene Literature Review 3 s.h.
80-202 Evaluation of Dental Hygiene Research 3 s.h.
80-203 Research: Dental Hygiene 3 s.h.
80-205 Social Pattern and Oral Health 3 s.h.
80-206 Critical Dental Hygiene Research 3 s.h.
56-207 Selected Topics in Dental Hygiene Education 2 s.h.
80-210 Thesis: Dental Hygiene 3 s.h.

111-212 Statistical Methods for Dental Hygiene 3 s.h.
77-143 Introduction to Statistical Methods 3 s.h.
111-224 Research Design in Dental Hygiene 3 s.h.

Although students may begin the 34-semester hour program during the summer session or fall semester, enrollment at the beginning of the fall semester is preferred. Most students should expect to take two academic 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 of the applicant should include courses equivalent to those in the undergraduate dental hygiene major at The University of Iowa.

Conditions for admission must satisfy official transcripts of all undergraduate academic records, an application for admission, the Office of Graduate and Professional College Admissions. Since these materials must be received before the candidate's application can be processed, students are encouraged to submit materials as early as possible.
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early as possible prior to the semester for which admission is desired. Application in addition to notice on the Graduate School’s website. Examination can be obtained from the graduate admissions office.

Facilities

University of Iowa dental hygiene majors receive their professional preparation in the University’s modern Dental Science Building. This building is part of the University of Iowa Health Science Center complex, one of the nation’s most outstanding health science teaching, research, and patient care facilities.

Financial Aid

In addition to financial assistance available to University students, there is a limited number of scholarships and loans specifically for undergraduate dental hygiene students. These loans are based on assessment of students’ academic records as well as financial need. Financial support for graduate students is available through teaching assistantships and patient care awards. Awards are based on students’ academic record and potential contribution to the teaching and patient service goals of the program. Resident tuition is charged to out-of-state students who receive teaching assistantships or patient care awards. Loan-repayment loans are also available through the department.

Excellent undergraduate and graduate scholarships are available for minority students who have achieved outstanding academic records. For further information, see “Financial Aid” in the College of Dentistry section of this Catalog.

Courses

For Undergraduates

Dental hygiene courses are open only to dental hygiene students.

BH-111 Dental Anatomy 3 h.
Dental anatomy, macroscopic and microscopic characteristics of teeth, oral soft tissue, and hard dental structures. emphasis on morphology of oral soft tissue is clinical dental hygiene education. For further information, see “Dental Anatomy” in the College of Dentistry section of this Catalog.

BH-112 Head and Neck Anatomy 1 h.
Include neuroanatomy.

BH-113 Dental Hygiene Core I 1 h.
Clinical dental hygiene course, paired assessment of patient oral and periodontal health status, role of the dental hygiene in providing comprehensive dental hygiene assessment and treatment services.

BH-114 Introduction to Dental Hygiene 2 h.
Clinical application of content from BH-113, which is concurrent.

BH-115 Dental Hygiene Core II 3 h.
Contents of BH-114, emphasis on assessment of health status, prevention of oral disease.

BH-116 Fundamentals of Dental Hygiene 2 h.
Dental health education, expected outcomes for dental hygiene education, introduction to community health education, nutrition, and dental hygiene practice. Introduces basic knowledge and skills in patient education, practice, and prevention of oral disease.

BH-117 Independent Study 1 h.
Enrollment in clinical dental hygiene practice, education, research, public health.

BH-118 Dental Hygiene Concepts and Practice 5 h.
Research, ethics, patient care, evaluation of scientific literature, communication, critical thinking, clinical decision making, presentation skills, public speaking.

BH-122 Preclinical Dental Hygiene 7 h.
Applications of scientific and technical knowledge to clinical dental hygiene skills, writing and oral communication.

BH-123 Community Dental Hygiene 4 h.
On-call duties for the public; oral health status, environmental factors, and diagnosis and care, professional responsibilities.

For Graduates

BH-201 Seminar: Dental Hygiene Literature Review 2 h.
Literature on clinical, sociological, educational trends in dental hygiene.

BH-202 Evaluation of Dental Hygiene Research 3 h.
Research methods in evaluating health promotion, psychological research, evaluation of dental hygiene research, assessment of research topic, proposal design, human factors in research.

BH-203 Research: Dental Hygiene 3 h.
Research methods, health promotion, research design, statistical methods in research, professional responsibility.

BH-204 Social Factors and Oral Health 3 h.
Evaluates the current research on oral, psychological factors in oral hygiene, and oral health.

BH-206 Clinical Dental Hygiene Education: A professional, ethical, and educational role of the dental hygiene educator, emphasis on career development, personal development, and development of oral hygiene.

BH-210 Selected Topics in Dental Hygiene Education 3 h.
Theoretical and practical applications of current issues in dental hygiene education, emphasis on career development, professional development, and development of oral health.

BH-218 Thesis: Dental Hygiene 4 h.

ENDODONTICS

Head: Richard W. Walker
Professor: Edward E. Malone
Assistant professor: M. Brian McVaugh
Associate professor: William T. Johnson, Lisa R. Williams
Assistant in training: Eric M. Shyne
Graduate degree: M.S. in Endodontics

Predoctoral Program

Course work and clinical experiences in endodontics are vital importance in the overall education of a dental student. Endodontic endodontics, taught during the sophomore year, includes both didactic and laboratory course. In addition, students study the oral and periodontal disease, emphasizing the areas of prevention and diagnosis of dental pulp; and periodontal disease. Students treat endodontic patients under direct supervision of faculty and staff.

Advanced Programs

The advanced programs offered by the Department of Endodontics are designed to prepare qualified dentists for the practice of endodontics and are open to graduate dental education and research.

The department offers two types of post-DOE programs.

The Master of Science program requires a minimum of 30 semester hours (three years) of graduate work, including an original research project and thesis. Students enroll in the program for a period of at least 30 semester hours. A certificate in endodontics is also awarded. The certificate program involves coursework for a period of up to 60 semester hours and requires no formal thesis. Candidates are expected to write a scientific paper, publishable quality, based on original research. An individual plan of study is prepared for each student.

These programs satisfy the training requirements of eligibility of the American Board of Endodontics.

The advanced programs, dentists develop their skills and acquire a broad knowledge of the endodontics skills for teaching and lecturing, gain enough knowledge and experience in the educational process to be able to function confidently as dental educators, recognize the value of academic research, and develop the ability to plan, conduct, and report the results of research investigations.

Applications for the advanced programs must be solicited of an accredited U.S. college of dentistry or foreign equivalent and must comply with the requirements for admission to the Graduate College of The University of Iowa.

The advanced programs in endodontics begin the July 1. Applications should be made by the preceding October 15. Students who have met the requirements for admission to the Graduate College must be accepted into the program by December 1. Students who have not met the requirements for admission to the Graduate College must be accepted by December 1.

Students in the program must maintain a 3.00 grade point average to receive a certificate or degree. Students who fail the level may be allowed another semester to correct the deficiency. The failures who do not receive the deficiency receive careful consideration.

Students enrolled in the advanced programs may not enroll in seminars in private practice outside the college. A student who does not feel a purpose of himself or herself exclusively either to the program or the practice.

Persons applying to the advanced programs in endodontics must be able to support themselves financially for the entire period required to complete the program.

Courses

Predoctoral

BH-125 Endodontics 2 h.
Preclinical course for preclinical procedures for treatment of pulp problems.

BH-126 Clinical Endodontic Practice 1 h.
Clinical experience in diagnosis, treatment of pulpal, periapical, and endodontic emergencies, diagnosis, treatment of pulpal, periapical, and endodontic emergencies.

BH-127 Clinical Endodontic Seminar 1 h.
Technical and scientific developments in clinical endodontics, including clinical, laboratory, and endodontic techniques, laboratory procedures, endodontic techniques.
Advanced
- 83-290 Update in Endodontics 1 c.h.
- 83-295 Endodontic Literature Review I 1 c.h.
- 83-296 Endodontic Literature Review II 2 c.h.
- 83-297 Endodontic Literature Review III 2 c.h.
- 83-298 Endodontic Literature Review IV 2 c.h.

Natural History of Endodontic Disease
- 83-310 Research in Endodontics 1 c.h.

Clinical Endodontics
- 83-240 Endodontics Surgery Conference 2 c.h.

Advances in Endodontic Therapy
- 83-221 Advanced Clinical Endodontics 1 c.h.

Caries Management
- 83-230 Natural History of Caries 1 c.h.

Preventive Endodontics
- 83-210 Preventive Endodontics 1 c.h.

Predictive Program
- 83-225 Practice Teaching in Endodontics 1 c.h.
ORAL AND MAXILLOFACIAL SURGERY

Isahain H. Hendi, M.D.

Professor and Chairperson

The department is dedicated to advancing the field of oral and maxillofacial surgery by providing outstanding clinical care, training the next generation of surgeons, and conducting cutting-edge research. We offer comprehensive services for a wide range of oral and facial conditions, including oral cancer, facial trauma, and complex sinus and dental problems. Our faculty members are dedicated to excellence in clinical care, education, and research. We are committed to preparing our students to become leaders in their field and to improving the oral and maxillofacial health of our community.

ORTHODONTIC PROGRAM

The orthodontic program is designed to prepare students for careers in orthodontics. Our faculty members have extensive experience in orthodontics and related fields. We offer a wide range of courses, both theoretical and clinical, to provide students with a comprehensive understanding of orthodontic principles and techniques. Our graduates are well-prepared for successful careers in orthodontics.

PROSTHODONTIC PROGRAM

The prosthodontic program is designed to prepare students for careers in prosthodontics. We offer a comprehensive curriculum that covers all aspects of prosthodontics, including crown and bridge restorations, implant therapy, and removable prosthetics. Our faculty members have extensive experience in prosthodontics and related fields. Our graduates are well-prepared for successful careers in prosthodontics and related specialties.
Graduate Programs

Residency Program

The residency program in oral and maxillofacial surgery combines clinical and didactic training to prepare residents for specialty practice. Every effort is made to adapt the program to the individual needs, abilities, and development of students. However, it is essential that all students meet certain fundamental requirements.

The recommendations of the Council on Dental Education of the American Dental Association, the Committee on Graduate Training of the American Society of Oral and Maxillofacial Surgeons, and the American Board of Oral and Maxillofacial Surgery have been considered carefully in planning the structure and scope of training.

The residency period covers four years of hospital training providing an extensive experience in hospital procedures, integration of basic and clinical sciences, acquisition of the principles of surgery, and familiarization with the various aspects of health services.

Conformance in clinical oral and maxillofacial surgery requires knowledge of the basic medical sciences related to surgery. 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 related clinical disciplines such as endocrinology, anesthesiology, physical diagnosis, and laboratory procedures.

The assumption of increased responsibility and the opportunity for further opened and demanding tasks experience is important aspect of residency training.

Residents gain clinical training in anesthesiology through an assigned rotation in the Department of Anesthesiology. Previous anesthesiology training in physical diagnosis, pharmacology, physiology, and psychology are of greater clinical significance, and increased responsibility in the operating room as first scrub and first assistant further develops surgical judgment and skill.

Development and implementation of a research project under the supervision of residents, with the value of the residency training, is a resident's major responsibility.

Senior residents may be given responsibility for major oral and maxillofacial surgical cases during rotations at The University of Iowa Hospitals and Clinics and at Veterans Affairs Medical Center. Each fourth year resident is assigned to a rotation in a clinical and didactic coordinator and assumes responsibility to quality and quantity as determined by the American Board of Oral and Maxillofacial Surgery.

Master of Science

Requirements for the M.S. may be completed during residency. The M.S. program is a four-year course of integrated didactic and clinical study, including a research project and preparation of a thesis.

Admission

Students may begin the full four-year program only on July 1. The application deadline in oral and maxillofacial surgery is September 1 for admission on July 1 of the next year.

Applicants must take the Graduate Record Examination (GRE) General Test. It must be a graduate of an accredited college of dentistry, must be admitted to practice dentistry in the United States, and should be in the upper one-third of their graduating class.

Documents required include application for graduate oral and maxillofacial surgery, all applicant approval form from the applicant's references, transcripts, and letters of recommendations 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 through a matching program sponsored by the American Association of Oral and Maxillofacial Surgeons.

Applications are made after the match results are released and the staff elects to offer office assistance. All appointments should be arranged on or before February 1 prior to the July 1 effective date.

The Office of Graduate and Professional College Admissions sends admission forms to applicants. The forms must be completed for the Graduate College by March 1.

Facilities

The University of Iowa Health Center contains outstanding basic and clinical science departments that contribute and support scholarly research and superior clinical practice. The facilities and The University of Iowa Hospitals and Clinics, the Veterans Affairs Medical Center, and the Colleges of Dentistry and Medicine provide an appropriate environment for residency training in oral and maxillofacial surgery.

Courses

Dental Hygiene

87.164 Anesthesia and Analgesia 1 s.h.

Preclinical, principles, techniques, chemical and mechanical, drug and surgical.

87.165 Preclinical and Preclinical 1 s.h.

Principles, techniques, chemical and mechanical, drug and surgical, chemotherapy, pharmacology, physiology, and biochemistry.

87.166 Oral and Maxillofacial Surgery 1 s.h.

Preclinical, principles, techniques, chemical and mechanical, drug and surgical.

87.167 Oral and Maxillofacial Surgery 2 s.h.

Preclinical, principles, techniques, chemical and mechanical, drug and surgical.

87.168 Anesthesia and Pain Control 1 s.h.

Preclinical, principles, techniques, chemical and mechanical, drug and surgical.

Preclinical, principles, techniques, chemical and mechanical, drug and surgical, chemotherapy, pharmacology, physiology, and biochemistry.

87.169 Advanced Oral and Maxillofacial Surgery 1 s.h.

Preclinical, principles, techniques, chemical and mechanical, drug and surgical, chemotherapy, pharmacology, physiology, and biochemistry.

87.170 Oral and Maxillofacial Surgery 1 s.h.

Preclinical, principles, techniques, chemical and mechanical, drug and surgical, chemotherapy, pharmacology, physiology, and biochemistry.

87.171 Oral and Maxillofacial Surgery 2 s.h.

Preclinical, principles, techniques, chemical and mechanical, drug and surgical, chemotherapy, pharmacology, physiology, and biochemistry.

87.172 Oral and Maxillofacial Surgery 3 s.h.

Preclinical, principles, techniques, chemical and mechanical, drug and surgical, chemotherapy, pharmacology, physiology, and biochemistry.

87.173 Oral and Maxillofacial Surgery 4 s.h.

Preclinical, principles, techniques, chemical and mechanical, drug and surgical, chemotherapy, pharmacology, physiology, and biochemistry.

87.174 Oral and Maxillofacial Surgery 5 s.h.

Preclinical, principles, techniques, chemical and mechanical, drug and surgical, chemotherapy, pharmacology, physiology, and biochemistry.

87.175 Oral and Maxillofacial Surgery 6 s.h.

Preclinical, principles, techniques, chemical and mechanical, drug and surgical, chemotherapy, pharmacology, physiology, and biochemistry.
ORAL PATHOLOGY, RADIOLOGY, AND MEDICINE

Head: Gilbert B. Page
Professor: Peter D. Caspari, Harold I. Knopoff, Gilbert B. Page, Alan B. Ratner, Charles A. Spiteri, Roberta J. Topp.
Assistant Professor: William J. Hauser, Steven D. Milam, Philip W. Viera
Assisted Professor: George A. Noffsinger
Assistant Professor Emeritus: Peter D. Caspari
Adjunct Associate Professor Emeritus: George C. Ehrke, Thomas P. Williams
Adjunct Assistant Professor: George A. Noffsinger
Assistant in Instruction: Peter Martinez-Gonzalo
Graduate degree: M.S. in Stomatology

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 physical evaluation of patients.

Graduate Programs

Master of Science
Stomatology is the science of structure, function, and disease of the oral cavity. Study methods include: examination of related anatomical systems, evaluation of clinical signs and symptoms, and use of biochemical, microscopic, and radiologic procedures to establish a diagnosis and a plan for therapeutic management.

The postdoctoral programs are designed to provide students with opportunities in clinical, histological, and radiological pathology, or oral medicine. These programs are developed by the department of oral pathology, oral and maxillofacial radiology, or oral medicine. These educational programs include regular teaching, research, and rotation-based rotations in the various fields of medicine and oral pathology.

M.S. in Stomatology with Oral Pathology Emphasis
Dental school graduates in this program pursue comprehensive study of oral pathology in preparation for teaching and research. A minimum of 25 semester hours of graduate credit is required, and this includes the research component for both the M.S. program.

Certificate in Oral Pathology and M.S. in Stomatology with Oral Pathology Emphasis
This program contains the requirements for the certificate and master's degree program with an emphasis on oral pathology. The certificate program is designed to provide the requirements for preparation of oral pathology and must be completed by the graduate student according to the requirements of the American Board of Oral and Maxillofacial Radiology.

Certificate in Oral and Maxillofacial Radiology and M.S. in Stomatology with Oral Pathology Emphasis
This program contains the requirements for the certificate and master's degree program with an emphasis on oral and maxillofacial radiology. Candidates for the M.S. program and submit a thesis based on the results of research conducted during their course of study.

Certificate in Oral Pathology and M.S. in Stomatology with Oral Pathology Emphasis
This program contains the minimum requirements of the certificate and master's degree program with an emphasis on oral pathology. Completion time is usually 36 to 48 months. The educational requirements of the certificate program in oral pathology meet the requirements for preparation of oral pathology specialists as set forth by the American Board of Oral and Maxillofacial Radiology and the American Board of Oral and Maxillofacial Radiology.

M.S. in Stomatology with Oral and Maxillofacial Radiology Emphasis
Dental school graduates in this program pursue comprehensive study of basic and clinical research in preparation for teaching and research. A minimum of 40 semester hours of satisfactory graduate credit is required. Candidates for the M.S. program submit a thesis based on the results of research conducted during their course of study.

Certificate in Oral and Maxillofacial Radiology and M.S. in Stomatology with Oral and Maxillofacial Radiology Emphasis
This program contains the minimum requirements of the certificate and master's degree program. Completion time is usually 36 to 48 months. The educational requirements of the certificate program in oral and maxillofacial radiology meet the requirements for preparation of oral pathology specialists as set forth by the American Board of Oral and Maxillofacial Radiology and the American Board of Oral and Maxillofacial Radiology.

Certificate in Oral Medicine and M.S. in Stomatology with Oral Medicine Emphasis
This program contains the minimum requirements of the certificate and master's degree program. Completion time is usually 24 to 36 months. The certificate program in oral medicine meets the requirements for preparation of oral medicine specialists as set forth by the American Board of Oral Medicine and the American Academy of Oral Medicine.

Program of Study
Students in all programs must complete the core courses listed below. They also must complete the basic science and departmental courses appropriate to their track, listed as "additional required courses".

CORE COURSES
60:202 Advanced Anatomy for Head and Neck Surgery 3 s.h.
60:201 General Pathology for Medical Students 3 s.h.
60:202 Histology for Medical Students 10 s.h.
60:200 Oral Pathology Literature Review 2 s.h.
60:250 Preventive, Laboratory, and Histopathological Features of Disease 3 s.h.
60:237 Research in Oral Radiology, Pathology, and Medicine 3 s.h.
60:232 Clinical Oral and Maxillofacial Radiology 3 s.h.
60:231 Research Protocol Seminar 2 s.h.
60:232 Statistical Methods for Dental Research 3 s.h.
60:235 Pathobiology of Bone 3 s.h.
60:230 Dental Sciences Research Methodology 1 s.h.

ADDITIONAL REQUIRED COURSES

Oral Pathology Track
60:231 Introduction to Endodontics of Oral and Periapical Disease 3 s.h.
60:237 Surgical Ortophysiology 1 s.h.
60:234 Hospital Radiology 3 s.h.
60:235 Pathobiology of Bone and Soft Tissue 2 s.h.
60:233 Biological Aspects of Dentistry 2 s.h.
60:236 Introduction to Endodontics 1 s.h.
60:237 Surgical Ortophysiology 2 s.h.
60:234 Hospital Radiology 3 s.h.
60:235 Pathobiology of Bone and Soft Tissue 1 s.h.
60:233 Biological Aspects of Dentistry 1 s.h.
60:236 Introduction to Endodontics 1 s.h.

Oral and Maxillofacial Radiology Track
71:101 Introduction to Radiographes and Radiology 4 s.h.
71:106 Environmental and Radiological Health Physics 4 s.h.
71:201 Principles of Radiology I 4 s.h.
71:202 Principles of Radiology II 4 s.h.
60:2340 Medical Imaging 4 s.h.
60:2350 Medical Imaging 4 s.h.

Facilities
Facilities reserved exclusively for the Department of Oral Pathology, Radiology, and Medicine include a radiology special procedures area, instruction room with microcomputer, clinical and laboratory areas, and a clinical laboratory area with equipment for dental and medical research programs. In addition, the College of Dentistry has joint-use research laboratories that are well-equipped and staffed for conducting research involving histology, hematology, metallocrystallography, materials technology, and bioinformatics.
Admissions

Minimum requirements for admission to both programs correspond to the minimum requirements for admission to the Graduate College. In addition, applicants must hold a B.S. or B.D.S. or an equivalent. An interview may be requested. Both programs last a minimum of 24 months and usually begin July 1. Application deadline is November 1.

Courses

Predoctoral:

64.122 Principles of Occlusion  2 a.h.
64.140 Removable Prostodontic Technique Seminar  3 a.h.
64.141 Removable Prostodontic Technique Laboratory  3 a.h.
64.142 Fixed Prostodontic Technique Lecture  3 a.h.
64.143 Fixed Prostodontic Technique Laboratory  3 a.h.
64.160 Removable Prostodontics Clinic  2 a.h.

Graduate

64.220 Removable Prosthodontics Seminar I  3 a.h.
64.221 Removable Prosthodontics Seminar II  1 a.h.
64.222 Removable Prosthodontics Seminar III  1 a.h.
64.162 Removable Prosthodontics Seminar  1 a.h.
64.223 Complete Denture Seminar I  1 a.h.
64.224 Complete Denture Seminar II  1 a.h.
64.225 Complete Denture Seminar III  1 a.h.
64.226 Complete Denture Seminar IV  1 a.h.
64.227 Complete Denture Seminar V  1 a.h.
64.165 Removable Prosthodontics Seminar  1 a.h.
64.228 Removable Prosthodontics Seminar  1 a.h.

64.229 Prosthodontics Laboratory  3 a.h.
64.230 Prosthodontics Seminar  1 a.h.
64.231 Thesis Preparation: Prosthodontics  3 a.h.
64.236 Research in Clinical Prosthodontics  1 a.h.
64.240 Advanced Clinical Removable Prosthodontics  2 a.h.
64.241 Technique Methods: Removable Prosthodontics  1 a.h.
64.243 Practice Teaching Prosthodontics  1 a.h.
64.245 Advanced Clinical Fixed Prosthodontics  2 a.h.
64.246 Technologic Methods: Fixed Prosthodontics  1 a.h.
64.250 Joint Clinic  1 a.h.
64.251 Clinical Issues in Porcelain Ceramic Prosthodontics  1 a.h.
64.252 Lab-in-Lab Assignments: Prosthodontics  1 a.h.
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Dean: Steven R. Yocum
Associate dean emeritus: Laura A. Van Drie
Associate deans: Elizabeth M. Atkinson, Gray P.

Director, Connie Belz National Center for Gifted Education: Michael Colegate
Director, Educational Placement: Justin D.

Director, Iowa Testing Program: Leonard I. Hunt
Engineer: B.A., M.A., full-time degree granted through College of Liberal Arts; M.A.T., M.A., M.S., B.S., Ph.D.
The nation's first university-level professional major in education was established at The University of Iowa in 1872. The department became the School of Education in 1902, and the College of Education, restructured in the basic pattern that exists today, was founded in 1913. The growth of the College has corresponded to the growth of the University.

Over the years, the 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, teacher education research for today's testing and measurement industry, making Iowa City one of the best-known centers for this educational specialty.

The college has four divisions: Counselor Education; Curriculum and Instruction; Planning, Policy, and Leadership Studies; and Psychological and Quantitative Foundations.

**Teacher Education Program**

The College of Education at the University of Iowa offers three major baccalaureate degree-based teacher preparation programs. Two of these, elementary education and health occupations education, involve professional education majors. The third program consists of the professional course work and academic majors required for secondary school teaching. The college also provides numerous specialized elementary (including early childhood) and secondary teaching certification programs.

Preparation for special education teaching is offered at the graduate level. A limited number of undergraduate special education courses are open to all students having an interest in this area, to those from other teacher education programs, and to those planning to pursue graduate degrees in special education.

All students admitted to a teacher education program (Tür) must complete College of Liberal Arts and Science Education Requirements for the Bachelor of Arts, Bachelor of Science, or Bachelor of General Studies.

**Undergraduate Admission to Teacher Education Programs**

Undergraduate applicants to The University of Iowa who are interested in becoming teachers indicate their intent to the elementary major, health occupations major, or a specific secondary endorsement program on their application or admission. This results in a "Pre-Licensure Major" (Tür) or a "Secondary Interest" (Tür) notation on the student's official record.

Eligible transfer students are automatically sent TÜP application materials from the Office of Admissions upon first admission to the University. All others must obtain application materials from the Office of Student Services in the College of Education.

**Application Deadlines**

The deadline for application to teacher education programs is February 1. Applicants who do not meet the deadline may submit applications by November 1, but they will be considered 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, faculty availability, and in order to be considered for admission to a teacher education program, an undergraduate student must have:

- completed the American College Test (ACT) or the Scholastic Aptitude Test (SAT);
- attained sophomore standing (completed 30 semester hours) prior to the semester during which enrollment is made in the teacher education sequence of courses;
- achieved a 2.50 grade-point average on all college course work as well as course work completed at The University of Iowa; and
- applied for admission to a teacher education program.

**Honors in Education**

The College of Education Honors Opportunities Program is open to juniors and seniors who have attained a 3.50 grade-point average. Students with junior standing on February 1 who have demonstrated their research potential may be admitted on the basis of an interview with the director. The Honors Opportunities Program consists of three components: 1. 100 Honor Seminar in Education, a research seminar, and a student development program including career counseling and social activities. Successful completion of a research project results in an honors designation on the diploma. The Honors Opportunities Program is housed in and administered by the Center for National Center for Gifted Education.

**Graduate or Postbaccalaureate Admission**

Students who have completed a baccalaureate degree may be admitted to a teacher preparation program in one of two ways:

- They may apply to the Graduate College with their objective stated as "certification only" or in some secondary teaching areas with a Master of Arts in Teaching (M.A.T.) objective. Students selecting this route must satisfy the following conditions:
  - admission to the Graduate College;
  - completion of the Graduate Record Examination (GRE) General Test;
  - a cumulative grade-point average of not less than 2.50 on undergraduate work and 3.00 for M.A.T. objective; and
  - admission to a specific certification program (e.g., elementary education, special education, or secondary English).

- They may apply to the College of Liberal Arts as postbaccalaureate students with semester standing. Students selecting this option should consult with academic majors required for secondary school teaching. Students selecting this option should consult with the appropriate teacher education program administrator for the undergraduate admissions procedure and must meet the general requirements stated in the undergraduate admissions section.

The deadline for graduate-level application to the teacher education program is June 1. Applicants who do not meet the deadline may submit applications by either October 1 or March 1; when qualified, they may be accepted if openings in the program occur.

Application deadlines for postbaccalaureate students with senior standing are the same as those for undergraduates.

**Student Teaching**

The final phase of the teacher education program in the professional semester, devoted to supervised student teaching and directed observation in a variety of situations. Periodic seminars provide for discussion and evaluation of student teachers' experiences. The student teaching requirement may not be met by transfer credit except under unusual circumstances and with advance approval. Admissions to the senior year student teaching semester requires application. Applications must be submitted by February 15 of the academic year preceding the one during which student teaching will be completed. Students interested in student teaching experiences are available. Admission to student teaching requires program area faculty approval as well as verification of satisfactory progress in meeting both College of Education standards and program area requirements, which are set at the time of admission to the TÜP and are not revised. Students should consult with their advisors regarding specific requirements for the program area.

**Waverers**

Students who have completed prerequisite-type experiences or courses that they want to have considered in lieu of program requirements should consult with their advisors.

**Urban Student Teaching**

Students who want to advance their educational interests through student teaching in urban settings may apply through the Office of Student Field Experiences, Papago setting for urban student teaching in the EDU 230 Urban Teacher Education Program (Cooperating Urban Teacher Education). This option is open to all education majors who meet the requirements for student teaching.
Master of Arts in Teaching

The M.A.T. program is a 42-semester-hour (minimum) nonthesis program designed for academically superior liberal arts graduates who completed few or no professional education courses in their undergraduate programs. Requirements are outlined under "Curriculum and Instruction" in subsection of the Catalog.

The program leads to a master's degree and certification as a secondary teacher in the fields of English, foreign languages, and social education. A grade-point average of at least 3.00 on undergraduate course work is required for admission. At least 18 semester hours of graduate course work in the student's teaching field must be completed. A minimum of 20 semester hours of graduate work in education must be taken to satisfy licensure requirements.

Master of Arts

The College of Education offers a Master of Arts with or without thesis. The nonthesis M.A. program usually provides more specialized course work than does the thesis program. The nonthesis program is not necessarily a terminal program, but students who expect to continue their studies in a doctoral program are urged to select the M.A. thesis program since it offers more experience in research procedures.

Students who complete a nonthesis M.A. program and are admitted to a Ph.D. program may be asked to submit evidence of writing and research skills to their advisor or director during the early part of their doctoral program. Course credits earned more than ten years before the admission date may be transferred to the M.A. program, but are not counted toward fulfillment of requirements for the degree. Of the minimum 30 semester hours required for the degree, at least 24 must be earned at the University of Iowa after formal admission to the program, and at least 6 must be completed on campus.

Master of Science

Theories and methods programs are available for students in science education. The degree requirements are similar to those for the Master of Arts.

Specialist in Education

This degree is granted upon completion of a prescribed two-year postbaccalaureate program designed for students preparing themselves professionally in such fields as teaching, administration, supervision, and educational services. Of the minimum 60 semester hours required for the degree, 28 must be in the area of specialization; the rest may be earned in cognate fields, supervised experience, research, and elective courses. The research must culminate in a written report. Other requirements and regulations for the S.I.S. are the same as for the master's degree, except that 15 semester hours of resident work on campus are required in one 12-month period or in two consecutive semesters, and course work completed ten years prior to the final examination must be evaluated to determine the amount of credit.
College of Education Student Loan and Scholarship Fund

The college's student loan fund was established to assist College of Education students who are eligible for aid. These students must complete the Free Application for Federal Student Aid in March or April. New students are encouraged to complete the loan application early in the fall semester. Financial aid is available for all semester lengths and is determined on a need basis. Loans are available for undergraduate and graduate study.

Financial Aid

Students interested in employing opportunities in any of the support units and special resources listed above should contact the director of each faculty and list their interests, their academic and experience records, and their degree or career goals at The University of Iowa.

Graduate Assistantships

Individual academic programs provide opportunities for teaching, research, or service assistantships, as well as for fellowship and related employment opportunities. Interested students should address to the chair of the division or to the director of the program to which the student belongs to have the option to provide or arrange an academic record. If a faculty member has been offered admission, he or she student files will be available for review by the faculty responsible for selecting the assistantship for the student program. Assistantship appointments are usually for one year, although the program awards.

Special Graduate Assistantships in Education

The Iowa Testing Programs and the Iowa Measurement Research Foundation provide sufficient funds to support a limited number of special graduate assistantships in education. Students interested in pursuing any of the advanced degree programs offered by the College of Education are eligible to apply for an assistantship. Provided they are admitted to the professional education program in the United States, the assistantship is for the academic year only and is renewable for a total of two years or two years. Assistantships are awarded on the basis of academic performance and potential in the field of educational measurement and evaluation. Assistantship awards are subject to the conditions set by the college of education to complete at least one full time year in the graduate program. Assistantships are awarded annually by the University of Iowa to students who are selected for assistantship. Assistantships are awarded competitively and are renewable for a maximum of three years.

Faculty

All tenure-track faculty members with professional experience have substantial teaching experience and are tenured in the College of Education. The majority have had teaching or administrative experience in the public schools. Several hold joint appointments in the College of Liberal Arts.

Interdivisional Courses

70,000 Cooperative Education Internship

Students in each college have the opportunity to participate in cooperative education programs. These programs provide a mechanism for students to gain practical work experience while completing their degree. Courses are identified as cooperative education courses and are included in the student's academic record. Cooperative education courses are available in a variety of fields and are designed to provide a blend of academic and practical experience.

The program provides students with a comprehensive education that integrates academic and practical experience. It prepares students for professional careers and helps them develop the skills necessary to succeed in the workplace. The program is designed for students who are interested in pursuing careers in fields such as business, education, healthcare, and engineering.

The program is designed to be flexible and accommodate the diverse needs and schedules of students. Students can choose from a wide range of courses and experience opportunities, including internships, apprenticeships, and co-op programs. The program is structured to provide students with a solid foundation in their chosen field while also allowing them to gain practical experience and develop a network of professional contacts.
In addition to the above, the following requirements must be met for the individual programs:

- **Master of Arts: A 2.75 minimum undergraduate grade-point average and a composite (verbal and quantitative) GRE General Test score of 1000 or higher.**

- **Specialist in Education: A 3.25 minimum graduate grade-point average and a composite (verbal and quantitative) GRE General Test score of 900 or higher.**

- **Doctor of Philosophy: A 3.30 minimum undergraduate grade-point average or a 3.30 minimum graduate grade-point average if a graduate degree has been completed; composite (verbal and quantitative) GRE General Test score of 1100 or higher.**

Typically, doctoral students are not admitted unless they have completed a master's degree in counseling or a related field. Relevant work experiences are important. Students who are accepted without a master's degree (including a master's unrelated to counselor education) must complete course work before taking doctoral level courses.

The student's progress is determined by the advisor and is included in a student curriculum plan.

### Foreign Students

Foreign students must provide a Test of English as a Foreign Language (TOEFL) score with their application. Typically, a score of 520 is required. Depending on the TOEFL score, the director may require students to take and pass the English course work in English usage that is designed especially for them.

### Final Evaluation, Special Requirements

All the criteria listed above are consistent minimum standards for graduate education in counselor education. Final decisions on admissions are made by faculty committees. Also, some programs may have specific admission requirements in addition to the minimum standards. For example, a teaching license/certificate is required for students pursuing certification in school counseling. Any special admission requirements are listed with individual programs.

### Conditional Admissions

Applicants who do not meet all the minimum requirements for regular admission consideration may still be admitted to a conditional status if the faculty determines that there are strong academic qualifications and potential for completion of the program.

### M.A. Level—Students must complete 12 semester hours of core courses approved by an advisor over two consecutive sessions and earn a 3.00 minimum cumulative grade-point average.

### Ph.D. Level—Students must complete 12 semester hours of core courses approved by an advisor over two consecutive sessions and earn a 3.00 minimum cumulative grade-point average.

### Maintaining Candidacy

All graduate students must meet the following standards in order to maintain their candidacy for degree:

- Maintain satisfactory grade-point average in their curricular plan: M.A.—3.00; Ph.D.—3.25; Ed.D.—3.30;
- Successfully complete internship, prepracticum, or equivalent practical experience;
- Maintain professional behavior consistent with the American Standards for Counseling and Educational Development codes of ethics, and any additional code of professional ethics adhered to in any agency in which the student has completed an internship or practicum; and
- Demonstrate progress toward the degree by successful completion of hours specified in the curricular plan; progress toward the degree requires active registration each semester; exceptions may be approved by the advisor.

### Professional Status

M.A. students who earn an overall grade-point average lower than 3.00 and Ph.D. students who earn a grade-point average lower than 3.30 are on probationary status. Students on probationary status have two consecutive sessions 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 professional status during his or her program of study.

### Application Deadlines

- **M.A., Ph.D., and Ed.D. programs:** June 1 for fall entrance; November 1 for spring entrance.
- **Ph.D. program:** March 1 for fall semester; June 1 for spring semester. Applications receiving graduate assistantships are urged to complete their applications as soon as possible. The Ph.D. program deadline is January 1 for fall semester. Counseling doctorate does not accept applications for the spring 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 secretaries of the Division of Counseling Education. Applicants can check on whether an application dossier is complete by contacting the college of Education Office of Student Services. Applicants are notified by letter immediately after admission applications have been reviewed. Applicants who are accepted are required to 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 administration, 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 dean and college teachers. The program is accredited by the Council of Accreditation of Counseling and Related Programs (CACREP).

No specific program of undergraduate study or work experience is required for admission to the M.A. program. A general interview is desirable but not required.

Specialist in Education

The Ed.S. program provides specialized professional preparation in college student development beyond the master's level for persons not 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 service, adult continuing education, or external degree programs.

Doctor of Philosophy

The Ph.D. program, accredited by CACREP, provides preparation for positions such as counselor educator, researcher, associate dean or dean of students, or as a director of admissions, student activities, financial aid, a student union, career planning and placement, residence halls, foreign student services, community college counseling service, adult continuing education, or external degree programs.

The M.A. thesis or its equivalent is not necessary for admission to the Ph.D. program. But, in order to take the Ph.D. comprehensive examination, students must offer an M.A. thesis or equivalent as evidence of ability to do research.

Rehabilitation Counseling

Master of Arts

The M.A. program is accredited by the Council on Rehabilitation Education. It is intended to prepare professionals to provide direct services and coordinate resources for persons with disabilities. Counselors work in many settings to help persons with physical, mental, or emotional disabilities become more productive, satisfied members of society. Graduates of the program are eligible to take the Certified Rehabilitation Counselor Examination.

Doctor of Philosophy

The Ph.D. program prepares professionals for leadership roles in rehabilitation education, research, administration, and service delivery systems. Students admitted to the program focus on three broad areas of advanced development: education, research, and professional practice. The program is flexible, permitting students to pursue interests in specific populations or settings or to concentrate on one of the broad areas of preparation.

Applicants who have recently graduated from an M.A. program in rehabilitation counseling and who have not had at least one year of full-time work experience in rehabilitation counseling are not considered. Work experience is highly desirable and enhances the application.

Ph.D. in Rehabilitation Psychology

The Ph.D. program is designed to meet the needs of students who are primarily interested in working as professionals in traditional and clinical settings and who may be interested in becoming licensed psychologists. It also prepares students for teaching, research, and service in academic, agency, and other institutional settings, both public and private. This program is 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 following the completion of their M.A. program.

Counseling and Human Development

Licenses/Certification

Applicants with a master's degree in counseling or a related field, elementary or secondary school teaching license, and at least one year of successful teaching experience may apply for licensure in school counseling. Counseling and human development programs provide preparation for licensure as elementary school counselor (K-6) and secondary school counselor (P-12). Postsecondary counselor license/certification only is available for applicants with master's degree and postsecondary teaching license/certification.

Master of Arts

The M.A. program, accredited by the Council of Accreditation of Counseling and Related Programs (CACREP), prepares for preparation as a school counseling and counselor supervisor to increase their competence beyond the master's level.

Doctor of Philosophy

The Ph.D. program, accredited by CACREP, prepares for teaching, leadership, and research positions in counseling and related fields.

Substance Abuse Counseling—M.A.

The M.A. program in substance abuse counseling prepares individuals to function in a wide variety of community counseling settings, with special expertise in prevention, intervention, treatment, and consultation for substance-related description. 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, specifically in the area 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 programs experiences are available in neighboring community agencies, schools, and clinics, as well as throughout the University.

Financial Aid

Depending on federal funding, graduate training fellowships may be available for students entering rehabilitation counseling. Many other graduate students in the Division of Counselor Education hold a wide variety of graduate assistantships. For example, many of the University's student service units award part-time assistantships to graduate students in the division. Applicants for assistantships should contact the coordinator of the particular counseling education graduate program they plan to enter.

Courses

TC 681 Making a Vocational Education Choice

TC 681E Making a Vocational Education Choice for Adults

TC 102/107 Human Sexuality

TC 115 Gifted Young Children

TC 116 Identification and classification of mental retardation

TC 119 Family Issues in Counseling

TC 120 Psychology of Intelligence

TC 120B Psychology of Intelligence

TC 121 Assessment of Intelligence and Academic Ability

TC 124A Psychological Testing

TC 125 Practical Problems in Counseling and Rehabilitation Counseling

TC 125A Practical Problems in Counseling and Rehabilitation Counseling

TC 126 Educational Psychology

TC 127 Introduction to Psychology

TC 128 Introduction to Psychology

TC 128C Introduction to Psychology

TC 129A Introduction to Psychology

TC 129B Introduction to Psychology

TC 130 Introduction to Psychology

TC 131 Educational Psychology

TC 131B Educational Psychology

TC 132 Educational Psychology

TC 132B Educational Psychology

TC 132C Educational Psychology

TC 132D Educational Psychology

TC 132E Educational Psychology

TC 132F Educational Psychology

TC 132G Educational Psychology

TC 132H Educational Psychology

TC 132I Educational Psychology

TC 132J Educational Psychology
Elementary Education

FOUNDER COURSES
These three courses must be completed before any other methods courses are begun.

7E:91 Pre-Professional Practice, Elementary Education 3 s.h.
7E:100 Introduction: Elementary and Early Childhood Teaching 5 s.h.
7E:75 Educational Psychology and Measurement 3 s.h.

These two courses should be completed before methods are begun, but may be completed during the first semester of methods courses.

7W:91 Audiotutorial Equipment for Instruction 1 s.h.
7W:92 Introduction to Microcomputing for Teachers 1 s.h.

Total 10 s.h.

METHODS COURSES

Methods courses taken concurrently:

7E:123 Literacy for Children I 2 s.h.
7E:160 Methods: Elementary School Language Arts 3 s.h.
7E:164 Methods: Elementary School Mathematics 3 s.h.

Four courses taken concurrently:

7E:161 Methods: Elementary School Social Studies 2 s.h.
7E:162 Methods: Elementary School Science 2 s.h.
7E:163 Methods: Elementary School Mathematics 2 s.h.
7E:164 Mathematics/Science Practices 1 s.h.

7E:120 Methods and Materials: Music for the Classroom Teacher 2 s.h.
7E:122 Methods and Materials: Art for the Classroom Teacher 2 s.h.
7E:127 Methods and Materials: Physical Education for the Elementary Teacher 2 s.h.

7E:126 Methods and Materials: Health Education for the Elementary Teacher 2 s.h.

Total 19 s.h.

OTHER REQUIREMENTS

7E:120 Exceptional Persons 3 s.h.
7E:400 Human Relations for the Classroom Teacher 3 s.h.

Area of Specialization

A minimum of 24 semester hour credits be completed in one of the following areas of specialization: art, early childhood, English language arts, English as a second language (ESL), foreign language, health, history, mathematics, music, physical education, reading, science, social science, special education, speech communication/theater.

Copies of the requirements for each area of specialization are available in the Division of Curriculum and Instruction office. Courses in the area of specialization may be taken pass/fail/credit if they are offered with the pass/fail/credit option. Courses in some areas of specialization are sequenced in a definite pattern leading up to student teaching; others have no required sequence and may be completed before or after student teaching.

Student Teaching

7E:170 Classroom Management 2 s.h.
7E:120 Supervised Teaching in the Elementary School: Interactive Phase 5-7 s.h.
7E:191 Supervised Teaching in the Elementary School: Pre- and Post-Active Phase 5-7 s.h.
7E:192 Special Area Student Teaching 0-3 s.h.

Total 16 s.h.

Transfer students must complete at least eight semester hour courses of course work, including two courses numbered 7E:160/7E:164 or 7E:123 at The University of Iowa prior to student teaching. A minimum of 14 semester hour courses of student teaching is required.

The liberal arts and elementary requirements total approximately 60 semester hours. Students who meet or beat out of the theoretical, foreign language, mathematics, and other liberal area General Education Requirements may be able to adjust their program requirements in as few as 113 semester hours.

Adding Endorsements to Licenses

The undergraduate elementary education program is designed specifically to prepare students to teach kindergartens through sixth grade. As an addition to the L-E level endorsement, students may complete requirements for the lows/early childhood/ kindergarten endorsement or an (E) subject area endorsement (see "Areas of Specialization," above). For example, students seeking the prekindergarten/ kindergarten endorsement or an (E) subject area endorsement (see "Areas of Specialization," above) for elementary education, the 400 credits and following additional courses:

7E:120 Methods and Materials: Music for the Classroom Teacher 2 s.h.
7E:122 Methods and Materials: Art for the Classroom Teacher 2 s.h.
7E:134 Parent Teacher Communication 3 s.h.
7E:150 Nutrition and Health for Early Childhood Education 3 s.h.
7E:159 Developmental Assessment and Administration of Child Care Centers 3 s.h.
prepares them for both elementary and secondary school education.

Secondary teacher preparation programs in several other subject areas also offer a program that leads to a license/certification as a subject matter specialist in grades K-6. This K-6 license/certification is available only if the same subject area is the secondary certification. Mathematics and science education require completion of the elementary specialist license/certification. Completion of the elementary specialist license/certification is highly recommended for foreign language education.

Candidates are encouraged to obtain more information and the name of an advisor from the Division of Curriculum and Instruction office.

REQUIREMENTS

Undergraduate candidates for license/certification in music in secondary schools must complete the following requirements, in addition to the requirements in their major:

One course from 75:075:99
Introduction to Teaching (a specific subject area, except science education)
2.5 s.h.
75:100 (Intro to Education)
3 s.h.
75:175 Educational Psychology and Measurement
2.5 s.h.
75:190 (College for the Blind)
1.5 s.h.
Competency in a method of teaching courses in the major field
3.9 s.h.
Competency in computer-based education (CBE)
0.1 s.h.
(except students taking FEW-92, Introduction to Microcomputer for Teachers, by examination, or by completing a CBE course or module in the subject area)

Student teaching
12 s.h.

With an advisor's approval, a graduate student may elect equivalent graduate courses in lieu of 75:075:99, 75:100, 75:175, and 75:190. Students must complete the methods courses in their teaching fields before student teaching.

For all subject areas, student teaching must be done all day for a full semester. Students in secondary education may do their student teaching in the Center for Urban Teacher Education (CUTE), through the Regents' Exchange Program, or in the customary contractual area established by the College of Education. An exception to student teaching in the customary contractual area will be considered only if the proposed student teaching site provides the student with a specific program opportunity not available in the customary contractual area.

Students also may do student teaching in Europe via the consortium for Overseas Student Teaching; however, overseas student teaching is in addition to and not a substitute for one of the student teaching options described above.

Additional information about alternatives for student teaching and application procedures is available from the Office of Student Services.

Applications for student teaching must be filed in the Office of Student Services by February 15 prior to the academic year during which the student teaching will be done.

Special Education

Students may be admitted to the Graduate College for the purpose of obtaining a new or more teaching license/certification in special education. For course requirements, see specific programs listed for the Master of Arts under "Special Education," in this section of the Catalog. Also see admission requirements under "Special Education."

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 practices, and some involve teaching sections of undergraduate methods courses and supervising teaching students. Most assistantships are on a competitive basis. To be considered for an assistantship, applicants must have been admitted to regular status in the Graduate College and accepted to an advanced program by the College of Education. Inquiries concerning assistantships should be directed to the division chair.

Secondary, Special Education

A limited number of assistantships are available for graduate students pursuing advanced degrees. Holders of such assistantships may register for no more than 12 semester hours and, except with special permission, no less than 6 semester hours per semester. Assignments vary, some involve supervising undergraduate courses or supervising practicum experiences, and others are involved in preparation of research activities.

Secondary education graduate students also may be eligible for assistantships in some College of Liberal Arts departments. A condition with sped in education students would apply to the specific department or college. The College of Education reviews the programs in the appropriate field.

Teaching in selected license/certification and master's degree programs are available to full-time special education students. The Janet Feder Memorial "Action" Stipend is available each year to one student who is pursuing a special education teaching license. Preference is given to students teaching toward licensure in physical disabilities.

Graduate Programs

Early Childhood Education

Master of Arts

The Master of Arts program in early childhood education is designed to prepare persons in administrator programs and/or deliver education and care to children from infancy through the early primary grades in private or public settings, in child development programs, or in community college instruction. It is offered in thesis and nonthesis options.

Admission

Students must meet the general admission requirements of the Graduate College and have a 2.50 undergraduate grade-point average. Students must hold a valid undergraduate/intermediate 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 550 to 600 are admitted conditionally and must complete an English evaluation before registering for courses. Course work recommended by English proficiency evaluators must be completed before conditional status can be changed. English proficiency course credit may not be applied toward the master's degree.

Requirements

The thesis option requires a minimum of 30 semester hours of credit; the nonthesis option requires 32.

FounDATION COURSES

75:156 History and Philosophy of Education in Childhood Education 3 s.h.
75:160 Development and Administration of Child Care Centers 3 s.h.
75:264 Building Foundations for Learning or Service in Early Childhood 3 s.h.
75:267 Curriculum Development in Early Childhood (5-8 Years) 3 s.h.
75:268 Curriculum Development in Early Childhood (0-5 Years) 3 s.h.
Total 15 s.h.

RELATED COURSES

One of these (or an approved substitute):
75:200 Advanced Child Development 3 s.h.
31:140 Cognitive Development of Children 3 s.h.
31:141 Parent-Child Relationships 3 s.h.
31:144 Parent Education Communication 3 s.h.
77:263 Consultation Theory and Practice 3 s.h.
Total 6 s.h.

Areas of Specialization

Curriculum

Students must complete at least 11 semester hours of credit in courses chosen from one or
Elementary Education

Master of Arts

This program is designed to prepare master's degree candidates in elementary education to serve as teacher leaders, grade level or subject area supervisors, curriculum consultants, or master teachers.

ADMISSION

Admission requirements are the same as those established by the Graduate College. In addition, applicants must have completed an undergraduate program of teacher preparation in either early childhood or elementary education. Graduate students who have not completed an undergraduate program in elementary education must be admitted initially as "certification only" students.

REQUIREMENTS

The thesis option requires 30 semester hours of credit, the non-thesis option 32. At least 24 semester hours must be taken in University of Iowa courses, with 8 semester hours completed on campus. Course work must be completed in 2 years before admission does not count toward the requirements for the degree.

Foundations and Educational Psychology

Two of these (4.75 s.h.):

- 7F:100 History of American Education
- 7F:117 Philosophies of Education
- 7F:130 Educational Sociology
- 7F:131 Educational Psychology
- 7F:143 Introduction to Statistics
- 7F:150 Introduction to Educational Measurement
- 7F:151 Introduction to Theory of Learning
- 7F:152 Introduction to Instructional Design and Technology

Research and Curriculum

Both of these (9 s.h.):

- 7F:144 Research Design and Organization of Curriculum
- 7F:304 Seminar: Current Issues and Research in Elementary Education

Instructional Improvement

Three of these (9 s.h.):

- 7E:204 Literature for Children II
- 7E:255 Supervision of Elementary School Language Arts
- 7E:256 Supervision of Elementary School Social Studies
- 7E:256 Advanced Techniques of Teaching Science in the Elementary School

Counseling

PC:16 Introduction to Marriage and Family Counseling and Psychotherapy

Social Work

42:145 Organization and Community

42:150 Family Violence

42:210 Family Law

42:214 Social Policy and Interdisciplinary Issues, Domestic and International

Total

12 s.h.

Thesis/Research

7F:143 Introduction to Statistical Methods

7F:150 Introduction to Educational Measurement

46 s.h.

7F:200 Field Service Project

7F:305 M.A. Thesis in Early Childhood and Elementary Education

2 s.h.

Total

91.50 s.h.

COMPREHENSIVE EXAMINATION

All students take one written examination in general childhood education. Nonthesis students take a second written examination in their elective area of specialization. Thesis students take a second, oral examination related to their thesis or field-service project.

Note: This program does not lead to the Iowa endorsement for teaching middle/secondary/elementary or to any other teaching endorsement, with the exception of secondary licensure/certification when all the required courses in that area of specialization have been successfully completed.

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70:245 Supervision of Intermediate Credit Reading 3 s.h.
70:271 Advanced Reading Clinic Techniques 2.5 s.h.
70:272 Advanced Reading Clinic Practicum 2.5 s.h.
One of these:
70:194 Methods: High School Reading 3 s.h.
70:195 Developing Reading Skills in the Secondary School 2.5 s.h.
One of these:
70:159 Introduction to Educational Measurement 3 s.h.
70:174 Diagnostic and Prescriptive approaches to Reading Instruction 1.5 s.h.
70:264 Seminar: Secondary Reading 3 s.h.
70:308 Seminar: Research and Current Issues (Reading) 3 s.h.
One of these:
70:106 Child Development 3 s.h.
70:131 Educational Psychology 3 s.h.
70:133 The Adolescent and Young Adult 3 s.h.
One of these:
70:180 Curriculum Foundations 2.5 s.h.
70:201 Secondary School Curriculum 2.5 s.h.
70:300 Design and Organization of Curriculum 3 s.h.
70:200 Internship in the Secondary School 3 s.h.
One of these:
70:260 Supervision of Instruction and Staff Development 2.5 s.h.
70:305 Reading Clinic Supervision and Evaluation 3 s.h.
70:343 Supervision and Evaluation of Reading 3 s.h.
Thesis (If interested: one of these):
70:520 Master's in Early Childhood and Elementary Education
70:590 Master's Degree Thesis
Students, in consultation with their advisor, may select the remaining hours as electives from areas such as curriculum, supervision, language arts, testing and evaluation, logistics, or special pedagogy.

M.S. in Elementary School Education
The Master of Science program in elementary science prepares master's degree candidates to serve as team or department science specialists. The program may be taken with optional (10-hour semester minimum) or without extended education.

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:
70:525 Science Education: Issues, History, and Rationale 3 s.h.
70:526 Science Education: The Nature of Science 3 s.h.
70:537 Science Education: Teaching, Learning, and Curriculum Models 3 s.h.
70:202 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 (97:103 Societal and Educational Applications of Earth and Environmental Sciences, 97:103 Societal and Educational Applications of Life Sciences, and 97:105 Societal and Educational Applications of Physical Sciences) is 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 pre- or co-requisite 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 adviser. All candidates for the Master of Science must satisfy the requirements for a basic science endorsement as outlined in the October 1988 Iowa Certification Rules:

Doctor of Philosophy
The doctoral program in elementary education prepares students for college and university teaching and research positions in elementary education, and for research, curriculum, supervisory, or administrative positions in public school systems and governmental education agencies.

ADMISSION
Candidates for admission to the program should have a combined score of at least 1000 on the verbal and quantitative sections of the Graduate Record Examination (GRE) General Test. The required grade point average for continued in the program is that prescribed by the Graduate College.

REQUIREMENTS
The program requires a minimum of 40 semester hours of coursework leading credit earned for the dissertation. Each student prepares an individual plan of study in consultation with the adviser. The final plan must be approved by the adviser and the dean of the College.

The doctoral program should include a strong background of elementary education course work. Each program must include at least two areas of concentration. One area must be in elementary education (e.g., children's literature, curriculum, language arts, early childhood, mathematics, reading, or social studies). The second must be either an area outside of elementary education (e.g., English, library science, elementary administration, or child development) or must contain the fundamentals course sequence beyond the elementary age level (e.g., the teaching of writing, reading, K-12); or bilingual aid. All doctoral candidates must demonstrate competence in using appropriate research tools, as approved by the adviser.

The comprehensive examination consists of three 3-hour exams: elementary education and one to each of the areas of concentration.

Secondary Education
The Division of Curriculum and Instruction offers, in conjunction with the departments in the College of Liberal Arts, advanced degree programs in the following fields of professional interest: art education, communication studies education, curriculum and supervision, educational development, English education, foreign language education, mathematics education, music education, physical education, science education, and social studies education.

In some fields, only master's-level programs are offered; whereas in other fields, educational specialist and Ph.D. degree programs also are offered. All degrees offered are named 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 conjunction with the College of Education. Students make application for admission to the School of Art and Art History.

The program prepares highly qualified teachers of art for elementary and secondary schools and community colleges. The strong emphasis is on the development of creative artists who are themselves creative artists to become highly literate in the history and languages of art.

ADMISSION
Applicants must have completed the equivalent of the minimum required work in art required for the B.F.A. or B.F.A./Degree in art from The University of Iowa, and a 3-hour course in art. Students may be admitted by a representative portfolio of the candidate's work, consisting of eight or more reproductions of artwork and one example of written work. The portfolio should be a paper previously written for use in or may be an original paper. Originals of undergraduate art or courses recommended for teaching license/certification should be included. All applicants should state the extent to which they wish to pursue an MA degree in elementary education or in secondary education. Students can make up required coursework concurrent with work for the degree. Candidates must meet Graduate College requirements for admission.

REQUIREMENTS
M.A. candidates must complete the following:
Studio and art history (18 hours): either 12 semester hours of studio art and 6 semester hours of art history, or 6 semester hours of studio art and 12 semester hours of art history. In addition, one of the following courses or studio art education (3 hours): the course 20:507: Art History: Current Issues in Art Education

Twelve semester hours are to be specified after the student begins the program.
Thesis: either a written or studio thesis (if a studio thesis is elected, the student must pass M.A. clearance in the School of Art and Art History)

Comprehensive examinations: a written and/or oral examination in art education (Students may elect a three-semester examination or a one-week research question.)

Ph.D. in Art Education

The doctoral degree program is administered by the College of Education with the cooperation of the School of Art and Art History. Students make application for admission to the College of Education.

The program prepares college teachers and researchers in art education and supervisors in area departments of education and school systems. It also provides students with an opportunity to continue creative and scholarly work in art history and in studio.

ADMISSION

Students must meet the general requirements for doctoral students in the Graduate College and have an M.A. in art education from The University of Iowa or an equivalent degree from an accredited degree-granting college or university. Application to the program must be accompanied by a representative portfolio of the candidate's work, consisting of 10 slide reproductions of artworks and two examples of written work. The written work may consist of papers previously written for a course or original papers. These should be submitted to the Art Education office.

In the case of course work deficiencies, students must register for pertinent courses. One year of successful teaching experience in an elementary school is strongly recommended prior to admission or completion of the doctoral degree program.

REQUIREMENTS

Students must complete at least 60 semester hours of graduate work beyond the M.A., including: 15 semester hours in the School of Art and Art History; 15 semester hours in art education (or equivalent) in a related area (e.g., aesthetics, anthropology, higher education, or educational administration, psychology, sociology), and 15 semester hours in thesis and related courses. 75:306 Introduction to Research in Art Education is also required.

Students take both oral and written comprehensive examinations. The written examination consists of an in-depth research problem assigned by the examining committee. It must be completed within 14 days. An oral examination on the project is then held. The written portion of the examination is not intended to relate directly to the dissertation proposal.

Students must satisfactorily complete a written dissertation that constitutes a contribution to scholarship, for at least 12 semester hours of credit. The student is expected to prepare a dissertation proposal and defend it before the dissertation committee. An oral examination on the dissertation is the Ph.D. final examination.

M.A. in Communication Studies Education

The program prepares teachers and supervisors of speech communication for secondary and postsecondary positions.

ADMISSION

Candidates must have a 2.75 grade point average. Conditions without prior academic background in speech communication may need to take additional courses beyond the minimum requirements. Application should be made to the Department of Communication Studies.

REQUIREMENTS

A minimum of 30 semester hours of approved graduate courses, at least 24 of them at The University of Iowa, as follows:

Two communication studies graduate courses waivable in communication education.

Two graduate courses in a second division of communication studies.

Two graduate courses in a third division of communication studies.

360:300 introduction to research.

Three 200- or 300-level courses in communication studies.

Other courses recommended by the adviser and/or committee.

Successful completion of a paper or project involving substantive scholarly investigation and writing, usually done in a seminar or independently under the direction of an adviser. The project or paper must be circulated to the committee with the comprehensive examination.

A comprehensive examination consisting of three 2-hour segments to be defined and limited by the student and an adviser when the plan of study is prepared.

M.A. in Curriculum and Supervision

The program prepares teachers and administrators for positions as consultants, directors, and coordinators in secondary school curriculum development.

ADMISSION

Students must meet the general requirements of the Graduate College. Teaching experience is desirable.

REQUIREMENTS

Common Core (10-20 s.h.):

75:186 Curriculum Foundations 2.3 s.h.

75:177 Philosophies of Education (or equivalent) 2 s.h.

75:257 Educational Measurement and Evaluation 3 s.h.

75:255 Construction and Use of Evaluation Instruments 3 s.h.

75:150 Introduction to Educational Measurement 3 s.h.

75:281 Junior High School and Middle School Curriculum 3 s.h.

75:291 Secondary School Curriculum 3 s.h.

75:300 Design and Organization of Curriculum 3 s.h.

Research tool, selected in consultation with the adviser, typically 75:143 Introduction to Mathematical Statistics 3 s.h.

Cognate, in a subject field such as English 4-6 s.h.

Electives—selected in consultation with adviser 4-6 s.h.

Thesis, for student electing a thesis program: 30:32 30-32 s.h.

Two 9-hour comprehensive examinations, one in curriculum and one in a minor field in education or in a cognate field, or three 3-hour examinations.

Ph.D. in Curriculum and Supervision

This program, administered by the College of Education, prepares students for leadership positions in the field of curriculum for secondary schools, state departments, intermediate systems, and college teaching.

ADMISSION

Students must meet the general requirements of the Graduate College. Hold a valid teaching license/certificate and have at least two years of teaching experience. Applicants must be approved for admission by a faculty review committee.

REQUIREMENTS

A minimum total of 90 semester hours, including other approved graduate course work, is required.

Common Core (30-42 s.h.):

75:186 Curriculum Foundations 2.3 s.h.

75:281 Junior High School and Middle School Curriculum 3 s.h.

75:291 Secondary School Curriculum 3 s.h.

75:300 Design and Organization of Curriculum 3 s.h.

75:391 Problems of Curriculum Planning 3 s.h.

At least two advanced supervision courses in secondary or elementary school subject fields 6 s.h.

75:257 Educational Measurement and Evaluation 3 s.h.

or 75:255 Construction and Use of Evaluation Instruments 2 s.h.

or 75:150 Introduction to Educational Measurement 3 s.h.

75:294 Individual Instruction in Secondary Education (Practicum) 2.3 s.h.

A minimum of two research tools, typically statistics, research design, or foreign language 6-11 s.h.

Electives, to be chosen in consultation with adviser 6-8 s.h.

Recommended electives include: 75:117 Philosophies of Education 2 s.h.
78:130 Educational Sociology 2 s.h.
78:131 Educational Technology 3 s.h.
78:170 Introduction to Psychology of Reading 3 s.h.
78:297 Administrative Leadership Theory 4 s.h.
78:120 Introduction to Instructional Design and Technology 3 s.h.
78:130 Exceptional Persons 3 s.h.

All doctoral candidates are required to complete at least 8 semester hours of cognate work in areas such as sociology, psychology, or political science.

78:494 Ph.D. Thesis 10-18 s.h.
Candidates take three 5-credit 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 supervisors of English, department chairs, curriculum specialists for secondary schools, and teachers of specialized areas. 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 license/certificate, and have acquired a minimum of 30 semester hours in English.

Preferred applicants will have a composite score of 1000 on the verbal and analytical portions of the Graduate Record Examination (GRE) General Test. Students must maintain a 3.00 grade-point average while enrolled in the program.

REQUIREMENTS

Students specialize in English education and one or two other areas. The other areas may be: a literary field, junior high school teaching, curriculum, editing, writing, speech and drama, journalism, language development, literature for children and adolescents. Students and their advisors plan the program of study. Nine semester hour courses must be earned in courses numbered 500 or above. Students take a comprehensive examination in English education and in their chosen areas.

M.A.T. In English Education

The M.A.T. program is designed for students who have an undergraduate degree in English and few or no professional education courses. Successful completion of the program enables students to receive a teaching license/certificate as secondary school teachers of English.

ADMISSION

Applicants must have a bachelor's degree in English and a 3.00 minimum undergraduate grade point average. Since this is a literacy/teaching program, candidates must not have qualified for licensure/certification previously. Applicants are expected to have no more than 6 semester hours of course work in professional education courses prior to admission.

REQUIREMENTS

Students must complete a minimum of 40 semester hours. This includes at least 18 semester hours of graduate courses offered by the Department of English, planned with the advisor to supplement the undergraduate major, and the following professional education courses.

78:131 Educational Psychology 3 s.h.
78:107 History of Western Education or
78:117 Philosophies of Education 2 s.h.
78:190 Individual Projects in Laboratory Practice 3 s.h.
78:180 Human Relations for the Classroom Teacher 3 s.h.
78:194 Methods: High School Reading or
78:195 Developing Reading Skills in the Secondary School 3 s.h.

Basic competency in microcomputing is required. One part covers methods, materials, and curriculum for high school English; the second part covers one half the comprehensive 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 and scholars in English education, with specializations in a range of areas related to literary and literacy education. These include the teaching of reading, writing, language, and literature.

ADMISSION

Students must meet the basic requirements of the Graduate College for admission to the doctoral program and must provide a written personal statement explaining their reasons for applying to the program. Successful applicants will most likely have a 3.00 grade-point average, score at least at the 50th percentile on the verbal portion of the Graduate Record Examination (GRE) General Test, and have at least two years of teaching experience, preferably at the secondary level. Students must maintain a 3.00 grade-point average while enrolled in the program. Candidate is reevaluated annually.

REQUIREMENTS

A minimum of 72 semester hours is required. This includes 9-18 semester hours in the area of specialization—teaching of English—including two of the following courses.

78:200 Supervision of Elementary School Language Arts (Language Arts) 3 s.h.
78:305 Seminar: Research and Writing for English Educators 3 s.h.
78:310 M.A. Seminar: English 3 s.h.
78:410 Ph.D. Seminar: English Education (required for two or more registrations) 2.4 s.h.

Candidates and electives (54-62 s.h.) may include reading, school curriculum, literature for young people, literature of a particular period or genre, educational psychology, special education, educational media, writing, linguistics, literary criticism, educational measurement, journalism, and dramatic arts. Students and their advisors 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 cognate area, and an elective area. The minimal requirements for eligibility to write cognate or elective area examinations varies; the general requirement is that course areas are at least 6 hours 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 licensure.

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 in other cognate professional education courses.

78:92 Introduction to Teaching Foreign Language (credit not applicable to M.A.T. degree) 3 s.h.
78:107 History of Western Education or
78:117 Philosophies of Education 3 s.h.
13:123 Topics in Foreign Language Instructional Technology 2 s.h.
78:116 Methods: Foreign Language 3 s.h.
78:187 Seminar: Curriculum and Student Teaching 1 s.h.
78:191-192 Observation and Laboratory Practice in the Secondary School 12 s.h.
78:180 Human Relations for the Classroom Teacher 3 s.h.

A comprehensive examination covering the candidate's knowledge of and facility in the language, literary, cultural analysis, and foreign language education.
course work for the Ph.D. in mathematics education, the student must have an undergraduate major in mathematics or the equivalent a master's degree in mathematics, mathematics education, or related areas. In addition, a 3.0 grade-point average or above, and, except in unusual circumstances, a current teaching license/certification and a minimum of two years of teaching experience.

REQUIREMENTS

A minimum of 36 semester hours is required for the Ph.D. in mathematics education. This program is administered by the Department of Mathematics. Application should be made to that department.

Requirements

A minimum of 24 semester hours in the Department of Mathematics, including the core major's program for either pure mathematics or applied mathematics as described below:

Pure Mathematics Core:

22M:135 Introduction to Analysis I 3 s.h.
22M:145 Introduction to Analysis II 3 s.h.
22M:155 Abstract Algebra I 3 s.h.
22M:165 Abstract Algebra II 3 s.h.
22M:175 Special Topics 3 s.h.

Applied Mathematics Core:

22M:135 Intermediate Differential Equations 3 s.h.
22M:145 Introduction to Partial Differential Equations I 3 s.h.
22M:170 Numerical Analysis: Nonlinear Equations and Approximation Theory 3 s.h.
22M:171 Numerical Analysis: Differential Equations and Linear Algebra 3 s.h.
22M:174 Optimization Techniques 3 s.h.

Two courses in mathematics education:

Comprehensive examination of 12 hours over the required courses in either pure mathematics or applied mathematics, and education. The examination assesses the candidate's knowledge of mathematics and of the relevance of specific concepts relating to teaching secondary school mathematics.

Ph.D. in Mathematics Education

The program for a Ph.D. in mathematics education prepares supervisors, teacher educators, personnel, community college personnel, and researchers in mathematics education. It is administered by the College of Education.

The 72 semester hours include work toward the master's degree. Credit earned toward the Ph.D. may be counted. Minimum course requirements are for exceptional students. Typically, the program consists of 30 to 90 semester hours.

ADMISSION

Applicants must have an undergraduate major in mathematics or the equivalent a master's degree in mathematics, mathematics education, or related areas. In addition, a 3.0 grade-point average or above, and, except in unusual circumstances, a current teaching license/certification and a minimum of two years of teaching experience.

REQUIREMENTS

Students must complete a minimum of 36 semester hours of graduate work in the disciplines of Mathematics, Science Education, and Computer Science. The minimum 36 semester hours must include at least 12 hours in the following areas:

1. Mathematics
   - 12 hours in mathematics

2. Science Education
   - 12 hours in science education

3. Computer Science
   - 12 hours in computer science

Students must submit satisfactory written work in the disciplines of Mathematics, Science Education, and Computer Science. The written work must be submitted to the dissertation committee prior to the final examination. Upon completion of the dissertation, an oral examination is conducted in defense of the dissertation.

M.A. in Music Education

The program provides students with deeper knowledge of music education, the theory and practice of music education, and the role of music in the school curriculum. This program may be taken with these (30 semester-hour minimum) or without these (15 semester-hour minimum).

ADMISSION

The applicant must be a licensed/certified music teacher or in the process of completing licensure/certification requirements. A 3.0 undergraduate grade-point average, excluding grades in enamours, is required for admission to regular status.

The program is administered by the School of Music in cooperation with the College of Education. Application is made to the School of Music.

REQUIREMENTS

General:

22M:1 Introduction to Graduate Study in Mathematics 2 s.h.
The program is administered by the School of Music in cooperation with the College of Education. Application is made to the School of Music.

REQUIREMENTS
The Ph.D. is granted on the basis of achievement, as determined by course grades, overall examinations, and final examinations, and not on the accumulated number of semester hours of credit. The course requirements and semester hour limits listed below are minimum requirements for the typical student in preparation for the satisfactory performance on the comprehensive and final examinations.

General (11 s.h.):

* 25,340 Introduction to Contemporary Analysis and Theory 3 s.h.
* 25,285 Musical Acoustics 3 s.h.
* 25,321 Introduction to Graduate Study in Music 2 s.h.
* Elective (25,405-150) 3 s.h.

Music History and Literature (12-15 s.h.):

* 25,301 Advanced History and Literature of Music I 3 s.h.
* 25,302 Advanced History and Literature of Music II 3 s.h.
* Elective (25,203-319) 3 s.h.
* Applied and Ensembles 4 s.h.
* *Electives 0-3 s.h.

Music Education (23 s.h.):

* 75,141 Measurement and Evaluation in Music Education 3 s.h.
* 75,240 Behavior Research in Music Education 3 s.h.
* 75,206 Curriculum Development in Music Education 2 s.h.
* 75,240 Foundations of Music Education 2 s.h.
* 75,445 Research in Experimental Research in Music Education 3 s.h.
* 75,445 Supervision and Administration in Music Education 2 s.h.
* 75,445 Social and Psychological Factors in Music Education 3 s.h.
* *Electives 3 s.h.

Music Education (8 s.h.):

* 75,142 Introduction to Statistical Methods 3 s.h.
* 75,442 Selected Applications of Statistical Techniques 3 s.h.
* Elective 2 s.h.

Music Education (11 s.h.):

* M.A. level requirements

Students select elective courses; in consultation with their advisor, on basis of professional needs and goals. Subject areas include applied music conducting, arraing, 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 area of theory and practice of music education, research design and technique, specialized music performance, history and literature of music, and music theory and analysis.

ADMINISTRATION
The program is administered by the College of Education. Application is made to the School of Music.

REQUIREMENTS
The M.A.T. program is designed for students who have an undergraduate degree in one of the sciences and little or no professional education courses. Successful completion of the program and fulfillment of the course work in science required by an endorsement program qualifies the student for an Iowa secondary teaching license in science.

PROGRAM
The program is administered by the College of Education.

ADMISSION
Applicants must have a bachelor's degree with a major or equivalent in one of the sciences and a 3.00 minimum undergraduate grade point average.

REQUIREMENTS
Professional Education Sequence

75,100 Issues in Education 2 s.h.
Component 2:
75,140 Human Relations for the Classroom Teacher 3 s.h.
Component 3:
75,151 Educational Psychology 3 s.h.
Component 4:
75,152 Science Methods I: Elementary School Seminar and Practicum 3 s.h.
Component 5:
75,152 Science Methods II: Resource, Remedial Teaching Strategies, and Curriculum Development for K-12 Science 3 s.h.
Component 6:
75,152 Science Methods III: Middle/Senior High School Science 2 s.h.
75,166 Elementary School Special Methods Subject Area Elective 3 s.h.
Component 7:
75,167 Seminar: Curriculum and Student Teaching 3 s.h.
75,166 Individual Projects in Laboratory Practice 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.

Components 4, 5, 6, and 7 must be taken in sequence and only one each semester. These courses are not offered during summers.
M.S. in Science Education

This degree is designed for students who want to pursue advanced science education specialization in teaching undergraduates through college or in related fields such as medical education, museum programs, and industrial 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 experience/verification unless they are preparing for careers in allied areas, museums, or community colleges.

REQUIREMENTS

A total of 32 semester hours of course work with thesis or 34 semester hours without thesis, distributed as follows:

Science Education (9 s.h.):
75/75:255 Science Education: Issues, History, and Rationale 3 s.h.
75/75:256 Science Education and the Nature of Science 3 s.h.
75/75:257 Science Education: Teaching, Learning, and Curriculum Models 3 s.h.
75/202 Advanced Techniques of Teaching Science in the Elementary School 3 s.h.
75/75:258 Science Education Research Models and Conceptual Structures 3 s.h.
75/350 Seminar: Science Education 0 s.h.
Science Specialization (17-22 s.h.):
75/128 Measuring of Science 3 s.h.
Science and applied science courses selected from an area other than the specialization 15-20 s.h.
Combintorives (3-6 s.h.): Science and applied science courses selected from an area other than the specialization 3-6 s.h.

E.D.S. in Science Education

The E.D.S. in science education is an intermediate degree between the master's and the Ph.D. degree. It is recommended for state, regional, or local science supervisors as well as for instructors in community colleges and small four-year liberal arts colleges.

The program is administered by the College of Education.

ADMISSION

Candidates must have a 2.70 grade-point average on all undergraduate and graduate work undertaken prior to application for admission. Candidates usually are required to have the equivalent of an undergraduate major in one of the sciences or science education.

REQUIREMENTS

A minimum of 60 semester hours of course work, which must include the courses listed below, courses taken toward the requirements for a master's degree may be applied to this total.

Science Education (28 s.h.):
75/75:255 Science Education: Issues, History, and Rationale 3 s.h.
75/75:256 Science Education and the Nature of Science 3 s.h.
75/75:257 Science Education: Teaching, Learning, and Curriculum Models 3 s.h.
75/75:258 Science Education Research Models and Conceptual Structures 3 s.h.
75:350 Seminar: Science Education 0 s.h.
75/355 Ed.D. Internship (taken for a total of 9 s.h.) 9 s.h.
Examinations (in consultation with advisor) Total 28 s.h.

**May be repeated.

Science Specialization (24 s.h.):
Courses that supplement undergraduate preparation, chosen from regular graduate offerings in biochemistry, biological sciences, chemistry, computer sciences, geology, microbiology, physics, and radiation science, should include a minimum of 11 semester hours in at least one field of science.

Comprehensive Studies (3 s.h.):
An integrative group of supporting courses selected from a limited number of areas such as education, applied science, science, and history/philosophy of science, in consultation with the advisor.

A special research or curriculum-development project is required, resulting in a written report suitable for publication. Four semester hours of credit are assigned for this research.

Students take a comprehensive examination that consists of three parts: one dealing with science education, another with an area of science, and a third with the comprehensive studies area.

Ph.D. in Science Education

This degree is appropriate for qualified candidates who apply to college and university positions in science education, major supervisory posts in state, local, systems; teaching positions in the sciences at junior and senior high schools; and 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 102 semester hours of course work, which must include the courses listed below; courses taken toward a master's degree count toward this total.
75/75:255 Science Education: Issues, History, and Rationale 3 s.h.
75/75:256 Science Education and the Nature of Science 3 s.h.
75/75:257 Science Education: Teaching, Learning, and Curriculum Models 3 s.h.
75/202 Advanced Techniques of Teaching Science in the Elementary School 3 s.h.
75/350 Seminar: Science Education 0.5 s.h.
75/355 Ed.D. Internship (taken for a total of 9 s.h.) 9 s.h.
75/308 Ph.D. Seminar: Current Research in Science Education 1.5 s.h.
Total 26 s.h.

**May be repeated.

Candidates must complete 28-32 semester hours in research methods in the major area of study: biological science, physical science, and environmental studies. They also complete 8 semester hours in an integrated group of supporting courses selected from a limited number of areas such as education, applied science, science, and history/philosophy of science, in consultation with the advisor.

Candidates must maintain competency in two of the following research tools and methodologies: computer programming and/or data processing, research design (completion of a plan study), competency is certified by the advisor.

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 (75/75:493).

The comprehensive examination consists of three parts: one dealing with science education, another with an area of science, and a third with the comprehensive studies area.
M.A. in Social Studies Education

The program provides an opportunity for baccalaureate-trained, secondary social science, or related areas for certification as high school social studies teachers. 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 other interested individuals seeking greater competence in selected major areas. Program B is for individuals who have their bachelor's degree in history or social sciences and wish to obtain a teaching license/certificate in the area of completing the master's degree.

Admission

Applicants must have a bachelor's degree in history or one of the other social sciences from an accredited institution, a 3.0 cumulative grade point average; a 3.0 grade point average in history and/or other social science courses; preferred composite Graduate Record Examination (GRE) General Test score of 1,000 on the verbal and quantitative batteries; and two letters of recommendation. Evidence of writing ability in the form of a completed essay paper or essay also is required. Typically, applicants to Program A are expected to hold a secondary teaching license/certificate. After declaring a social studies education major, the M.A. degree requires at least a 3.00 grade point average.

Program A Requirements

Program A students must complete a minimum of 36 semester hours distributed among history and social sciences, or related areas, and education, with a minimum of 10 semester hours in each of three fields. Nine of the total 36 semester hours must be completed in 100-level or above courses in any of the three fields selected for concentration. If the thesis option is selected, the student completes a research or investigative problem in history or social sciences, or in related areas, in which case the thesis director is a member of the appropriate department, or in selected problems in social studies education, in which case the thesis director is a faculty member in the College of Education.

A two-hour written examination is required in each of the three fields selected for concentration. An oral examination follows the written examination, conducted by the candidate's committee as a whole.

Program B Requirements

Program B students must complete a total of 36-48 semester hours, consisting of the courses listed below. All of the following courses must be completed, but students may elect to take some of the course work in the general professional education. In such cases, the number of hours is reduced accordingly, but in no case is the number of hours in the master's degree program to be less than 38. In all instances, the student should take appropriate work for meeting all Iowa Department of Education requirements for teacher licensure/certification.

Professional Education Courses:

72:100 Issues in Education 2.5 s.h.
72:170 Methods: Social Studies 3.0 s.h.
72:131 Educational Psychology 3.0 s.h.
71:180 Human Relations for the Classroom Teacher 3.0 s.h.
72:180 Introduction to Instructional Design and Technology 3.0 s.h.
71:117 Philosophies of Education 3.0 s.h.
71:120 Educational Sociology 3.0 s.h.
71:149 Observation and Laboratory Practice in the Secondary School 2.5 s.h.
71:142 Observation and Laboratory Practice in the Secondary School 2.5 s.h.
72:177 Seminar: Social Studies Education 3.0 s.h.

Candidates also are required to register in a practicum in a public school.

Subject Area Specialization Courses:

A minimum of 15 semester hours of course work in a major or a social science is required, of which 12 must be taken in one of the courses of the social sciences. Two courses should be taken with the instructor who will serve on the examining committee. Few semester hours of course work may be taken in a second area of history or in another social science. The area must be selected in consultation with the advisor.

Comprehensive Examination

The comprehensive examination consists of three parts: a written examination in the subject area specialization, a two-hour examination in general professional education, and a two-hour examination in social studies education.

Ph.D. in Social Studies Education

This program is administered by the College of Education. It is offered in collaboration with appropriate departments or colleges in the College of Education. The candidate must present a program of study that meets the requirements of the student's major department and the College of Education. The candidate must present a prospective plan of study in the dissertation committee prior to undertaking the study. Upon completion, an oral examination is conducted in defense of the dissertation.

Continuing requirements for maintaining candidacy are a 3.00 grade point average plus annual reaffirmation.

Special Education

The division offers special education programs in these primary areas: mental retardation, learning disabilities; behavior disorders; early childhood special education; and modern and severe, and profound mental disabilities. These programs are designed to prepare graduates for positions in public schools, local and state education agencies, clinical settings, and institutions of higher education. All teacher licensure/certification programs are approved by the Iowa Department of Education. Programs leading to specific special education degrees are approved by the Iowa Department of Education. These programs are not approved by the State Board of Education. Certification are not available to undergraduate students. Students who wish to pursue a career in special education are encouraged to take the
Admission

Admission requirements include:
- completed graduate application forms;
- copies of official transcripts for all previous college coursework;
- official report of the Graduate Record Examination (GRE) General Test (verbal and quantitative);
- three current letters of recommendation; and
- evidence of experience of teaching, licensure/certification (varies depending on program).

An interview may be requested. In addition to the above, the following represent minimum requirements:

Master of Arts: A 2.75 undergraduate grade point average or a 3.0 graduate grade point average in at least 12 semester hours of graduate coursework and a combined verbal and quantitative GRE score of 1000 are preferred.

Specialist in Education: A 3.25 graduate grade point average and a combined verbal and quantitative GRE score of 1000 are preferred.

Doctor of Philosophy: A 3.00 undergraduate grade point average or a 3.50 graduate grade point average if a graduate degree has been conferred, and a combined verbal and quantitative GRE score of 1000 are preferred.

For students without an M.A. degree, an equivalent project must be completed.

Final admission decisions are made by the special education graduate admissions committee and are based on a comprehensive analysis of the candidate's likelihood for success in the program. This analysis may include a computerized evaluation of the candidate's likelihood for success in the program. This analysis may include consideration of available resources, comparative standing, and specific program requirements in the candidate's primary license/certification area.

Applications must be complete to be reviewed. It is the candidate's responsibility to provide a completed applications dossier. Students may be admitted for any session.

Master of Arts

The primary purpose of the M.A. degree program in special education is to prepare persons to deliver appropriate levels of service to those with disabilities, physical, emotional, and behavioral disorders in either public or private settings. Applications may request admission for the purpose of obtaining special education licensure/certification without also completing the M.A. A student who does not seek licensure/certification may be admitted selectively to the M.A. program.

The M.A. degree program requires a minimum of 36 semester hours.

Admission

Admission requirements are:
- a completed graduate application form;
- copies of official transcripts for all previous college coursework; and
- an official report of the Graduate Record Examination (GRE) General Test (verbal and quantitative), with a score of at least 1000; three current letters of recommendation; evidence of experience in regular or special education (see each program for specific requirements); and
- a 2.75 minimum undergraduate grade-point average (or 3.00 on at least 12 semester hours of graduate course work).

An interview may be requested.

Program Core

Special education core requirements for all programs:
- 7U.130 Exceptional Persons 3 s.h.
- 7U.134 Parent-Teacher Communication 3 s.h.
- 7U.200 Person with Exceptional Persons 3 s.h.
- 7U.236 Assessment of Learning Difficulties 1.5 s.h.

Program Specializations

Learning Disabilities

A core of three courses in learning disabilities (LD) is required for all students.
- 7U.131 Introduction to Learning Disabilities 5 s.h.
- 7U.207 Supervised Teaching: Elementary Learning Disabled 5 s.h.
- 7U.209 Seminar: Graduate Supervised Teaching 1 s.h.

Students seeking an elementary (K-6) ID teaching license/certificate must obtain (or already have) a regular elementary teaching license/certificate. The following courses also are required.
- 7E.173 Teaching Elementary School Mathematics 3 s.h.
- 7P.205 Methods: Child/children with Learning Disabilities 3 s.h.
- 7E.271 Advanced Reading/Class Techniques 2.5 s.h.
- 7E.274 Advanced Reading/Literacy Techniques 3 s.h.

If students are unable to complete 7E.271-272, the following courses may be taken.
- 7U.172 Reading Instruction: Teaching 2.5 s.h.
- 7U.174 Diagnostic and Prescriptive Approaches to Reading Instruction 2.5 s.h.
- 7U.175 Reading Instruction: Teaching 3 s.h.

Total 30 s.h.

Students seeking a secondary (7-12) ID teaching license/certificate must obtain (or already have) a regular secondary teaching license/certificate. The following courses also are required.

- 7E.174 Career Education and Transition 3 s.h.
- 7E.175 Teaching Elementary School Mathematics 3 s.h.
- 7E.271 Advanced Reading/Literacy Techniques 3 s.h.
- 7E.274 Advanced Reading/Literacy Techniques 3 s.h.

Total 30 s.h.

Behavior Disorders

A core of six courses in behavior disorders (BD) is required for all students.
- 7U.132 Introduction to Behavioral Disorders 3 s.h.
- 7U.208 Supervised Teaching: Elementary Behavior Disorders 5 s.h.
- 7U.209 Seminar: Graduate Supervised Teaching 1 s.h.
- 7U.240 Characteristics and Programs: Persons with Severe Behavioral Disorders 3 s.h.
- 7U.241 Intervention: Persons with Severe Behavioral Disorders 2 s.h.
- 7U.240 Behavioral Principles 1.5 s.h.

Students seeking an elementary (K-6) BD teaching license/certificate must obtain (or already have) a regular elementary teaching license/certificate. The following course also is required.
- 7U.208 Methods: Children with Behavioral Disorders 3 s.h.

Total 36 s.h.

Rental Rationing - Mild/Moderate

A core of six courses in mental retardation (MR) is required for all students.
- 7U.115 Mental Retardation 3 s.h.
- 7U.209 Seminar: Graduate Supervised Teaching 1 s.h.
- 7U.250 Supervised Teaching: School Based Mental Retardation 3 s.h.
- 7U.240 Behavioral Principles 1.5 s.h.
- 7U.240 Methods: Persons with Moderate/Severe/Profound Mental Retardation 3 s.h.
- 7U.244 Supervised Teaching: Elementary Moderate Mental Disabilities 3 s.h.

Total 15 s.h.

Schools seeking an elementary (K-6) MR teaching license/certificate must obtain (or already have) a regular elementary teaching license/certificate. The following course also is required.
- 7U.214 Methods: Children with Mild Mental Retardation 3 s.h.

Total 15 s.h.
Students seeking a secondary (7-12) MD teaching license must obtain a regular secondary teaching minor/certificate. The following courses are required:

70:113 The Culturally Different in Diverse Settings 3 s.h.
70:215 Methods: Adolescents with Mild Mental Retardation 3 s.h.
78:173 Teaching Elementary School 2.3 s.h.
75:164 Methods: High School Reading 2.3 s.h.
75:195 Developing Reading Skills in the Secondary School 2.3 s.h.
70:121 Career Education and Transition 5 s.h.

Total 40.42 s.h.

The remainder of the required 38 semester hours are elective courses chosen by the student and the academic advisor. Students who meet the requirements for licensure/certification in the area of elementary education-mild retardation-mild retardation can meet the requirements for licensure in the area of physically handicapped (K-6) by completing the following courses:

83:15 Introduction to Speech and Hearing Problems and Disorders 3 s.h.
70:138 Methods: Children with Physical Disabilities 3 s.h.
70:195 Orientation to the Rehabilitation of the Physically Handicapped Child 3 s.h.
70:214 Supervised Teaching with Physically Handicapped 5 s.h.

Early Childhood Special Education

Poor teaching, licensure/certification is desirable but not required for admission to the early childhood special education program, certificate program. Applicants to the graduate program who do not already have licensure/certification must complete an 11 semester-hour professional education core, which is not applicable toward an M.A. degree, as follows:

76:100 Introduction: Elementary and Early Childhood Teaching 3 s.h.
75:73 Educational Psychology and Methods 3 s.h.
79:180 Human Relations for the Classroom Teacher 3 s.h.
76:121 Audiovisual Equipment for Instruction 1 s.h.
75:40 Introduction to Microcomputing for Teachers 1 s.h.

The following courses, in addition to the above core requirements, form the program of study for early childhood special education.

70:117 Inclusive Programming for Disabled 3 s.h.
70:275 Development of Young Children with Disabilities 3 s.h.
70:277 Methods: Early Childhood Special Education Ages O-3 3 s.h.
70:274 Methods: Early Childhood Special Education Ages 4-8 3 s.h.
70:279 Specials of Young Children with Disabilities 3 s.h.
7:16 Language Development 3 s.h.
7:1216 Comprehension 1 s.h.
7:1217 Oral Language Production 1 s.h.
7:1222 Superseded Teaching: Early Childhood Special Education I (1/2 semester, 1/2 time in a center-based program) 3 s.h.
7:1227 Superseded Teaching: Early Childhood Special Education II (1/2 semester, 1/2 time in a center-based program) 3 s.h.
7:1221 Seminar: Teaching Early Childhood Special Education 1 s.h.
7:1223 Multisensory remediation course 0 s.h.
7:1227 Test 29 s.h.

The remainder of the required 38 semester hours are elective courses chosen by the student and the academic advisor.

70:1010 Introduction: Elementary and Early Childhood Teaching 3 s.h.
75:35 Educational Psychology and Measurement 3 s.h.
75:140 Human Relations for the Classroom Teacher 3 s.h.
76:111 Audiovisual Equipment for Instruction 1 s.h.
75:40 Introduction to Microcomputing for Teachers 1 s.h.

The following courses, in addition to the above core requirements, form the program of study for severely/multiply/profound/mental disabilities.

70:375 Intervention Programs for Disabled 3 s.h.
70:240 Behavioural Principles 2 s.h.
70:241 Methods: Parents with Moderate/Severe/Multiprofessional Disabilities I 3 s.h.
70:242 Methods: Parents with Moderate/Severe/Multiprofessional Disabilities II 3 s.h.
70:243 Issues: Teaching Parents with Moderate/Severe/Multiprofessional Disabilities 3 s.h.
70:245 Supervised Teaching: Elementary Moderate Mental Disability (1/2 semester, 1/2-BGTE) 0.5 s.h.
70:245 Supervised Teaching: Severely/Profound (1/2 semester, 1/2-BGTE) 3 s.h.
70:245 Supervised Teaching: Multiple/Autistic for Students with Multiple Disabilities 3 s.h.
70:247 Linkage to Community 0 s.h.
70:248 Multisensory remediation course 0 s.h.
7:1227 Test 29 s.h.

The remainder of the required 38 semester hours are elective courses chosen by the student and the academic advisor.

Multisensory Resource Teaching

A core of five to six courses is required.

70:117 Inclusive Programming for Disabled 3 s.h.
70:1222 Superseded Teaching: Elementary Resource Program 5 s.h.
70:209 Seminar: Graduate Supervised Teaching 1 s.h.

At least two of these:

70:131 Introduction to Learning Disabilities 3 s.h.
70:132 Introduction to Behavioral Disorders 3 s.h.
70:135 Mental Retardation 3 s.h.

Students seeking an elementary (K-6) multisensory resource teaching license/certificate must obtain a regular elementary teaching license/certificate. The following courses also are required:

70:206 Methods: Children with Retardation Disorders 3 s.h.
70:214 Methods: Elementary Resource Teaching 3 s.h.
70:173 Teaching Elementary School Mathematics 2.3 s.h.
70:271 Advanced Reading Clinic Techniques 2.3 s.h.
70:272 Advanced Reading Clinic Practicum 2.3 s.h.

Students are unable to complete 70:271, 70:272. The following courses may be taken:

70:172 Reading Instruction: Teaching Reading 2.3 s.h.
70:134 Diagnostic and Prescriptive Approaches to Reading Instruction 2.3 s.h.

Total 39.42 s.h.

Students seeking a secondary (7-12) multisensory resource teaching license/certificate must obtain all of the elementary and secondary teaching license/certificate. The following courses also are required:

70:121 Career Education and Transition 3 s.h.
70:173 Teaching Elementary School Mathematics 2.3 s.h.
70:194 Methods: High School Reading 3 s.h.
70:105 Developing Reading Skills in the Secondary School 3 s.h.
70:204 Methods: Adolescents with Retardation Disorders 3 s.h.
70:197 Multisensory Resource Teaching 3 s.h.

Total 34.42 s.h.

Multisensory Special Class with Integration

Requirements include the core courses from the following programs: learning disabilities, behavior disorders, or mental retardation.

For students seeking elementary (K-6) approval, the courses required at the elementary level in the two programs chosen above also must be completed.

For students seeking secondary (7-12) approval, the courses required at the secondary level in the two programs chosen above also must be completed.

Specialist in Education

The program provides advanced graduate training for professionals in the field of special education, including individuals in consultation,
PLANNING, POLICY, AND LEADERSHIP STUDIES

Chair: Carl E. Renz
Program coordinators, M.S. in administration: College A. Chambers
Program coordinator, higher education: Carol E. Renz
Program coordinator, social foundations of education: William E. Duffy

Undergraduate Program

Higher Education—Major in Health Occupations Education

The health occupations education major prepares teachers for employment at the community college level to prepare entry level health occupations education programs. In addition to basic skills 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 applying to this program must hold current appropriate certification, licensure, 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 the basis of providing academic education and liberal studies appropriate to teachers who want to earn a baccalaureate degree.

Iowa Community College Licensure

Instructor

To qualify for a professional license with authorization to teach in an arts and sciences field of an area community college in Iowa, students must hold a master's degree granted by an approved institution, with specialization in a field of instruction offered in the arts and sciences division of an area college.

All licenses require 3 semester hours of 71:180 Human Relations for the Classroom Teacher. Students are expected to complete a year's experience in the area of professional preparation appropriate to teaching in a community college, which may be satisfied in several ways. Students should consult with their advisor or the program chair.

Administrator

Administrators of units or departments are required to hold or complete a bachelor's degree during the term for which the license is sought. In addition, administrators are required to hold a master's degree with a specialization in administration, a subject field taught in the institution, vocational/ technical education, adult education, or student services. Both types of administrators must have four years of successful educational work experience, and from which at least a minimum of 80 hours have been gained at the post-tertiary level. Experience must include at least one year of teaching or appropriating responsible to the area of administration.

The program in higher education offers approved course work leading to administrative endorsement as well as a course in supervision and evaluation (71:173), which fulfills state supervisor training requirements. Applicants should consult an advisor to select course work appropriate to their area of administration and that meets the college's approved program requirements.

Program requirements are as follows.

Professional Education Component

70:75 Educational Psychology 3
70:94 Instrumental Auditions 1
70:95 Introduction to Microcomputers 1
70:96 Introduction to Microcomputers 1
70:09 Introduction to Microcomputers 1
70:112 Teaching of Adult Education 3
70:113 Vocational Education 2
70:119 Seminar: Health Occupations Education 1
70:120 Community College Teaching Internship 3
70:121 Community College Teaching Internship 3
70:122 Development of Professional Education 3
70:143 Additional Specialty Course in Health Occupations Education 2
70:145 M.S. Thesis in Special Education 4
70:146 M.S. Thesis in Special Education 4
70:147 M.S. Thesis in Special Education 4
70:148 M.S. Thesis in Special Education 4
70:149 M.S. Thesis in Special Education 4
such as development of archival sites or computers in education, in keeping with their educational goals.

**Graduate Programs**

**Educational Administration**

The program in educational administration prepares indentified students for leadership positions. The program leads to the M.A., Ed.S., and Ph.D. degrees. In addition, students must complete the licensure/certification requirements. Students must complete the internship program. The specific requirements for each program are available through the division office and the College of Education Office of Student Services.

Students who hold an M.A. degree must satisfy all core requirements and the area of specialization. The Master of Arts program requires a total of 36 semester hours. The Master of Science program requires a total of 33 semester hours. The Master of Education program requires a total of 32 semester hours.

**Admission**

Applicants must satisfy Graduate College requirements and be 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.

**Course Requirements**

With the aid of an advisor, the student prepares a plan of study including the following core requirements:

72-201 Foundations of School Administration 3 s.h.
70-200 Administration of Students (with Special Needs) 3 s.h.
72-201 The Principalship in Educational Administration 3 s.h.
70-299 Legal Aspects of School Personnel 3 s.h.
70-303 Leadership and Evaluation 3 s.h.
7E-300 Design and Organization of Curriculum 3 s.h.

For Iowa principalship licensure/certification, students must meet the human relations requirement of the state of Iowa. Students specialize in elementary, secondary, or central staff administration by completing one of the programs outlined below. Candidates may choose electives approved by the faculty to satisfy the following degree requirements.

**Elementary Level**

72-208 Contemporary Management Strategies for the Elementary Principal 3 s.h.
72-401 Field Service Project in Elementary Administration 3 s.h.
Electives selected with approval of advisor

**Secondary Level**

72-200 Contemporary Management Strategies for the Secondary Principal 3 s.h.
72-402 Field Service Project in Secondary Administration 3 s.h.
Electives selected with approval of advisor

**Central Staff Administration**

79-143 Introduction to Statistical Methods 3 s.h.
72-405 Financial Management of Local School Systems 3 s.h.
70-400 Field Service Project in Central Administration 3 s.h.
Electives selected with approval of advisor

**Comprehensive Examinations**

The M.A. comprehensive examination consists of a three-hour examination in educational administration and a one-hour examination in a specialized area in either elementary school administration or in a related field. Students must be registered in the Graduate College during the semester in which they take the comprehensive examination if they plan to graduate that semester.

**Specialist in Education**

The Ed.S. program prepares candidates for administrative appointments in area education agencies and state departments of education. Students in the Master of Arts program may take up to 32 semester hours of graduate credit.

**Admission**

Applicants must satisfy Graduate College requirements and be selected for admission to the Master of Arts program. 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**

72-201 Foundations of School Administration 3 s.h.
70-200 Administration of Students (with Special Needs) 3 s.h.
72-201 The Principalship in Educational Administration 3 s.h.
70-299 Legal Aspects of School Personnel 3 s.h.
70-303 Leadership and Evaluation 3 s.h.
7E-300 Design and Organization of Curriculum 3 s.h.
7D-300 Legal Aspects of School Administration 3 s.h.
70-395 Educational Specialist Research in Educational Administration 3 s.h.

**Program Emphasis**

Students must complete the balance of their programs in one of the following areas of specialization: curriculum, instruction, administration, counseling, or special education.

**Elementary School Administration**

70-150 Introduction to Educational Administration 3 s.h.
70-205 School Organization Patterns 3 s.h.
70-204 Guidance and Counseling 3 s.h.
70-220 Internship for Primary Prevention 3 s.h.

**Secondary School Administration**

79-143 Introduction to Statistical Methods 3 s.h.
72-405 Financial Management of Local School Systems 3 s.h.
70-400 Field Service Project in Central Administration 3 s.h.
Electives selected with approval of advisor

**General School Administration**

72-205 Collective Bargaining in Education 3 s.h.
72-205 Financial Management of Local School Systems 3 s.h.
70-375 Educational Administration Practicum 3 s.h.
79-143 Introduction to Statistical Methods 3 s.h.

**Graduate Studies**

Students choose electives completing the 60 semester-hour requirement for the degree. They must choose electives for specialization in fields such as staff personnel, curriculum and instruction, legal aspects, curriculum, and information systems.

**Research**

All candidates for the Ed.S. degree must complete a formal research paper (at semester hours) that deals with a specific problem in school administration or instruction.

**Comprehensive Examination**

The comprehensive examination for the Ed.S. degree consists of a three-hour examination in educational administration and one for a specialized area in either educational administration or a related field. Students must be registered in the Graduate College during the semester in which they take the comprehensive examination if they plan to graduate that semester.

**Ed.S. in Special Education Administration**

The Ed.S. in Special Education Administration program is offered jointly with the Division of Curriculum and Instruction.

The program provides sufficient training and experience to enable graduates to obtain entry-level positions as administrators.
General requirements for admission are as stated in the Graduate College. A personal interview with one or more members of the social functioning faculty is desirable and may be required. An undergraduate and/or graduate emphasis in philosophy, the humanities, or the social sciences and two years of teaching experience are strongly recommended. Students must maintain a 3.0 overall graduate grade point average to remain in the program.

Master of Arts

Students in the M.A. program must take a minimum of 36 semester hours of work in graduate-level courses, which should include at least two courses each in at least three of the five areas of specialization. The remainder of the required 32 semester hours of course work must be in an area of concentration appropriate for doctoral career and academic goals. For example, students interested in philosophy of education usually take these courses to the Department of Philosophy.

Doctor of Philosophy

The Ph.D. program requires a minimum of 90 semester hours. Students are required to take 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 doctoral 6 semester hours from each of two additional areas. In addition, students must take at least 12 semester hours in courses in the College of Education. These courses must be in one area of concentration, such as educational administrative, educational research, or higher education. Approximatelly one-third to one-half (30 to 45 semester hours) of each student's program is designed to work in depth in at least one other program at the University, such as history, philosophy, political science, or sociology. These courses are individually planned by the student with the aid of her or his advisor and suggest new areas for doctoral dissertations.

Two research courses are also required. They may be selected from the following alternatives in accordance with the individual candidate's research interests and program: two courses in a graduate-level statistics sequence; philosophy of science and philosophy of social science; human development and family studies; foreign language proficiency examination. In addition, all students are required to successfully complete Thesis/Doctoral Project and Design. Dissertation research is usually taken for 7.5-15 semester hours of credit.

Higher Education

Postsecondary and continuing education in the United States represents an extensive and complex set of phenomena. The associate programs in the coordination and evaluation that complexity, Degrees are offered at all levels, 13 emphasis on both research and practice. Programs for education or coordination and evaluation is available. The teaching, research, and service activities of the faculty and the graduate of the several degree programs illustrate that education beyond the high school level continues in a variety of ways for all ages and in many different settings.

Master of Arts

The M.A. program in higher education prepares individuals for entry-level student services, administrative, instructional management, continuing education, and community college positions in two- and four-year institutions. It is appropriate preparation for positions such as academic dean, assistant to the president, director, or registrar, or college board or selected areas. It is a nonthesis program.

ADMISSION

Applicants for admission must satisfy the requirements of the Graduate College. Candidates are selected on the basis of grade-point average, Graduate Record Examination (GRE) General Test scores, and potential for professional growth. Transcripts, CEEB scores, letters of recommendations, and a statement of educational goals are required for consideration. Complete application materials must be submitted by November 1 for spring semester admission and April 1 for summer semester and fall semester admission.

REQUIREMENTS

The M.A. program requires a minimum of 32 semester hours. Students take six hours of written examinations based on the area of 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 practice. Students majoring in another field who want to complete a related field in higher education may be allowed to write a related-field examination should consent to an additional semester in their studies. Plans of study will be developed individually.

Specialist in Education

The Ed.S. program provides advanced graduate preparation in the areas of administration, academic planning and program development (including an emphasis on academic administration), community college administration, and continuing education. Students usually not planning to continue for the Ed.D. 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 potential for professional growth. Transcripts, CEEB scores, letters of recommendation, and a statement of educational goals are required for regular admissions. Complete application materials must be submitted by November 1 for spring semester admission and April 1 for summer semester and fall semester admission.

REQUIREMENTS

Requirements for both 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 completed in consultation with the adviser to be appropriate in one of the following areas: administration, academic planning and program development (including an emphasis in 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 adviser.

Twelve semester hours of electives, to be approved by the adviser.

Research conducted under regulation in 713.39 Educational Specialist Research in Higher Education for 4 semester hours.

Two-hour comprehensive examinations: one that covers the field of higher education to general, and one that covers one of the five concentrations in higher education, perhaps reflecting an area of specialization within the concentration, followed by oral examination.

RELATIONSHIP

Students entering 32nd semester field who want to complete a major field in higher education and shall continue with the higher education major field in their studies. Plans of study are developed individually.

TEACHING INTERNSHIP

Program participants each teach one-half for a full semester at cooperating community colleges under the supervision of an experienced faculty member in that college and with field supervision by the cooperating community college. Interns participate as fully as possible in the academic life of the two community colleges, and usually gather data for their Ed.D. research project during the internship. Participants must be willing to travel to a community college and reside there for the two-semester program.

Doctor of Philosophy

The Ph.D. program is designed for persons who are likely to serve as administrators, specialists, researchers, and teachers in secondary schools, colleges or universities. The program in higher education offers five areas of concentration: general administration, academic planning and program development (including an emphasis in academic administration), community college administration, continuing education, and policy studies. It requires a minimum of 90 semester hours beyond the baccalaureate degree.
REQUIREMENTS

The degree may be taken without thesis (10-semester hour minimum) or with thesis (minimum of 28 semester hours of course work plus 24 semester hours of thesis credit). All students must complete a core of courses totaling approximately 20 semester hours. Included in this core are a graduate-level survey course in educational psychology, elementary and intermediate courses in statistical methods, a course in educational research methodology; and courses in the development and use of evaluation instruments. The list of core 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. These examinations assure a minimum of three courses in the area; two-hour examinations assure a minimum of two courses in the area.

Doctor of Philosophy

This doctoral program prepares students for senior professional positions in the fields of educational measurement, program evaluation, and statistical methods. Such positions generally are found in college administrations, state departments of education, large public and private school systems, testing agencies, and research centers.

ADMISSION

Applications for admission to the program must be held on file at an accredited institution. The graduate average requirement is the same as that for the Graduate College. If an applicant's scores on the verbal, quantitative, or analytical sections of the Graduate Record Examination (GRE) General Test are lower than 500 or there is no existing evidence of superior ability, the applicant will be rejected. However, the faculty may adjust the GRE standards for students who do not speak English as their native language.

Students who expect to concentrate in the area of statistics should have training in college mathematics through differential and integral calculus. The absence of such training is a deficiency that must be made up during the first year of residence. At least one year of professional experience in teaching, research, or a related field is highly desirable. Applicants are encouraged to include a personal statement about their vocational goals. The faculty reviews applications as they are received.

REQUIREMENTS

In addition to the substantive courses in educational measurement and statistics offered by the division, all students must complete the following required courses:

22C:100 Introduction to Computing (3 s.h.)
71P:151 Educational Psychology (3 s.h.)
71P:220 Educational Research Methods (3 s.h.)
7C:254 Appraisal in Counseling (3 s.h.)

The student's advisor specifies additional course work to areas appropriate in the student's interests and vocational objectives. These courses typically include additional work in educational psychology and courses offered by other College of Education divisions and University departments.

Students who concentrate in the area of statistics, with the intention of teaching on the college level, are required to take courses in the mathematical theory of statistics. Those who concentrate in the area of educational measurement and evaluation are advised to take courses in curriculum, counseling, and higher education. All students must develop familiarity with computer-programming techniques and statistical analysis programs.

Candidates who enter the program without completing an M.S. thesis must complete a substantive project approved by three members of the faculty. The project must be completed before the Ph.D. comprehensive examinations may be written. A minimum of 90 semester hours is required for the degree, including 15 or more semester hours of thesis credit.

The record of every student admitted to the program is reviewed after completion of approximately 18 semester hours of course work. The division faculty considers course grades, evidence of critical and analytical skills, development since admission to the program, and promise for continued growth. Students who show insufficient potential or deficiencies that cannot be remedied are dropped from the program.

Following completion of the major portion of their course work, candidates must write comprehensive examinations. Typically, these consist of three 3-hour written examinations over the fields of applied statistics, educational measurement, and elementary statistics or an approved substitute area. A satisfactory area is generally one in which the candidate has at least 9 semester hours of course work. In lieu of one written examination, the student's committee may assign a project involving analytical and evaluative skills, or research creativity. The written examinations are followed by an oral examination over which the candidate's committee recommends further work for the student. Such an examination may be held in conjunction with other requirements for graduation.

Counseling Psychology

Doctor of Philosophy

The doctoral program in counseling psychology was granted full accreditation by the American Psychological Association in 1983; full accreditation was renewed in 1988.

The program's goal is to prepare doctoral-level counseling psychologists with postpsychology as a science and contribute to the advancement of the profession. No major degree is offered in counseling psychology. The faculty endorses a student-centered model of training and expects students to become competent investigators and professional practitioners. Graduates find positions in higher education, counseling centers, clinics, private practice, foundations, and hospitals.

ADMISSION

Applications are complete when the following items have been received:

Graduate College application form;
affidavit transcripts of all previous undergraduate and graduate work;
affidavit report of Graduate Record Examination (GRE) General Test scores; the GRE Advanced Test in Psychology is encouraged but not required;

personal statement outlining career goals and reasons for seeking advanced training as a counseling psychologist;

and three letters of recommendation from persons in a position to assess the applicant's potential for completing the doctoral program.

The faculty gives preference to applicants who meet the following criteria: undergraduate grade-point average above 3.00 on a 4.00 scale; graduate grade-point average above 3.50; and GRE General Test score (verbal plus quantitative) above 1200; undergraduates major, minor, or substantial course work in psychology; previous research and counseling experience. The faculty encourages applications from minorities, women, and persons from a wide range of backgrounds and academic preparation. A minimum of eight students is accepted each year.

The deadline for completed applications is January 15. Admissions decisions are made by March 15. All students must begin the program in the fall semester after admission.

REQUIREMENTS

Basic Psychology

All students are required to have a thorough grounding in the basic discipline of psychology. This may be achieved through a minimum of 3 semester hours of credit in each of the following areas: (a) at least 15 semester hours: biological bases of behavior, cognitive/behavioral analysis, social bases of behavior, individual differences, and history of psychology;

Statistics and Research Design

7P:243 Intermediate Statistical Methods (4 s.h.)
7P:246 Design of Experiments (4 s.h.)
7P:244 Correlation and Regression (3 s.h.)
7P:257 Educational Measurement and Evaluation (3 s.h.)
Total: 11 s.h.

Counseling Psychology Core

7P:223 Practicum in Counseling Psychology (3 s.h.)
7P:225 Practicum in Counseling Psychology (3 s.h.)
7P:221 Personality and Personality Development (3 s.h.)
7P:305 Psychotherapy: Dynamic and Behavioral Approaches (3 s.h.)
7P:310 Psychodiagnostics (3 s.h.)
measurement, and research methods. The program does not prepare students for entry into a specific career. Rather, it contributes to a broad understanding of the psychological principles on which education builds.

ADMISSION
Admission requirements are the same as those established by the Graduate School. Two years of experience is desirable but not required. Application for admission must be made by May 1 for full semester, by October 1 for spring semester, and by March 1 for summer session. Admission decisions are announced approximately one month after the application deadline.

REQUIREMENTS
Students may earn the degree with or without thesis. The M.A. without thesis requires a minimum of 32 semester hours of course work; with thesis, it requires a minimum of 28 semester hours of course work plus 2.4 semester hours of thesis credit. Both programs require psychology 715-143 Introduction to Statistical Methods or the equivalent. Students who intend to apply for admission to the Ph.D. program should take the M.A. with thesis. Students plan the remainder of the program in consultation with their advisors, choosing courses from the following four areas: human development, cognitive/affective, motivation/socialization/personality, and individual differences. Students are encouraged to take at least one course in each of these areas. The program also encourages every candidate to enroll in at least two courses outside the discipline.

The record of every student admitted to the program is reviewed near the end of the second semester in residence. The program faculty considers course grades, evidence of critical and creative thinking skills, marks on the standardized test, and promise for continued growth. Deficiencies identified in the first semester must be remedied during the year. Every candidate is encouraged to take course work outside of the department, in any area of interest. Candidates who earned an M.A. without thesis and wish to continue their graduate studies in the college must complete at least two of the ten courses.

The record of each student admitted to the program is reviewed near the end of the second semester. The program faculty considers course grades, evidence of critical and creative thinking skills, marks on the standardized test, and promise for continued growth. Deficiencies identified in the first year must be remedied during the second year. Every candidate is encouraged to take course work outside of the department, in any area of interest.

Doctor of Philosophy
This doctoral program prepares candidates for a career in education as a concern for the application of psychological principles to educational practice. Such careers include professorships at the university and college levels and research or administrative positions in educational agencies, business, testing organizations, and public schools.

ADMISSION
An applicant seeking admission to the program must hold an M.A. degree or be an M.A. candidate in good standing as an accredited institution. Applicants whose M.A. is not directly relevant to educational psychology may be admitted conditionally. The student must complete the M.A. program before taking the Ph.D. comprehensive examinations.

The graduate grade-point average required for admission is the same as that established by the Graduate School. Applicants are expected to have a cumulative grade point of 3.0 or higher on both the verbal and quantitative sections of the Graduate Record Examination (GRE) General Test. Courses may be taken on a credit/no credit basis with the approval of the departmental advisor. The GRE requires a minimum total score of 2400 on the verbal and quantitative sections. Applications for full semester admission must be received by February 1. Admissions decisions will be announced approximately one month after the application deadline.

ADDITIONAL REQUIREMENTS
The program requires a minimum of 60 semester hours beyond the bachelor's degree and encompasses four substantive areas—human development, cognitive/affective, motivation/socialization/personality, and individual differences. Students must complete at least one course in each of the four areas, with three of those courses above the 600 level. In addition, students must demonstrate substantial competence in at least one of the four substantive areas. Additional requirements include psychology 715-220 Educational Research Methodology, a minimum of 6 hours of comprehensive examinations in human development, and one graduate-level course in educational psychology. The examinations must be taken within two years of admission to the program and must be passed with a score of 3.0 or higher.

Doctor of Philosophy
This doctoral program prepares candidates for a career as an educator, with a concern for the application of psychological principles to educational practice. Such careers include professorships at the university and college levels and research or administrative positions in educational agencies, business, testing organizations, and public schools.

ADMISSION
An applicant seeking admission to the program must hold an M.A. degree or be an M.A. candidate in good standing as an accredited institution. Applicants whose M.A. is not directly relevant to educational psychology may be admitted conditionally. The student must complete the M.A. program before taking the Ph.D. comprehensive examinations.

The graduate grade-point average required for admission is the same as that established by the Graduate School. Applicants are expected to have a cumulative grade point of 3.0 or higher on both the verbal and quantitative sections of the Graduate Record Examination (GRE) General Test. Courses may be taken on a credit/no credit basis with the approval of the departmental advisor. The GRE requires a minimum total score of 2400 on the verbal and quantitative sections. Applications for full semester admission must be received by February 1. Admissions decisions will be announced approximately one month after the application deadline.

ADDITIONAL REQUIREMENTS
The program requires a minimum of 70 semester hours beyond the bachelor's degree and encompasses four substantive areas—human development, cognitive/affective, motivation/socialization/personality, and individual differences. Students must complete at least one course in each of the four areas, with three of those courses above the 600 level. In addition, students must demonstrate substantial competence in at least one of the four substantive areas. Additional requirements include psychology 715-220 Educational Research Methodology, a minimum of 6 hours of comprehensive examinations in human development, and one graduate-level course in educational psychology. The examinations must be taken within two years of admission to the program and must be passed with a score of 3.0 or higher.

Doctor of Philosophy
This doctoral program prepares candidates for a career as an educator, with a concern for the application of psychological principles to educational practice. Such careers include professorships at the university and college levels and research or administrative positions in educational agencies, business, testing organizations, and public schools.

ADMISSION
An applicant seeking admission to the program must hold an M.A. degree or be an M.A. candidate in good standing as an accredited institution. Applicants whose M.A. is not directly relevant to educational psychology may be admitted conditionally. The student must complete the M.A. program before taking the Ph.D. comprehensive examinations.

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these options, six of the size hours of extramural must be based on course work in educational psychology offered by the division on a closely related course work offered by another University department. A comprehensive examination is required outside the educational psychology program must be planned in consultation with the advisor. The proposed examination schedule must be approved by the comprehensive examination committee.

School Psychology

Specialize in Education

The B.S.5 program provides course work and supervised field experience in the areas of education and for consultation, supervision, research, and administrative positions in public and private agencies.

ADMISSION

The program requires a minimum of 60 semester hours of course work and 18 semester hours of educational psychology, foundations, educational psychology, school psychology, and research methods. Degree requirements include a written comprehensive examination and a research paper prepared in conjunction with course 7P395 Educational Specialist Research (4 semester hours).

Doctor of Philosophy

The Ph.D. program in school psychology prepares students for positions in higher education, research, administration, and as administrators in public and private agencies.

ADMISSION

Preference is given to applicants with undergraduate majors in psychology or related fields, graduate courses average above 3.00, and verbal and quantitative scores above 500 on the Graduate Record Examination (GRE). The faculty also encourages applications from students with A.A. or B.A. degrees. Applicants must include three letters of recommendation and a personal statement of interest and goals. Complete application materials, including transcripts and GRE scores, must be received by February 1 for consideration for fall semester admission. Examinations are made by March 15. A maximum of ten students are admitted to the program each year.

REQUIREMENTS

The program requires a minimum of 60 semester hours. Course work is chosen from the following core courses: psychology, school psychology, educational psychology, and research methods. The course of study is developed by the student and must be approved by the academic advisor. Students are required to write a comprehensive examination, carry out a research project equivalent. Under an M.A. thesis, participate in an internship. and complete a doctoral dissertation through enrollment for a minimum of 10 semester hours in 7P395 Ph.D. Thesis in Psychological and Quantitative Foundations.

Instructional Design and Technology

Master of Arts

The M.A. in instructional design and technology provides students with the basic knowledge and skills to work in educational and training environments such as schools, business and industry, health care, government, and consulting agencies. The program 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 2.75 on all previous course work and a score of 500 or higher on both the quantitative and verbal sections of the Graduate Record Examination (GRE). General Test. If these requirements are not met but there is compelling evidence of superior ability, a conditional admission may be granted. Regardless of the admission status, all students are expected to attain a grade-point average of at least 3.00. Applicants are encouraged to include with the application a personal statement about their interest in the field.

Applications for admission must be received by January 1 for fall semester, by October 1 for spring semester, and by March 1 for summer semester. Admission decisions are announced approximately one month after the application deadline.

REQUIREMENTS

The degree requires the following core courses (for approved programs):

7W320 Introduction to Instructional Design and Technology
7W360 Design and Production for Media and Instruction
7P157 Psychological Bases of Instructional Design
7P155 Introduction to Educational Measurement
7W360 Advanced Instructional Design and Technology
7W360 Instructional Strategies

Students plan the remainder of their study program in consultation with their advisor. Choosing course work in one of the following areas: classroom instruction, computer applications, instructional development, training and development, media production, or school media. In addition, the student must complete 6 semester hours of course work in a cognate area outside the College of Education. Students who have not had previous experience in designing instruction or training are required to complete a practicum.

The program culminates with the completion of a final project and a six-hour set of comprehensive examinations based on courses in the cognate area. The examinations are divided into two or three parts as follows: general instructional design, 2.3 hours; area of emphasis, 2.3 hours; other, 0 or 2 hours.
Doctor of Philosophy

The Ph.D. program in instructional design and technology promotes a broad background for the person interested in teaching, research, and educational applications. The Ph.D. degree program emphasizes the acquisition of knowledge and abilities that lead to an expanded understanding of instruction and training and their effects on learning and performance.

ADMISSION

Admission to the program is competitive. Basic requirements include a grade-point average above 3.00 on the baccalaureate and master's degree programs. Requirements for admission to the Graduate Record Examination (GRE) General Test. Other factors considered are the nature of previous courses and experiences, language proficiency, and sources of recommendation. Applicants must indicate a personal letter with the application, describing their interests in the instructional design field, the programs, and any additional information that may be pertinent. Possible applicants are strongly encouraged to discuss their plans with a faculty member.

Applications for admission must be received by May 1 for fall semester, by October 1 for spring semester, and by March 1 for summer session. Admissions decisions are rendered approximately one month after the application deadlines.

REQUIREMENTS

Course work required for the degree includes the core of the M.Ed. program or equivalent followed by the methods of research, and 21 semester hours in one specialization area, which includes the design, development, computer applications, or teaching and training. To be admitted, the applicant must have completed 9 semester hours of course work in a cognate area or the College of Education. A student who wishes to enroll must meet the following criteria:

1. Have a master's degree in education, psychology, business administration, or a related field.
2. Have at least 3 years of teaching experience or 5 years of related professional experience.
3. Have a minimum grade-point average of 3.00 in graduate courses.
4. Pass the GRE General Test.

The program consists of the successful preparation and defense of a dissertation.

FINANCIAL AID

The division normally employs several advanced graduate assistantships in teaching, research, and production assistance. The appointments include a full-time salary for the academic year, and in addition to salary, many are entitled to a scholarship or a grant. Assistantships are awarded on a competitive basis and are renewable. Interested individuals are requested to submit a complete application.

Courses

Psychology, Measurement, Statistics

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TW 214 Interactive Video
3 cr.
Theory, research, design of interactive video and multimedia, progress and new trends. Preparation: Consent of instructor required. Prerequisites: TW 204.

TW 223 Advanced Topics in Computer-Assisted Instruction
1 cr.
Recent developments in research and developments occurs in computer-assisted instruction. Prerequisites: TW 135 and TW 137.

TW 243 Instructional Computer Simulations
3 cr.
Theory, design, development of educational simulations and games: models for design: characteristics and effectiveness: objectives: naming design: detailing evaluation: development: adaptation: educational simulation programs. Consent of instructor required. Prerequisites: TW 235.

TW 245 Computer-Assisted Theatre and Practice
3 cr.
Analysis of computers, software and hardware use: the mechanics: skills and creative processes in computer-assisted theatre and dramatic performance. Prerequisites: TW 135. 2.0 or better in TW 262, 2.0 or better in TW 263.

TW 261 Survey of Research in Instructional Design and Technology
3 cr.
Research: its impact, on instructional: software: hardware: technology: instructional design as report in instruction.

TW 270 Independent Study: Instructional Design for Majors
1-3 cr.
Students undertakes one of their concerns: Consent of instructor required.

TW 284 Organizational Development and Change
3 cr.
Strategic development and change: organizational: includes theory, research, applications. May be repeated. Same as TC 239, TC 339.

TW 320 Preregistration in Instructional Design and Technology
1 cr.
Supervised experience basic applied setting.

TW 321 Internship in Instructional Design and Technology
3 cr.
Supervised internship and other real-world experience in public schools, work agencies, higher education, or industry. Consent of instructor required.

TW 387 Topical Seminar: Instructional Design and Technology
May be repeated.

TW 391 A.L. Thesis in Instructional Design and Technology
1-6 cr.
Projects for the A.L. Thesis of instructor.

TW 391 A.L. Thesis in Instructional Design and Technology
6 cr.
Consent of instructor required.

TW 491 A.L. Thesis in Instructional Design and Technology
6 cr.
Consent of instructor required.

TW 493 M.A. Thesis in Instructional Design and Technology
6 cr.
Consent of instructor required.

Working part-time at the Iowa Memorial Union's State Room
College of Engineering

Studying ship hydrodynamics at the Institute of Hydraulic Research

Biomedical Engineering .......... 333
Chemical and Biochemical Engineering .......... 357
Civil and Environmental Engineering .......... 342
Electrical and Computer Engineering .......... 346
Industrial Engineering .......... 350
Mechanical Engineering .......... 354

Dean:
Associate dean: Paul D. Schen
Assistant in the dean: Matthew W. Royd
Director, Center for Computer-Aided Design: Edward J. Tung
Acting director, Institute of Biomedical Engineering: Kevin J. Kim
Institute of Hydraulic Research: Robert Enea

Degrees: B.S., M.S., Ph.D.
The Bachelor of Science in Engineering (B.S.E.) degree requires a minimum of 128 semester hours of credit, including satisfaction of the university's general education program as described in the following sections. Candidates for the B.S.E. degree must be enrolled as Engineering majors for at least the last 30 semester hours, or 45 of the last 60 semester hours, or a total of 90 semester hours. They must have a 2.0 minimum grade point average to satisfy the degree requirements as well as on all work undertaken at The University of Iowa. In addition, candidates must have completed 223M-223N Engineering Calculus I and 223M-223N Engineering Calculus II, or their equivalents, with a grade of C- or better in each course.

Students who wish to be considered for graduation must file an application for degree with the Office of the Registrar before the deadline date during the semester in which the degree is to be conferred. Students who do not graduate on the date indicated in the application must file the necessary application for a degree for the next applicable semester. Students do not need to be registered to apply for a degree.

Admission Requirements
To qualify for admission to the College of Engineering as a freshman, Iowa resident applicants must have:

- successfully completed at least four years of English/language arts, four years of mathematics, which must include at least two years of algebra, one year of geometry, one-half year of trigonometry, and one-half year of advanced algebra; one year of a single foreign language; three years of natural science, which must include at least one year of...
of chemistry and at least one year of physics; and at least two years of social studies; completed the ACT standardized test with a composite standard score of 24 or above and a combination of 24 or above in mathematics (or equivalent SAT scores); and ranked in the upper one-half of their high school graduating class.

One-half of a high school computer programming course is highly recommended.

Moreover, all applicants must have completed the same high school requirements as residents applicants, and must have:

completed the ACT standardized test with a composite score of 25 or above (or equivalent SAT scores); and

ranked in the upper 30 percent of their graduating class.

Transfer applicants must complete the same high school course requirements as entering freshmen and must submit an official high school transcript as well as a transcript of college work undertaken at other institutions. Each candidate applicant must have:

completed at least one semester of calculus or its equivalent and at least one semester of chemistry for engineering and science majors; and

maintained at least a 2.25 cumulative grade point average.

Freshman and transfer applicants who do not meet the foreign language requirement may be admitted on a conditional basis for a maximum of four semesters in order to complete two semesters of an introductory, college-level foreign language.

Students who do not meet the other high school course requirements may be admitted upon special review by the College of Engineering, and may be required to make up deficiencies by taking a lower level course in their area of deficiency before enrolling in the freshman year.

For example, students who have math grades and standardized test scores, but who are deficient in their knowledge of calculus, may be required to complete a course such as ZIM-109 Elementary Functions before enrolling in the engineering circuitous course.

Courses taken at The University of Iowa to make up deficiencies do not count toward graduation. For more information about making up specific course deficiencies, consult with the resident dean.

Fulfillment of the minimum requirements for admission does not ensure admission to the College of Engineering. The college should approve the student's general education requirements for the study and practice of engineering.

Undergraduate Curriculum

The facility of each engineering program has established a set of required and elective courses that must be satisfactorily completed as part of the requirements for a degree in that program. The established set of courses is known as the curriculum for that program. General guidelines for establishing the course requirements in each program are provided by the national accrediting body, the Accreditation Board for Engineering and Technology (ABET). The purpose of the curriculum for each program is to prepare students for the practice of engineering in that program.

Curriculum Stems

The curriculum for each program is divided into five major curriculum stems: mathematics and basic sciences, engineering sciences, engineering design, and humanities and social sciences. In addition to the five major stems, there are a few general background courses that fall outside of the stems. These courses are scheduled in the freshman year. They include Engineering I and II and Rhetoric, which is a freshman course in writing, speaking, and critical reading. The Engineering I and II courses cover a breadth of topics from engineering as a profession to computer-aided graphics.

All of the courses in the curriculum stems are sequenced and integrated in meaningful patterns so that students better understand the interrelationships and importance of each stem.

MATHEMATICS AND BASIC SCIENCES

The mathematics and basic sciences stem provides the foundation upon which the engineering courses in each engineering program are built. This stem includes a minimum of five courses in mathematics and two each in chemistry and physics. The faculty of each engineering program has selected at least one additional mathematics or science course beyond these minimum requirements that provides a base appropriate for that major.

ENGINEERING SCIENCES

The second curriculum stem, engineering sciences, builds upon the math and science stems in order to build a fundamental understanding that provides a base for creative problem solving. The engineering sciences courses use the fundamental principles of mathematics and basic science courses to understand and predict the behavior of idealized models of real components or systems encountered in engineering. These courses include statics, thermodynamics, and electrical circuits, as well as other engineering courses relevant to each major.

ENGINEERING DESIGN

Engineering design, the third curriculum stem, is the process of deriving a system, component, or process to meet desired needs. It is a decision-making process often iterative, in which the basic sciences, mathematics, and engineering sciences are applied optimally to convert resources to meet a stated objective. The design process includes the establishment of objectives and criteria, synthesis, analysis, construction, testing, and evaluation. Essential to the design process are ethics, inclusion of realistic constraints such as economic factors, safety, reliability, aesthetics, and social impact.

Because of the need to utilize a spectrum of basic and applied subject matter, which involves course work taken early in the curriculum, the design courses and activities usually begin in the junior year and end with a capstone course or activity in the senior year.

HUMANITIES AND SOCIAL SCIENCES

The fourth stem involves course work in the humanities and social sciences. This stem serves to encourage an appreciation for and an understanding of society and culture.

Freshman and Sophomore Years

The junior and sophomore years are designed to give the student an opportunity to complete three years of study, including courses from the five major stems, while the senior year is designed to give additional in-depth study in the major. The junior and sophomore years are comprised of typical courses in the curriculum. The remaining courses in the curriculum are designed for the senior year. Each program is structured in a manner that allows the student to complete the major in four years.

Number of Credits Required

The University of Iowa encourages its students to graduate within four years. However, some students may require additional time due to academic difficulties, time constraints, or personal circumstances.

The following are the minimum number of credits required to complete the engineering programs:

First Semester

141 Principles of Chemistry I 3.0
163 Introduction to Engineering 4.0
224-M Engineering Calculus I 4.0
57-5 Engineering I 3.0
Humanities or social science elective 3.0
Total 17.0

Second Semester

421 Chemistry Laboratory I 2.0
224-M Engineering Calculus II 4.0
224-M Matrix Algebra for Engineers 2.0
291 Introduction to Physics I 5.0
57-5 Engineering II 3.0
Humanities or social science elective 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 biomedical or chemical engineering majors. Students in these majors usually require taking 224-M Matrix Algebra for Engineers until the final semester of the sophomore year. Students pursuing a major in industrial engineering should review the 57-5 Engineering I and II requirements specified for that major before selecting any social science courses.

The above list of courses that are common for all the engineering majors assumes that entering freshmen qualify for the advanced placement class.
10.3. Students who do not meet the eligibility requirements for 10.3 are required to complete the two-course sequence 10.1-10.3 Kinetics, for a total of 8 semester hours. However, only 4 semester hours may be applied toward the 30 degree requirement for this program.

Credits earned for courses below the level of the beginning courses specified in each engineering curriculum appear on a student's grade report and permanent record, but generally are not used to satisfy any electives or required courses for an engineering degree. Examples of courses in this category besides 10.1 Kinetics include mathematics courses 22M:1 to 22M:12, chemistry courses 4.5-8, and physics courses 22S:2.

Underscoring engineering majors who wish to pursue selecting an engineering major beyond the freshman year, a third semester of course content to all the majors could include the following:

Third Semester

22M:41 Differential Equations for Engineers 3.0
22S:18 Introductory Physics II 4.5
22S:17 Thermodynamics I 3.0
22S:16 Electric Circuits 3.0
22S:11 Electricity and Magnetism 3.0
22S:49 Thermodynamics I 3.0
Total 15.0

Students pursuing three semesters of courses approval in all majors may encounter a delay in graduation because of scheduling problems for program courses that require sequencing or that are offered only once a year.

Humanities and Social Science Requirements

The goal of the humanities and social sciences requirements is to provide more effective preparation for professional responsibilities by integrating humanities and social sciences into the undergraduate engineering curriculum.

Students select, with their advisor's approval, a minimum of 16 semester hours of humanities and social science electives with at least 4 in the humanities and at least 8 in the social sciences. In each case, the 6 semester hours usually include a lower-level course followed by an advanced-level course from the same department. Social science courses in the industrial engineering major are specified. Students considering a major in this program should consult "Industrial Engineering" in this section of the Catalog for their required social science courses. Courses that are primarily mathematical or scientific in nature and those that are designed specifically to develop introductory language skills in speaking, writing, verbal, or music skills are not acceptable as social science or humanities electives even though they are offered through departments listed below.

Humanities electives may be selected from any of the following departments and schools: African-American World Studies; American Studies; Art History; Classics; Asian Languages and Literature; Theatre Arts; English; History; Literature, Science, and the Arts; Music; Philosophy; Religion; Linguistics; or others.

approved by the curriculum committee of the College of Engineering.

Following an introductory-level course, students select a minimum of 3 semester hours of advanced (300-level) courses that will demonstrate sufficient depth of knowledge in an elected subject of study. This advanced level of course work must be in the same department as the introductory course, unless prior approval has been obtained from the curriculum committee of the College of Engineering. Language courses do not satisfy any of the humanities degree 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 Studies, Planning, Economics, Geography, Political Science, Psychology, Sociology, Journalism and Mass Communication, Social Work, or other approved by the curriculum committee of the College of Engineering. To ensure an adequate depth of knowledge in a chosen area of study and following an introductory-level course, students select a minimum of 3 semester hours of advanced (100-level) course work. This advanced course work must be in the same department as the introductory course unless prior approval has been obtained from the curriculum committee of the College of Engineering.

Combined Engineering/ Liberal Arts Program

Students may earn two or more University of Iowa baccalaureate degrees in a combined program in the College of Engineering and Liberal Arts. Successful candidates for this B.S. (Bachelor of Science in Engineering) by the College of Engineering or B.A. (Bachelor of Arts) in B.A. (Bachelor of Science), B.A. (Bachelor of Fine Arts), or B.M. (Bachelor of Music) by the College of Liberal Arts in the College of Liberal Arts and the College of Engineering.

Students in this combined program usually are able to meet the minimum degree requirements of both colleges in about five academic years. The exact length of time necessary to complete the program is determined by the major area of study selected in each college. Students who enter the combined degree program are assigned two advisors, one in their major department in the College of Engineering and the other in their major department in the College of Liberal Arts.

To earn the combined degree program, students must be eligible for admission to the College of Engineering. Interested students should schedule an appointment with the advisor to the Dean of the College of Engineering. Students must be approved for candidacy in the combined degree program by the College of Engineering and must be admitted to both the College of Engineering and the College of Liberal Arts.

Students who enter the program are required to complete the General Education Requirements and the requirements for the major in the College of Liberal Arts. Liberal arts high school course or unit requirements for admission apply to combined degree program applicants.

It is crucial that students enroll in the proper course load and engineering sequence early in their course of study or expedite the completion of their program. The specific engineering courses taken by students vary according to the engineering major selected. Since courses in natural science, mathematics, humanities, and social sciences are accepted regularly for credit by both colleges, in many cases students satisfy the requirements of both colleges by taking a particular course.

To qualify for either degree, the combined degree program, candidates must complete an overall total of 130 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 hours offered by the College of Liberal Arts.

Combined College of Engineering/M.B.A. Program

An Accredited Professional Track (APT) program has been initiated by the College of Business Administration for superior engineering students who wish to begin their M.B.A. studies while finishing their undergraduate degree. Engineering students with interest and competence in the applied sciences and business administration may enhance their managerial career opportunities through the APT.

This program allows superior undergraduate students to enroll in required M.B.A. course work while finishing their undergraduate degree. Students may complete up to one-half of the M.B.A. curriculum as undergraduate students and earn the M.B.A. with just one year of graduate study.

To qualify for the APT program, students must have completed two or more engineering courses, and either four or more business courses, with a 3.50 minimum grade-point average during their senior year to pursue both degree programs simultaneously on a full-time basis.

Admission to the APT program does not guarantee admission to the Graduate College. However, since the undergraduate admission deadline for the APT program is the same as the undergraduate curriculum deadline, it is anticipated that admitted students will readily qualify for admission to the graduate M.B.A. program upon application.

APT students are required to work in cooperative education or summer internships, but may petition to have this requirement with previous work experience. This professional employment experience with private industry is considered to be an important part of the APT program and generally takes place the semester following the spring semester of the engineering degree.

The M.B.A. curriculum is designed for upper-level students; previous course work in business is required. The program consists of 30 semester hours of core courses, 12 semester hours of management electives and 12 semester hours of electives. A total of 60 semester hours is required for the degree, of which 30 may be completed before the bachelor's degree is awarded. Depending upon the engineering major selected, at least 9
At the heart of The University of Iowa planning program is an emphasis on two main areas. The first purpose is to provide a rigorous foundation for the analysis of public and social issues. The core program is composed of five graduate-level courses offered in the last two years of the undergraduate program. The second major area of concentration is organized around public policy problems. They include transportation, housing, and community development, urban infrastructure, and economic development.

Student enrollment in the program is limited to a maximum of 10 students. In the past six years, typically, 8-12 students have completed the graduate program in urban and regional planning.

Each student is responsible for a significant research project that is presented and defended as a thesis to the board of directors of the College of Engineering. The project should be a significant contribution to the field of urban and regional planning.

Two Bachelor's Degrees in Engineering

Recent College of Engineering graduates and current students must earn two bachelor's degrees in engineering. The requirements for the second degree are less stringent. At least 120 semester hours of residence credit are required for the degree. The additional semester hours required may include all courses required by the program selected for the second degree, including at least one 6-credit-hour design sequence course of the second degree program as well as any specific social science elective requirements. The total number of elective credits required for the second degree is a minimum of 15 credits at the 200 level or above.

Students must attend an academic plan of study, which must be approved by the faculty of the College of Engineering. The academic plan is submitted to the office of the Dean and must include a list of courses to be taken in the second semester along with a list of the courses already completed and yet to be completed for the first degree program. The approved plan must be submitted to the Dean of the College of Engineering at the time of registration. The student is responsible for the plan and for making sure that the plan is submitted to the Dean on time.

Cooperative Education Program

The Cooperative Education Program provides students with an opportunity to gain practical work experience while attending the University of Iowa College of Engineering. The program involves paid employment in engineering-related fields such as business, industry, or government.

Students who complete a minimum of 15 semester hours in the minors department at the University of Iowa may be awarded a Minor in Business Administration. The minor requires 24 semester hours, which includes 18 semester hours in the core courses and 6 semester hours in related courses.

Minors in Business Administration

Requirements for the minor are as follows:

- 24 semester hours in business courses, 18 of which must be business course units.
- 6 semester hours in related courses.
- A grade of C or better in each course.
- A minimum GPA of 2.0 in all courses counted toward the minor.
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Another important aspect of the experience gained, although it is difficult to evaluate, is the increased awareness of the many oncological 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 final 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 program is an option available to qualified students on a competitive basis.

Undergraduate Academic Advising Center

Students who are considering engineering but who want to explore various fields of study before they declare a specialized major should enroll in the College of Liberal Arts or 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 initial 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 Eddy House. For more information, contact the Undergraduate Academic Advising Center.

Academic Standards

Semester Load Limit

A normal academic load is about 16 semester hours of course work for a semester, 8 semester hours for a summer session. No student may register for more than 20 hours in one semester, or 9 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 number of semester hours of credit earned applicable to a bachelor's degree in engineering.

Freshmen—9 or 10 semester hours Sophomore—30 to 32 semester hours Junior—50 to 56 semester hours Senior—60 or more semester hours

Grading System

The college uses a letter grading system with a plus or minus to designate grades of performance for the letters. The numerical equivalents of the letter grades with the plus and minus options are as follows:

<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>3.33</td>
</tr>
<tr>
<td>B (above average)</td>
<td>3.00</td>
</tr>
<tr>
<td>B</td>
<td>2.57</td>
</tr>
</tbody>
</table>

Withdrawal of Registration

Students in good academic standing who withdraw from registration during the first four weeks of a regular semester, or during the final three or more weeks of a twelve- or eighteen-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 to have been dismissed for poor scholarship.

Withdrawn credits for students enrolled in the College of Engineering are not subject to the limitations applied to those for college of liberal arts or business administration classes.

Pass/No Pass Option

A maximum of two courses taken in the College of Liberal Arts and Business Administration on a pass/no pass basis may be applied toward satisfaction of the humanities and social sciences requirements. Students who wish to take such courses in liberal arts or business administration pass/no pass must meet the conditions and follow the procedures specified by those colleges. The pass/no pass option may not be used for courses taken to satisfy the distribution requirements.

Students enrolled in courses taught in the College of Engineering may choose to be graded on a pass/no pass basis under the following conditions:

- The signature of the advisor and instructor must be obtained on the proper form, and the course must be taken during the regular semester by the student within the time period established by University policy.

- The mark of P (pass) is awarded for grades of D or better.

- Grades of F (failure) are not used in computing the grade point average, and the mark of P does not count as academic hours toward graduation.

- No course work taken in the College of Engineering on the pass/no pass option may be used for course requirements for any 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 is elected only prior to completion of a course for which the student cannot pass the course. The option may be applied to no more than three courses, and it may be applied only once to a given course.

Transfer students may apply this option on a per-course basis. For example, students who transfer no more than 42 semester hours of acceptable engineering courses may use this option for a maximum of three courses, while students who transfer between 43 and 66 semester hours of credit may use this option for no more than two courses, and students who transfer 67 or more semester hours may use this option for one two-course.

Students who
Advanced Placement Program

Students who have pursued college-level courses in high school through the Advanced Placement Program (AP®) of the College Board Examination Board and have achieved satisfactory scores in the corresponding examination administered through the AP® are awarded college-level credit. For example, students earning scores of 3, 4, or 5 on an AP® calculus course in the AP® receive college course credit for 221553, Engineering Calculus I. Students earning without credit on the AP® calculus course receive no semester hours of credit for 221553, Engineering Calculus I. Credit earned through other AP® courses also may be applied to cover engineering course requirements as appropriate to content and level, as long as credit for those requirements has not already been earned through other courses or course equivalents. Questions about AP® credits should be directed to the dean.

CLIP Credit

Credit earned through the College-Level Examination Program (CLEP®) of the College Board is to be applied to fulfillment of the lower-division portion of the humanities and social science requirements. Hence, a maximum of 10 semester hours of credit may be awarded by credit earned on any of the following CLEP exams: the social science exam and the historical perspective subtest of the social science general exam; and any appropriate subject exams in social sciences and humanities.

Completion of the degree requirement in the social sciences and humanities using CLEP credit to satisfy the beginning-level prerequisite can be completed by

- Social sciences: CLEP credit in the social sciences subfield of the social sciences general examination, followed by a 100-level course in any acceptable social science area.
- Humanities: CLEP credit in the historical perspective subfield of the social sciences general examination, followed by a 100-level course in history. Credit earned on other CLEP subject exams also may be applied to meet other course requirements as appropriate to content and level on a noncumulative basis. Questions about CLEP exams and credits should be directed to the assistant to the dean.

Credit by Examination

Students who have acquired knowledge or experience in engineering subject matter prior to college are encouraged to take advantage of the opportunity to obtain credit toward graduation by examination. For example, credit for an engineering core course may be earned by achieving a satisfactory test score on a comprehensive exam similar to a final exam for that course. Conditions and limitations of this policy are established by the faculty of the College of Engineering. Students who want to apply for such an examination should contact the assistant to the dean.

Credit by Validation

Students with course credits obtained at an accredited institution may request validation of the credit up to a maximum of 12 semester hours. Credit by validation may be granted after students have completed at least 24 semester hours of college work at The University of Iowa that includes appropriate transfer credits for the work to be validated as 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 from accredited college other than the College of the University of Iowa or other accredited college or university. When students apply for admission to the College of Engineering, they must submit official transcripts from each college attended during high school. After admission, the transcript the assistant to the dean either to or during the student's first semester of enrollment in the college.

Satisfaction of engineering course requirements by transfer course work may be approved by the assistant to the dean if, in a course-by-course basis, there is a match in the content and level of the transfer course, and the grades awarded for such courses are C or higher. Students who want to satisfy the engineering social science and humanities requirements by transfer work should contact the assistant to the dean for details.

Students planning to attend a two- or four-year institution before transferring to the College of Engineering are well advised to discuss the planned transfer with officials at both schools before enrolling in a transfer program. The College of Engineering seeks to have approved course work from accredited baccalaureate colleges and some four-year colleges. The course title is available by contacting the assistant to the dean. Once students are enrolled in the College of Engineering, all course work they have taken at other institutions must be approved by the assistant to the dean for credit if it is to be applied for any engineering degree requirements. By policy of Iowa's Board of Regents, a student who has earned 44 semester hours of college credit from all sources may transfer no more credit from a two-year college toward meeting the 128 semester hours required for graduation. If a student has earned more than 64 semester hours of credit from a two-year college, the credit and grades are used in computing the grade-point average and may be used to satisfy course requirements even though they may not be counted toward the total hours needed for graduation.

Course Substitutions

For students in the College of Engineering, the substitution of an alternate course for a required course requires the approval of a petition. The petition form is available in the office of the dean. The form must be completed by the student and approved by the student's advisor and by the chair of the academic department in which the student is working.

If the petition involves a required engineering core course, then it also must be approved by the student's advisor and by the chair of the student's academic department. Substitutions for required engineering core courses should occur infrequently and only under compelling circumstances. Substitutions of courses required by the student's department major are governed by the faculty of that department. Substitutions of those courses required of students in other departments are governed by the faculty of the other department. 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 request for a course zero credit (with) the consent of the course instructor and the student. The mark of F will be assigned. Courses completed with a mark of W do not meet any requirements so as to carry any credit toward graduation. Auditing may not be used as a second grade-only option. To register for a course on an audit basis, students must obtain the instructor's oral permission and have requested to the Office of the Registrar. The mark of W will be awarded. Courses completed with a mark of W do not meet any requirements so as to carry any credit toward graduation. Auditing may not be used as a second grade-only option. To register for a course on an audit basis, students must obtain the instructor's oral permission and have requested to the Office of the Registrar. The mark of W will be awarded. Courses completed with a mark of W do not meet any requirements so as to carry any credit toward graduation. Auditing may not be used as a second grade-only option.
Graduate Programs

The general rules and regulations for the graduate programs are established by the Graduate College. However, the specific administration and degree requirements for each graduate engineering program are included in the sections devoted to the individual programs. Also included in these sections is a description of the financial aid available in each program and the principal areas of study and research.

College Facilities

Engineering Library

The Engineering Library is a center of college activity. Its collection includes 90,000 books and 600 periodicals. It is equipped with CD-ROM stations and videocassette players and TV-monitored study spaces for 100 library users.

Iowa Computer-Aided Engineering Network (ICAIN)

This facility provides primary support in the College of Engineering. ICAIN consists of approximately 100 Hewlett-Packard computer engineering workstations. Each of these is a powerful computer linked with a high-resolution video display for graphics applications. These workstations are tied together by a high-speed network, allowing all stations to share common data, programs, and peripheral devices.

The workstations are augmented by a large number of Apple Macintosh computers that can facilitate small-group interaction. The network is linked with the workstations network or Weng Computing Center facilities, or be used to access national computer networks. A variety of printers, plotters, and other specialized devices are available through the ICAIN system.

Software supported by ICAIN includes several programming languages, graphics and word processing facilities, and electronic mail. Also available are a number of contemporary software packages for computer-aided engineering, including two- and three-dimensional drafting, and design, data analysis, mathematical evaluation, surface and solids modeling, finite element modeling and analysis, computer-aided manufacturing, system simulation, control system analysis, and "concrete design." ICAIN facilities are used by students throughout the undergraduate and graduate engineering programs and in 13 engineering disciplines. Several large student laboratories provide engineering students with access to ICAIN. The Honeywell Iowan Laboratory for Leoncell, located on the fourth floor of the Engineering Building, houses 20 workstations and 40 Microcomputers, together with other specialized equipment.

A second, functionally identical facility is located on the third floor. A third student facility, intended to support more advanced applications, also is located on the third floor. Several of the lab facilities are available to students 24 hours per day.

Student Organization

Student Organizations and Activities

The College of Engineering student body is organized into over 50 national and local organizations and activities involving the entire college, such as the student and faculty clubs, the honorary engineering fraternity, MECCA Week, and sponsoring of a nationally prominent tournament at the National Engineers' Week. The organization also acts on a nationwide committee of student engineers.

Engineering students publish their own student journal, Iowa Engineers. All positions are staffed by students, with faculty serving only in an advisory capacity.
Iowa Institute of Hydraulic Research

The Iowa Institute of Hydraulic Research (IIHR) has been writing acknowledged for many years to be an international leader in numerous areas of hydraulic engineering and fluid mechanics. Its research activities began in 1919 and in 1951 it was organized formally to coordinate capabilities, facilities, and resources available at the University for the solution of problems in engineering hydraulics and hydrology. It now embraces a range of activities to evaluate fluid mechanics.

Active programs of basic and applied engineering research are conducted at IIHR in five modern, well-equipped laboratories with total floor space exceeding 72,000 square feet. Projects currently are being pursued in the following areas: architectural transport mechanics; river engineering, deposition processes; ice-axial engineering, hydraulic structures; water resources technology; computational hydraulics and fluid mechanics; hydrology; ship hydromechanics; boundary layers (with emphasis on turbulence and turbulent shear flows); and water-quality dynamics.

High-level involvement of graduate students is a hallmark of most IIHR projects. Because it is a unit of the College of Engineering, and because it is heavily involved in facilities engineering for industry and in fundamental research programs, IIHR provides unique opportunities for graduate research and engineering experience to advanced-degree students and postdoctoral scientists as part of their educational programs.

Center for Computer-Aided Design

Center for Computer-Aided Design was founded in 1992 to enhance research and development of computer-aided design methods using modern computer technology and simulation-based tools. In 1987, the Iowa/University Cooperative Research Center for Simulation and Design Optimization of Mechanical Systems sponsored by the National Science Foundation, was formed. The center is currently supported by some 20 industrial members. To advance research in vehicle concept development, the center established the Iowa Driving Simulator in 1990. As a result of the center's ground-breaking research and in cooperation with the U.S. Department of Transportation, the NACTO National Advanced Driving Simulator (NADS).

The center's research program focuses on mechanical system dynamics analysis and design, control systems analysis, structural optimization, and fundamental elements of one- and multibody systems. The center's primary research objectives are to evaluate fluid mechanics, and to students associated with the center. Center researchers also have access to the Iowa Driving Simulator. The most advanced facility of its kind in the United States, the simulator is composed of an Evans and Sutherland PS90 Image Generator and could from a computer, a Harris NightRover 4604 true color computer, and the center's Atlas FX/2000. The center also makes this available to researchers from other University departments and to non-University researchers.

Facility, staff, and students participating in the center lead the nation in research on operator-in-the-loop simulation and mechanical systems design and analysis. The center distributes the technology and software developed by its researchers to government and industrial participants for use in a broad range on mechanical and structural design activities.

Iowa Institute of Biomedical Engineering

The Iowa Institute of Biomedical Engineering was founded primarily to maximize the economic benefits that Iowa can realize from the University's recognized strengths in the interdisciplinary areas of biomedical engineering and science. The center advances the development of innovative biomedical and health care products from research and development, seeks patents for newly developed products and processes, and transfers these innovations to Iowa industries. The center also leverages Iowa industry to improve productivity through effective use of new biomedical engineering technologies. It has established a comprehensive educational and research program and has provided research information on the development and commercialization of medical and health care products.

Graduates and undergraduate student participation in interdisciplinary research and development is encouraged and supported by the center. Faculty members participate in numerous consulting activities for industry, governments, 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 comma. The first digit of the prefix is 9, which identifies the course as one offered by the College of Engineering.

IIH - Biomedical engineering
CIH - Chemical and bio-technical engineering
3 - Civil and environmental engineering
5 - Electrical and computer engineering
6 - Industrial engineering
7 - Engineering core
8 - Mechanical engineering
Students who complete this program may pursue career opportunities in industry (the design and development of biomedical instrumentation, diagnostic devices, life-support systems, prosthetic and orthotic devices, man-machine systems), in government (Veterans Affairs, National Institutes 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 colleges in the United States have joint appointments in the College of Medicine. Both biomedical engineering undergraduates and graduate students participate actively with college faculty members and other 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 professions. The program has been carefully designed to enable students to satisfy the entrance requirements of the College of Engineering and, with the selection of a three-course sequence in organic chemistry, in the elective courses, of the Colleges of Medicine and Dentistry.

**Curriculum**

*The humanities and social science electives may be chosen to satisfy the humanities and social science requirements of the College of Engineering.*

**FRESHMAN YEAR**

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>413 Principles of Chemistry I</td>
<td>3.0</td>
</tr>
<tr>
<td>1013 Accelerated River (1-2)</td>
<td>4.0</td>
</tr>
<tr>
<td>42113 Introduction to Engineering</td>
<td>4.0</td>
</tr>
<tr>
<td>51-90 BM E Freshman/Sophomore Forum</td>
<td>0.0</td>
</tr>
<tr>
<td><em>Humanities or social science elective</em></td>
<td>3.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>17.0</td>
</tr>
</tbody>
</table>

Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>411 Principles of Chemistry II</td>
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</tr>
<tr>
<td>416 Principles of Chemistry Lab I</td>
<td>3.0</td>
</tr>
<tr>
<td>42113 Introduction to Engineering</td>
<td>4.0</td>
</tr>
<tr>
<td>417 Introduction to Physics I</td>
<td>4.0</td>
</tr>
<tr>
<td>51-90 BM Freshman/Sophomore Forum</td>
<td>0.0</td>
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<td><strong>Total</strong></td>
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**Sophomore Year**

First Semester

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<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>22144-41 Matrix Algebra for Engineers</td>
<td>3.0</td>
</tr>
<tr>
<td>22141 Differential Equations for Engineers</td>
<td>3.0</td>
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<tr>
<td>2919 Introduction to Physics II</td>
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<tr>
<td>213 Principles of Animal Biology</td>
<td>3.0</td>
</tr>
<tr>
<td>577 Statistics</td>
<td>3.0</td>
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<tr>
<td><strong>Total</strong></td>
<td>15.0</td>
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</table>

Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>51-90 BM E Freshman/Sophomore Forum</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>16.0</td>
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</table>

**Junior Year**

First Semester

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>517-17 Computers in Engineering</td>
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</tr>
<tr>
<td>517-18 Principles of Electronic Instrumentation</td>
<td>3.0</td>
</tr>
<tr>
<td>5140 Biomedical Systems Analysis I</td>
<td>3.0</td>
</tr>
<tr>
<td>Engineering science core elective I</td>
<td>3.0</td>
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<tr>
<td>Engineering Science Core Electives</td>
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<tr>
<td><em>Humanities or social science elective</em></td>
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<tr>
<td>51-90 BM Freshman/Sophomore Forum</td>
<td>0.0</td>
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<tr>
<td><strong>Total</strong></td>
<td>16.0</td>
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Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>22125-29 Probability and Statistics for the Engineering and Physical Sciences</td>
<td>3.0</td>
</tr>
<tr>
<td>Engineering science elective (see below)</td>
<td>3.0</td>
</tr>
<tr>
<td>51-21 Principles of Design I</td>
<td>3.0</td>
</tr>
<tr>
<td>51-90 BM E Freshman/Sophomore Forum</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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</tbody>
</table>

**Junior Year**

First Semester

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>51-90 BM Engineering Systems Design</td>
<td>3.0</td>
</tr>
<tr>
<td>Biomedical engineering design elective (see “Biomedical Engineering, Electrical,” below)</td>
<td>3.0</td>
</tr>
<tr>
<td>Biomedical engineering science elective (see below)</td>
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<tr>
<td><em>Humanities or social science elective</em></td>
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Second Semester

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<tr>
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<tr>
<td><em>Humanities or social science electives</em></td>
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**Senior Year**

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<tr>
<td>Biomedical engineering electives (see below)</td>
<td>5.0</td>
</tr>
<tr>
<td><em>Humanities or social science electives</em></td>
<td>6.0</td>
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<tr>
<td>51-90 BM Freshman/Sophomore Forum</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>15.0</td>
</tr>
</tbody>
</table>

**Engineering Science Core Electives**

One of these:

- 51-12 Linear Systems Analysis | 3.0
- 51-19 Control Analysis | 3.0
- 51-90 Mechanics of Deformable Bodies | 3.0
- 51-20 Mechanics of Fluids and Transfer Processes | 4.0

**Engineering Science Electives**

One of these:

- 51-90 Engineering Biological Science | 3.0
- 51-12 Linear Systems Analysis | 3.0
- 51-15 Materials Science | 3.0
- 51-20 Mechanics of Fluids and Transfer Processes | 4.0

A 4-credit course or another engineering science course approved by the advisor.

**Biomedical Engineering Electives**

A total of 16 semester hours must be chosen with at least one course (3 semester hours) from the biomedical engineering design electives and one 5-credit course (3 semester hours) from the biomedical engineering science electives. The lists are as follows:

**BIOMEDICAL ENGINEERING DESIGN ELECTIVES**

- 55-52 Introduction to Digital Design (or equivalent) | 3.0
- 55-88 Principles of Electrical Engineering Design | 3.0
- 55-25 Principles of Design II (or equivalent) | 3.0

**BIOMEDICAL ENGINEERING SCIENCE ELECTIVES**

- 51-140 Biological Systems Analysis II | 3.0
- 51-145 Biomedical Computer Systems | 3.0
- 51-150 Biomechanics | 3.0
- 51-153 Biomechanics of Orthopaedic Devices | 3.0
- 51-154 Biomechanics of Aging | 3.0
- 51-155 Cardiovascular Biomechanics | 3.0
- 51-160 Biomechanics of Transport Processes | 3.0
- 51-171 Intermediate Biostatistics | 3.0
- 51-191 Medical Physics | 3.0
- 51-172 Medical Informatics | 3.0
- 51-174 Medical Imaging | 3.0
- 51-175 Computer Materials | 3.0
- 51-180 Biomedical Measurements II | 3.0
- 51-185 Physics and Analysis of Biomedical Images | 3.0

**Other Acceptable Biomedical Engineering Electives**

- 51-152 Intermediate Mechanics of Deformable Bodies | 3.0
- 51-153 Physical Techniques in Engineering | 3.0
- 51-155 Introduction to Software Design | 3.0
- 55-42 Image Processing | 3.0
- 55-166 Image Processing | 3.0
- 55-40 Thermodynamics II | 3.0
- 55-45 Heat Transfer | 3.0
- 55-46 Intermediate Heat Transfer | 3.0
Biomedical Engineering Subtracks

Biomedical engineering majors are encouraged to pursue one of the following three subtrack curricula:

BIOMATERIALS/ROBOTICS

Fifth Semester
57:19 Mechanics of Deformable Bodies 3 s.h.
57:20 Mechanics of Fluids and Thermostat Processes 4 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.
58:160 Intermediate Mechanics of Fluids 3 s.h.

Eighth Semester
Two of these:
51:155 Cardiovascular Biomechanics 3 s.h.
51:160 Biomechanics Processes 3 s.h.
51:177 Composite Materials 3 s.h.
51:133 Finite Element Techniques in Engineering I 3 s.h.

BIOMATERIALS

Fifth Semester
57:19 Mechanics of Deformable Bodies 3 s.h.

Seventh Semester
57:22 Principles of Design II (or equivalent) 3 s.h.
51:150 Biomechanics 3 s.h.

Eighth Semester
Two of these:
51:155 Cardiovascular Biomechanics 3 s.h.
51:160 Biomechanics Processes 3 s.h.
51:172 Polymers as Biomaterials 3 s.h.
51:173 Metals as Biomaterials 3 s.h.
51:174 Ceramics and Glasses as Biomaterials 3 s.h.
51:177 Composite Materials 3 s.h.

BIODEVICES AND BIOSENSORS

Fifth Semester
57:12 Linear Systems Analysis 3 s.h.

Seventh Semester
55:32 Introduction to Digital Design 3 s.h.
55:42 Signals and Systems 3 s.h.
51:145 Biomedical Computer Systems 3 s.h.

Graduate Programs

The goal of graduate study at both the M.S. and Ph.D. levels is to educate students in the disciplines of biomedical engineering more deeply and broadly than is possible at the B.S. level. The plan is to enable students to self-confront new frontiers of biomedical science and to seek long-term independent research expertise in areas related to biomaterials, cardiovascular fluid biomechanics, biomechanical instrumentation, biomimetics, 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, physics, mathematics, and biological systems. M.S. students who want a more general program may combine emphasis courses and general electives, whereas Ph.D. students may accommodate their preferences through the combination of independent study courses and specializations in other departments of the College of Engineering and the University.

A typical plan of study for each student is determined through consultation with an advisor. An M.S. committee of at least three graduate faculty members, including at least two on the biomedical engineering faculty, is appointed by the dean of the Graduate College. The student’s plan of study is reviewed by the committee before the student has completed 10 semester hours of course work. The plan of study is then submitted for review to the department chair.

Program Requirements

To earn the M.S., students are required to attain a 3.00 minimum grade-point average on a minimum of 30 semester hours of graduate work and successfully complete the final examination administered by their committee.

The requirements for the M.S. may be completed in one calendar year. However, students with assistantship duties and/or other obligations may need up to two calendar years to complete the degree.

Candidates for either of the M.S. degrees must have satisfactorily completed the following courses or their equivalents as undergraduates or graduates.

58:131 Mathematical Methods in Engineering 3 s.h.
51:130 Biomedical Engineering Lab 2 s.h.
72:154 Biomedical Engineering 4 s.h.

Two biomedical engineering courses, chosen from any two of the biomedical, biomaterials, and biomechanics areas (the acceptable courses in each area are listed below),

51:141 Graduate Biological Systems Analysis 3 s.h.
51:145 Biomedical Computer Systems 3 s.h.
51:150 Biomechanics 3 s.h.
51:155 Cardiovascular Biomechanics 3 s.h.
51:171 Composite Materials 3 s.h.

An additional 15 semester hours or more as approved by the student’s advisor.

The student’s plan of study should provide for as much advanced work as possible and previous preparation permit.

Biomedical Engineering Project Team Building

Under the direction of an M.S. program, the biomedical engineering department offers a small number of biomedical engineering project teams to select incoming graduate students who are interested in assisting in practical engineering projects.

First Semester
58:131 Mathematical Methods in Engineering (or equivalent) 3 s.h.
51:130 Biomedical Engineering Lab 2 s.h.
51:280 Advanced Biomedical Engineering Project I 1 s.h.
Design elective 3 s.h.
Technical elective 4 s.h.
Total 12 s.h.

Second Semester
58:115 Pulse Generator Techniques in Engineering (1 per elect.) 3 s.h.
51:280 Advanced Biomedical Engineering Project II 1 s.h.
Design elective 3 s.h.
Technical elective 3 s.h.
Total 15 s.h.

Each team receives a $500 per month stipend for project work (ten hours per week).
Special Facilities and Laboratories

Required Course Laboratories
There are two laboratories associated with two required undergraduate courses: Biometals I and Biometals II.

The Biometals I Laboratory is equipped to test mechanical and thermal properties of biometals and thin sections of hard tissues and soft tissues for histology. This laboratory also is used for 511:172 Principles as Biometals, 511:173 Metals as Biometals, and 511:174 Ceramics and Glasses as Biometals.

The Biometals II Laboratories are equipped for evaluating stereoscopic variables of clinical and pathological interest and for designing electronic instrumentation in clinical engineering. This laboratory also is used for 511:180 Biomechanical Measurements II.

Research Facilities and Laboratories

APPLIED MECHANICS LABORATORY
The Applied Mechanics Laboratory is equipped to study the biomechanics of enameled bone specimens under complex dynamic loading conditions.

BIOENGINEERING LABORATORY
The Bioeffects Mechanics Laboratory is centered around a Snow model of the coronary circulation. Fluid dynamic signals are obtained with ultrasonic flowmeters, pressure transducers, and appropriate amplifiers.

BIOMATERIALS LABORATORY
The Biomaterials Laboratory is equipped to test mechanical properties of biometals and with testing of tissue and prostheses for testing.

HUMANOMETRICS LABORATORY
The Humanomics Laboratory is equipped to study cardiovascular fluid dynamics, particularly flow past valve profiles and flow in the human heart. In addition, this laboratory has an image-processing system based on the VAX computer with a Caelus/Thetakta 1100 image processor for digital video camera digitizer.

BIOMECHANICS LABORATORIES I AND II
The biomechanics laboratories are equipped to study the biomechanics of head and neck tissues, intervertebral spine mechanics, and the effect of vibration on the spine.

BIOMEDICAL IMAGE PROCESSING AND COMPUTING LABORATORY
This laboratory has an image-processing system used to digitize and analyze anatomical slides, photographs, X-rays, and CAT scan images.

BIOTRACE LABORATORY
The Biomaterials Laboratory is equipped to conduct physiological experiments on the cardiovascular and respiratory systems.

Courses

Special

51000 Coursen, Education Training Assignment: Biomedical Engineering 0 a.h.

51010 Biomedical Sensors Analysis 0.5 a.h.

51012 Biomedical Sensors Analysis 0.5 a.h.

51015 Biomedical Sensors Analysis 0.5 a.h.

51016 Biomedical Sensors Analysis 0.5 a.h.

51017 Biomedical Sensors Analysis 0.5 a.h.

51030 Biomedical Sensors Analysis 0.5 a.h.

51031 Biomedical Sensors Analysis 0.5 a.h.

51032 Biomedical Sensors Analysis 0.5 a.h.

51033 Biomedical Sensors Analysis 0.5 a.h.

51034 Biomedical Sensors Analysis 0.5 a.h.

51035 Biomedical Sensors Analysis 0.5 a.h.

51036 Biomedical Sensors Analysis 0.5 a.h.

51037 Biomedical Sensors Analysis 0.5 a.h.

51038 Biomedical Sensors Analysis 0.5 a.h.

51039 Biomedical Sensors Analysis 0.5 a.h.

51040 Biomedical Sensors Analysis 0.5 a.h.

51041 Biomedical Sensors Analysis 0.5 a.h.

51042 Biomedical Sensors Analysis 0.5 a.h.

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51044 Biomedical Sensors Analysis 0.5 a.h.

51045 Biomedical Sensors Analysis 0.5 a.h.

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51048 Biomedical Sensors Analysis 0.5 a.h.

51049 Biomedical Sensors Analysis 0.5 a.h.

51050 Biomedical Sensors Analysis 0.5 a.h.

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51062 Biomedical Sensors Analysis 0.5 a.h.

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51064 Biomedical Sensors Analysis 0.5 a.h.

51065 Biomedical Sensors Analysis 0.5 a.h.

51066 Biomedical Sensors Analysis 0.5 a.h.

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51068 Biomedical Sensors Analysis 0.5 a.h.

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51070 Biomedical Sensors Analysis 0.5 a.h.

51071 Biomedical Sensors Analysis 0.5 a.h.

51072 Biomedical Sensors Analysis 0.5 a.h.

51073 Biomedical Sensors Analysis 0.5 a.h.

51074 Biomedical Sensors Analysis 0.5 a.h.

51075 Biomedical Sensors Analysis 0.5 a.h.
principles are based on physics, chemistry, mathematics, and biological sciences. Courses in these disciplines, together with the common engineering core courses, provide a strong foundation.

During the junior and senior years, the emphasis is on chemical engineering courses, such as momentum transport, mass transfer operations, thermodynamics, heat operations, laboratory process, numerical control, and process design. Experience in instrumentation, analysis, and design is obtained through an integrated laboratory program in the chemical engineering department. Routine use is made of computer-based data analysis, simulation, and design. A computer cluster is available for student use in the undergraduate 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 leading edge of technology. It emphasizes fundamental concepts, product design, laboratory techniques, and the communication skills needed to keep pace with today's and tomorrow's technical world. Students are encouraged to gain work experience by working in industrial laboratories.

Curriculum

The humanities and social science electives must be selected to satisfy the humanities and social science requirements of the College of Engineering.

FIRST YEAR

First Semester
10.03 Accelerated German 4 s.h.
4:18 Principles of Chemistry I 3 s.h.
2520:35 Engineering Calculus I 4 s.h.
57.3: Engineering I 3 s.h.
*Humanities or social science elective 3 s.h.
Total 17 s.h.

Second Semester
20:17 Biochemistry I 4 s.h.
2:0:27 Principles of Chemistry II 3 s.h.
2:0:27 Principles of Chemistry Lab I 2 s.h.
325:36 Engineering Calculus II 4 s.h.
57.3: Engineering II 3 s.h.
Total 16 s.h.

SECOND YEAR

First Semester
4:12:01 Organic Chemistry I 3 s.h.
2520:41.Differential Equations for Engineers 3 s.h.
25:18 Introduction to Physics I 4 s.h.
5:7.3: Statistics 2 s.h.
*Humanities or social science elective 3 s.h.
Total 17 s.h.

Second Semester
4:12:02 Organic Chemistry II or
**Science elective** 3 s.h.
4:14:01 Organic Chemistry Laboratory 3 s.h.
224:72 Quantitative Methods 3 s.h.
52-4: Process Calculations 3 s.h.
57:8 Electrical Circuits 3 s.h.
Total 15 s.h.

JUNIOR YEAR

First Semester
4:13: Physical Chemistry I 3 s.h.
52:42: Momentum Transport 3 s.h.
52:43: Chemical Engineering Thermodynamics 3 s.h.
57:15 Materials Science 3 s.h.
52:40: Engineering Biological Science 3 s.h.
52:91: Professional Seminar: Chemical Engineering 0 s.h.
Total 15 s.h.

Second Semester
4:12: Physical Chemistry II or
**Science elective** 3 s.h.
4:13: Physical Chemistry Laboratory 2 s.h.
52-26: Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
52:44: Mass Transfer Operations 3 s.h.
52:46: Heat Transfer 2 s.h.
52:91: Professional Seminar: Chemical Engineering 0 s.h.
57:21: Principles of Design I 3 s.h.
Total 16 s.h.

SENIOR YEAR

First Semester
52-43: Chemical Reactions Dynamics 3 s.h.
52-85: Process Dynamics and Control I 3 s.h.
52:47: Unit Operations Laboratory I 2 s.h.
57:14 Engineering Economy 3 s.h.
*Humanities or social science elective 3 s.h.
Technical elective 3 s.h.
52:91: Professional Seminar: Chemical Engineering 0 s.h.
Total 17 s.h.

Second Semester
52:48: Unit Operations Laboratory I 2 s.h.
52:88: Chemical Engineering Process Design 3 s.h.
*Humanities and social science elective 3 s.h.
Technical elective 3 s.h.
52:91: Professional Seminar: Chemical Engineering 0 s.h.
Total 15 s.h.

Graduate Programs

The Department of Chemical and Biomedical 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 comprehend problems such as energy, environment, biotechnology, and materials. Research is emphasized since most opportunities for graduates are in research and development. A thesis is required for each degree.

All candidates for advanced degree programs are required to assist faculty members in teaching and research as part of the graduate meeting.

Research

Current research strengths of the Department of Chemical and Biomedical Engineering include the areas of catalysis, reactor design, global and regional environmental research, separation and bioprocess engineering, biochemical engineering and applied biocatalysis, and particular marine processing sciences.

Catalyst and Reactor Design

Within the general context of kinetics, catalysis, and reaction engineering, research is being conducted in the areas of homogeneous, heterogeneous, and biological catalysis; gas-solid reactions; modeling and optimization of heterogeneous reactions; and design of novel reactor separators. Catalytic research is being done for fuels and chemicals from renewable resources.

Global and Regional Environmental Research

Committee of the environment in which we live and work is a major problem facing today's engineers. The Department of Chemical and Biomedical Engineering has an active research program in the environmental areas of atmospheric acid precipitation, 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 computer and detailed computer modeling. This is an interdisciplinary area combining chemical and environmental engineering and the Center for Global and Regional Environmental Research.

Separation and Bioprocesses

Research at the University of Iowa is devoted to better understanding and development of new techniques in the areas of separation and bioprocesses. In particular, research is being carried out on: centrifugal microfiltration called membrane bioreactors, high pressure membranes, high frequency pressure systems, the development of process and separation techniques using the membrane. In addition, the use of pharmaceutically efficient, separations is being investigated for the production of recombinant proteins. The use of this technique in the production of recombinant proteins is being investigated for the production of recombinant proteins. The use of this technique in the production of recombinant proteins.
Doctor of Philosophy

The Ph.D. is granted primarily on the basis of a dissertation under the direction of one or more graduate faculty members. The dissertation must be an original contribution to knowledge and be submitted to the Graduate School. The dissertation must be approved by a committee of at least four graduate faculty members, one of whom must be the committee chair. The dissertation must not exceed 250 pages, excluding appendices.

Financial Aid

A number of fellowships, assistantships, and scholarships are available to students who demonstrate financial need. These are paid competitively.

Special Facilities and Laboratories

Undergraduate Instruction

Chemical and Biochemical Engineering

The Chemical and Biochemical Engineering department offers a variety of undergraduate courses, including those in chemical engineering, biochemical engineering, and materials science. The department is housed in the Engineering Building, which includes state-of-the-art laboratories and classrooms.

Doctorate of Philosophy

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Graduate Faculty and Laboratories

To support and develop research activities, the department offers a wide variety of facilities. A summary of the major research equipment within and available to the department is listed below.

Required Course Laboratories

UNIT OPERATIONS LABORATORY

This is primarily an instructional laboratory for senior undergraduate students, which involves experimentation in transport phenomena, heat transfer, fluid flow, chemical engineering unit operations, and reaction kinetics and catalysis. The laboratory includes pilot plant equipment, such as a distillation column interfaced with a reciprocating pump, wiped film evaporator, shell-and-tube heat exchanger, jacketed kettle, and a stainless steel reaction vessel with an agitator. Other equipment includes stirred tank reactors, 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 microreactor, membrane separator, and polymer extruders. A small shop also is available to students for use under a technician's supervision.

PROCESS CONTROLS LABORATORY

The process control laboratory is a modern, computer-based instructional laboratory for seniors. It is designed to complement process control courses. The laboratory consists of computer control of a shell-and-tube heat exchanger, a stirred tank reactor, and a three-tank flow process. Additional laboratories include instruction in the use of existing control systems.

The computer control laboratory is set up to provide an environment for learning the use of the equipment, and that analogs and better insight into the control process can be obtained. The laboratory contains a computer control of a shell-and-tube heat exchanger, a stirred tank reactor, and a three-tank process. Additional laboratories include instruction in the use of existing control systems.

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A small shop also is available to students for use under a technician's supervision.
COMPATIBLE FACILITIES

The departmental computer facilities consist of a variety of graphics workstations, printers, and microcomputers. The terminals connect to the University's mainframe computer, which makes available these computers: IBM 3090 and 3092, and a Vax V 11/780. They also provide access to the College's Computer-Aided Engineering Laboratory. The department is networked to the University's Central Research Facility, devoted to molecular modeling, and to the GIS laboratory of the Center for Global and Regional Environmental Research.

The department also is connected to the Iowa Computer-Aided Engineering Network, which includes several PlanetNet workstations augmented with Apple Macintosh personal computers. The department has access to the University's computer research facility in high-speed voice communication. The facility has Encore Multimax and Alliant P5Q/2 supercomputers and provides nodes for external links for access to supercomputers.

CATALYSTS AND REACTION ENGINEERING FACILITIES

A variety of equipment is available for the study of catalysis. Techniques currently available include chromatography and pyrolysis-thermogravimetric (HT), microcalorimetry, mass spectrometer system, mercury porosimeter, gas chromatography, fourier transform infrared spectrometry (FTIR), access to a high pressure, scanning electron microscopy (SEM), and transmission electron microscopy (TEM), a variety of reactor systems, and a fluid reactor, a membrane reactor-cellulosic reactor for heterogeneous catalysis, a porous-walled reactor-cellulosic reactor, a unique catalyst preparation facility including radio frequency plasma, a microreactor for micro-nucleation source, and glove box systems. Also available for characterization are facilities, such as the Iowa Laser Facility, with a variety of state-of-the-art laser instrumentation, and the High-Power Magnetic Resonance Facility.

MATERIAL CHARACTERIZATION FACILITIES

Dynamical analysis and uniquely equipped laboratory for the characterization of powder and particulates. The laboratory contains a version of a small-angle X-ray scattering (SAXS) instrument from a QuantaSST BET Surface Area Analyzer; a Scanning Electron Microscope, a Transmission Electron Microscope, an AutoScan Mercury Porosimeter; a Microspectrophotometer, a TGA, DTA, DSC, and O2 Coultar particle counters and sieves, and a Sphaeris analyzer for particle image analysis for morphological and textural determination. Other facilities include sampling devices, adapted for characterizing bulk properties, inclusive mixers, grinders, and mixing equipment; optical microscopes; scanning electron; analytical water; measuring and polishing equipment; a lab scale fructose bed and an evaporator for the production of particles of specific size and shape; a microreactor which contains a fully controlled two-flow-expansion chamber for the determination of cut explosibility and a fuel and steam feedstock entry. In addition, there is access to the University's Electrochemical Microscope  and Electron Microscopy facilities.

There are also facilities available to study microelectronic materials. These include techniques and clean facilities to characterize crystal growth, wafer proppagation, and etching techniques. In addition, the Hybrid Microelectronics Laboratory, housed in the electronics and computer engineering department, provides capabilities in small-scale integrated circuit and schematic designing, packaging, including vacuum deposition, a Cooke Spectrophotometer, a d.c. power supply, a bell furnace, air shower, and a variety of electronic test equipment.
Undergraduate Program

Civil engineering courses build on the College of Engineering core curriculum and are designed to give students the broad educational background essential to modern civil engineering practice. Electives in the senior year permit greater breadth or additional concentration in areas of specialization, such as structural and foundation engineering, environmental engineering, hydraulic engineering, and transportation engineering.

Curriculum
*The humanities and social science electives must be selected to satisfy the humanities and social sciences requirements of the College of Engineering.

FRESHMAN YEAR

| First Semester | 4:13 Principles of Chemistry I | 3 s.h.
| 22M:83 Engineering Calculus I | 4 s.h.
| 57:8 Engineering I | 3 s.h.
| *Humanities or social science elective | 3 s.h.
| 10:3 Acoustics Electric | 4.5 s.h.
| Total | 17 s.h.

Second Semester
| 4:15 Principles of Chemistry Lab I | 2 s.h.
| 22M:84 Engineering Calculus II | 4 s.h.
| 22M:40 Matrix Algebra for Engineers | 2 s.h.
| 29:17 Introduction Physics I | 4 s.h.
| 57:9 Engineering II | 3 s.h.
| Total | 15 s.h.

Sophomore Year

| First Semester | 22M:42 Vector Calculus for Engineers | 3 s.h.
| 29:18 Introduction Physics II | 4.5 s.h.
| 57:7 Statics | 3 s.h.
| 57:9 Thermodynamics I | 3 s.h.
| *Humanities or social science elective | 4.5 s.h.
| Total | 16 s.h.

Second Semester
| 22M:41 Differential Equations for Engineers | 3 s.h.
| 57:10 Dynamics | 3.5 s.h.
| 57:15 Material Science | 3 s.h.
| 57:9 Mechanics of Deformable Bodies | 3 s.h.
| *Humanities or social science elective | 3 s.h.
| Total | 15 s.h.

Junior Year

| First Semester | 57:23 Mechanics of Fluids and Thermodynamics | 4 s.h.
| 57:21 Principles of Design I | 3 s.h.
| 22S:10 Probability and Statistics for Engineering and Physical Sciences | 3 s.h.
| 53:30 Intro to Modern Chemistry | 3 s.h.
| 53:32 Modern Structural Analysis | 3 s.h.
| 53:91 Professional Seminar: Civil Engineering | 0 s.h.
| Total | 16 s.h.

Second Semester
| 57:6 Structural Mechanics | 3 s.h.
| 57:22 Principles of Design II | 3 s.h.
| 53:25 Design of Steel Structures | 3 s.h.
| 53:71 Principles of Hydraulics | 2 s.h.
| 53:76 Principles of Hydrology | 2 s.h.
| 53:91 Professional Seminar: Civil Engineering | 0 s.h.
| *Humanities or social science elective | 3 s.h.
| Total | 16 s.h.

Senior Year

| First Semester | 53:6 Restored Concrete Structures | 3 s.h.
| 53:46 Transportation Engineering | 3 s.h.
| 53:79 Hydraulic Design | 3 s.h.
| 53:41 Computers in Civil Engineering | 3 s.h.
| 53:91 Professional Seminar: Civil Engineering | 0 s.h.
| Total | 12 s.h.

Graduate Programs

The graduate program in civil and environmental engineering at both the M.S. and Ph.D. levels prepares students for professional careers in environmental and water resource management, water resources, streams, and groundwater systems; and research in civil engineering. Civil and environmental engineers work with other engineers, architects, landscape architects, planners, economists, sociologists, lawyers, and other specialists in the design and construction of the environment. Some civil engineers work in engineering offices; others may be called upon to construct or supervise outdoor projects they have designed. These last assignments, many of which are remote and fascinating parts of the world, are particularly appealing to many civil and environmental engineers because they are significant entrepreneurial potentials for civil and environmental engineers to start their own companies.

Research

Environmental Engineering and Science

This curriculum provides a comprehensive base of science and engineering in the areas of water and wastewater management, environmental chemistry and microbiology, natural aquifer modeling, and processes for water supply, pollution control, and surface and groundwater management. Interdisciplinary specialization and study is conducted with programs including the Iowa Institute of Hydraulic Research, the Center for Global and Regional Environmental Research, the Center for Health Effects of Environmental Contamination, the Hazardous Substances Research Center, the Center for Environmental and Resource Policy, and Environmental Science and the Urban and Regional Planning Program. New areas such as interdisciplinary research include growth in microbial, chemical, and physical aspects of groundwater contamination, biodegradation,
global climate change, and hazardous

hydraulics, Hydrology, and Water Resources

Hydraulics, hydrology, and water resources curricula are associated with the Iowa Institute of Hydraulic Research, a research organization that is world renowned. Senior staff members of the institute are professors in the program, you 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 Hydroinformatics and Water Resources, with its high-speed computer facilities and advanced graphics and communication software, complements the 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 strengths exist in the areas of structural optimization, computational methods, concrete and prestressed concrete structures, and behavior, ice engineering, and constitutive equations for metals and geotechnical materials. Course work and research in structural design and optimization, dynamics of structures, finite element techniques, and mechanics and robotics, concrete structures, and continuum mechanics, and plasticity are available.

Transportation

The transportation curriculum includes work in planning, design, construction, the operation of transportation systems and facilities. Cooperative relationships exist with the graduate program in urban and regional planning and transportation studies. Cooperative research is conducted with such agencies as the Center for Simulation and Design Optimization, the DOT Midwest Transportation Center, the Iowa Driving Simulator, and the National Advanced Driving Simulator. The "Urban and Regional Planning" and "Transportation Studies" in the College of Liberal Arts section of the Catalog.

Master of Science

The Master of Science programs in civil and environmental engineering are designed to permit further concentration in the area or area of the student’s choice. Graduates are placed in advanced technical positions in industry, concerned with research and development, and they may continue their graduate study. Current and presented demand for M.S. graduates is excellent.

In general, the plan of study, with or without thesis, must include a minimum of 30 semester hours, with as much as 6 semester hours allowed for the thesis. An additional 3 semester

hours are required in the general environmental engineering and science curriculum.

Students, with the approval of their advisor, may develop a plan of study, and they may complete a thesis. All degree candidates are expected to have a 3.00 minimum grade-point average. They must pass an oral examination, and in some program options, a written examination.

Doctor of Philosophy

The doctoral degree is granted primarily on the basis of achievement, rather than on a prescribed course of study. Requirements for semester hours of course work vary among the specialty areas. Candidates usually need at least three years of full-time work beyond the baccalaureate degree, one year of which is devoted to the preparation of a dissertation. The program is designed to bring the graduate to a position as a professional in his field, to some specialization area, a qualifying examination is required for students who have not completed an M.S. in an approved curriculum. The Ph.D. program requires 72 semester hours beyond the bachelor’s degree. Some program options have higher requirements.

All doctoral candidates are required to pass a written and oral comprehensive examination before being formally admitted to candidacy for the degree. This examination usually is taken when normally about 75% of the student’s course work has been completed.

The program culminates in a final examination, in which candidates must successfully defend their dissertation.

Doctoral candidates are expected to maintain a 3.20 minimum grade-point average of throughout the doctoral program.

The program also cooperates in interdisciplinary doctoral programs with the program in applied mathematical sciences (see "Division of Mathematical Sciences" in the College of Liberal Arts section of the Catalog).

Admission

Each candidate for the program is quite flexible, students may be admitted from all disciplines of engineering, as well as from the mathematical and basic sciences. Applicants for the master’s degree program are expected to have a cumulative 2.50 undergraduate grade-point average, 3.30 on the master degree program. For admission to candidacy for the doctorate, the minimum grade-point average is 3.20 based upon program graduate work. Applicants whose grade-point averages are slightly lower are invited to respond regarding admission possibility. A Graduate Record Examination (GRE) General Test score of at least 1100 (verbal and quantitative) is recommended. Lower GRE General Test scores are considered with other evidence of academic promise (recommendations, grades, 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 the Graduate College section of the Catalog).
Graduate Facilities and Laboratories

ENVIRONMENTAL ENGINEERING AND SCIENCE LABORATORIES

Research in environmental engineering is conducted in the department's Philip P. Morgan Laboratories for Environmental Engineering at the New Haven Campus. The New Haven Laboratory is equipped with state-of-the-art facilities for research on environmental problems. The laboratory is staffed by environmental engineers, chemists, and physical scientists.

The New Haven Laboratory is a 2,000-square-foot facility designed specifically for research in the environment and environmental engineering. The laboratory is equipped with state-of-the-art facilities for research on environmental problems. The laboratory is staffed by environmental engineers, chemists, and physical scientists.

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Undergraduate Program

The undergraduate program provides a strong background in basic electrical and computer engineering, covering subjects, physics, and mathematics and allows for concentration in several areas through six technical elective courses usually taken in the senior year. Students can concentrate in one or more areas chosen from computer, control, communication, electronics, and applied physics.

Curriculum

* The humanities and social science electives must be selected to satisfy the humanities and social science requirements of the College of Engineering.

FRESHMAN YEAR

First Semester

4.13 Principles of Chemistry I 3 s.h.
10.3 Accelerated Physics 4 s.h.
22M-35 Engineering Calculus I 4 s.h.
57-5 Engineering I 3 s.h.
*Humanities or social science elective 3 s.h.
Total 17 s.h.

Second Semester

4.15 Principles of Chemistry Lab I 2 s.h.
22M-36 Engineering Calculus II 4 s.h.
22M-40 Atlanta Affiliated for Engineers 2 s.h.
19.17 Introductory Physics I 4 s.h.
57-6 Engineering II 3 s.h.
Total 15 s.h.

Sophomore Year

First Semester

22M-41 Differential Equations for Engineers 3 s.h.
20-19 Introduction to Physics II 4 s.h.
57-7 Statics 3 s.h.
57-8 Electronic Circuits 3 s.h.
57-9 Thermodynamics I 3 s.h.
Total 15 s.h.

Second Semester

22M-42 Vector Calculus for Engineers 3 s.h.
57-12 Linear Systems Analysis 3 s.h.
22T-6 Computers in Engineering 3 s.h.
57-18 Principles of Electronic Instrumentation 4 s.h.
*Humanities or social science elective 3 s.h.
Total 16 s.h.

Junior Year

First Semester

22S-50 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
55-12 Introduction to Digital Design 3 s.h.
55-13 Thermostatics 3 s.h.
55-32 Signals and Systems 3 s.h.
57-19 Professional Seminar: Electrical Engineering 0 s.h.
*Humanities or social science elective 3 s.h.
Total 16 s.h.

Second Semester

55-33 Introduction to Software Design 3 s.h.
55-50 Communication Systems 3 s.h.
55-60 Control Systems 3 s.h.
55-79 Electromagnetic Theory 3 s.h.
29-83 Modern Physics 3 s.h.
Total 15 s.h.

Junior Year

Senior Year

55-72 Electrical Engineering Materials and Devices 3 s.h.
55-88 Principles of Electrical Engineering Design 3 s.h.
55-91 Professional Seminar: Electrical Engineering 3 s.h.
Technical elective (see "Technical Electives" below) 3 s.h.
*Humanities or social science elective 3 s.h.
Total 18 s.h.

Technical Electives

Students must choose at least two courses from the following list. Technical electives must have an engineering orientation and cannot be drawn from the social sciences, the humanities, or skills courses. Students should consult The Undergraduate Manual for details.

55-35 Computer Architecture and Organization 3 s.h.
55-68 Power Systems Analysis 3 s.h.
55-120 Switching Theory 3 s.h.
55-131 Introduction to VLSI Design 3 s.h.
55-138 Optical Design: Digital Logic Circuits 3 s.h.
55-139 Design Automation of Digital Systems 3 s.h.
55-143 Power Electronics 3 s.h.
55-142 Linear Integrated Circuits 3 s.h.
55-144 Digital Integrated Circuits 3 s.h.
55-146 Digital Signal Processing 3 s.h.
55-148 Digital Image Processing 3 s.h.
55-150 Communication Theory 3 s.h.
55-152 Introduction to Information and Coding Theories 3 s.h.
55-160 Control Theory 3 s.h.
55-164 Computer-Based Control Systems 3 s.h.
55-165 Introduction to Robotics 3 s.h.
55-172 Solid State Physical Electronics 3 s.h.
55-178 Optical Signal Processing 3 s.h.
55-179 Principles of Design II 3 s.h.
57-1 Principles of Design I 3 s.h.
57-18 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 non-thesis M.S. programs are available; either may precede Ph.D. studies. A special M.S. emphasis in software engineering is also available. Excellence in scholarship and research is achieved by close contact with the faculty throughout the period of graduate study and through programs tailored to individual interests.

Students select an advisor and, with the adviser's plan an individual program based only by the Graduate Committee and by the program. Close interdisciplinary ties with other departments exist both within and outside the college, especially with the Departments of Internal Medicine, Radiology, Physics, Computer Science, Mechanical Engineering, and Biomedical Engineering. The principal areas of concentration are waves and materials, computer systems, signal and image processing, and control systems and robotics. Such is briefly described here.

Research

Waves and Materials

Plasma physics, electro-optics, nonlinear optics, optical signal processing, and acousto-optic investigations utilize specialized laboratories in both the Engineering Building and Van Allen Hall. Collaborative research with the physics department is directed toward topics in nonlinear plasma physics of a theoretical as well as experimental nature. These topics include plasma confinement and stability and nonlinear wave phenomena, such as solitons and shock waves. A plasma physics laboratory is available to support this activity. An electromagnetic and a quantum optics laboratory are used to conduct graduate research in the areas of linear and nonlinear optics. This research is concerned with fundamental studies, new forms of microscopy, and nonlinear properties and applications of materials.

In the area of optical signal processing, projects involve the use of optical fibers and various light modulations to build special purpose analog processing systems for parallel computation and signal manipulation. A small associated optical processing laboratory is being developed in the optical processing laboratory.

Computer Systems and Software Engineering

Research emphasis in computer systems is directed toward design of highly reliable computer systems, design and testing of very-large-scale integrated circuits, distributed computing, and parallel processing. Areas of interest include fault-tolerant computer technology, testing of digital logic circuits, process architecture, parallel and sequential algorithms, operating systems, VLSI design, and optical computing. Research in software engineering is oriented toward software reliability analysis and tools for parallel software development and analysis.

The work is supported by departmental facilities including a network of SUN workstations as well as through a network connecting the computer centers to colleges, University, and national facilities, including NASA, the University of Texas, and the Computing Center, national supercomputer centers, federal laboratories, and facilities at other universities.

Current projects include design of easily testable, very-large-scale integrated circuits;
CAD algorithms for VLSI applications of distributed parallel processing; examination of dynamic optimization; performance evaluation of parallel and distributed systems; developing parallel and distributed programs.

Signal and Image Processing
Image processing and basic and applied signal processing are areas of emphasis. A digital signal processing laboratory and an image analysis laboratory are available to support this research. The Cardiovascular Image Processing Laboratory, located in the Cardiovascular Center at the University of Iowa Health Center, is also available. Collaborative research with faculty in the Departments of Electrical and Computer Engineering, and Biomedical Engineering is directed at quantitative analysis of medical images.

In the area of signal processing, current projects include image processing associated with speech and hearing, audio coding and transmission of speech, speech processing aids for the hearing-impaired, analysis and design of efficient adaptive algorithms for signal processing, robust equalization of uncertain channels, and application of data networks to communications systems.

In the area of Image processing, current projects include automated detection of visual behavior in imaging using artificial intelligence techniques, detection and tracking of cardiac motion from magnetic resonance images, analysis of cardiac motion patterns, stereoscopic approaches to segmentation of three-dimensional brain images for automatic visualization algorithms, and three-dimensional segmentation techniques for medical images such as MR imaging using F NBCal. Additional work is directed at developing imaging hardware algorithms that incorporate models of the human visual system.

Control Systems and Robotics
Current research emphasizes optimal, adaptive, digital, and stochastic control; multi-rotor robot control and motion planning; control of multi-input multi-output dynamical systems. Recent work has concerned the design of identification and robust control of linear and nonlinear dynamical systems; the construction of cooperation in teams; the control applications of neural networks; and the use of control theory to analyze distributed computing, communications, and manufacturing systems.

Master of Science
There are two M.S. options: with and without thesis. The thesis option requires 30 semester hours of course work, including at least 12 semester hours from an approved list of courses in electrical and computer engineering. The nonthesis option requires 35 semester hours of course credit, with a minimum of 15 semester hours from approved list of courses in electrical and computer engineering. The M.S. semester-hour requirements do not include courses for the degree pre-admission test in Electrical and Computer Engineering, M.S. Thesis by students in the thesis option without thesis, a total of not more than 15 semester hours of independent study credit may be included in the required 30-semester-hour total.

Conditions for the master's degree in electrical and computer engineering also must successfully complete a final examination, which is conducted by a committee of at least three faculty members. Part of the final examination for these candidates must consist of an oral defense of the thesis. At the time of graduation, conditions for the master's degree must have acquired a 3.00 minimum cumulative grade-point average in graduate course work.

M.S. Subtrack in Software Engineering
The department offers an M.S. subtrack in software engineering, in both thesis and nonthesis options. Successful completion of the subtrack results in the designation "with specialization in software engineering" on the student's transcripts.

The nonthesis subtrack requires completion of a minimum of 36 semester hours; the thesis option requires 39 semester hours. Both require completion of the following four software engineering core courses.

SI 554 Fundamentals of Software Engineering 3 S.H.
SI 555 Iterative Methods in Software Engineering 3 S.H.
SI 558 Software Engineering Project I 3 S.H.
SI 558 Software Engineering Project II 3 S.H.

In addition, both options require completion of at least three courses chosen from the following.

SI 551 Introduction to VLSI Design 3 S.H.
SI 552 High Performance Computer Architecture 3 S.H.
SI 553 Graph Algorithms and Combinatorial Optimization 3 S.H.
SI 554 Computer Communications 3 S.H.
SI 552 Parallel Computing and Advanced Architecture 3 S.H.
SI 553 Distributed Computing 3 S.H.
Z50 Advanced Operating Systems and Concurrent Programming 3 S.H.

An additional 6 semester hours of course work from the approved list of electrical and computer engineering courses is required for the nonthesis option and 3 semester hours for the thesis option. All credits for additional coursework and the M.S. final examination are the same as for the general M.S. program.

Doctor of Philosophy
The 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 (thesis or other 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 research program that includes a minimum of 18 semester hours of Ph.D. research;
- successful completion of a final oral defense of the thesis and a 3.55 cumulative grade-point average in graduate course work.

Admission
The Ph.D. program requires successful completion of the Ph.D. qualifying examination. This all-day written examination is given to all entrants in the spring semester. The examination covers four areas chosen by the student from a list of six. Students usually are expected to take the qualifying exam within the first 30 semester hours of graduate study. A 3.55 minimum cumulative grade-point average is required to be admitted to the exam. In the event of failure, the examination may be repeated only once, and this must be the next available offering of the exam.

Following successful completion of the Ph.D. qualifying exam and interview into the Ph.D. program, a student must complete a three-part Ph.D. comprehensive examination consisting of a "take-home" examination set by the student's advisor and Ph.D. committee, preparation of a written thesis proposal, and an oral examination that includes a presentation and defense of the proposal. A minimum of six months must separate completion of the first and last portions of the exam. The final requirement for completion of the Ph.D. program is the preparation and successful defense of the Ph.D. thesis. This must be completed no sooner than six months but no longer than three years after completion of the comprehensive exam.

Admission
The minimum requirement for admission to the graduate program is a 3.70 grade-point average for M.S. students and a 3.25 for Ph.D. students on all courses in electrical and computer engineering, mathematics, and physics. M.S. students with a cumulative average less than 2.70 but better than 2.50 in courses in electrical and computer engineering, mathematics, and physics may be admitted provisionally.

Students with baccalaureate degrees in related areas (e.g., physics, mathematics, and computer science) may be admitted. In addition, credit may be given for additional coursework or graduate credit in other areas.

Each application is reviewed on an individual basis. Extenuating circumstances may permit deviations from the usual standards.

Financial Aid
A number of fellowships, teaching aideships, and graduate assistantships are available to graduate students who qualify. These are awarded on a competitive basis.
## Industrial Engineering Curriculum

### FRESHMAN YEAR

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>413</td>
<td>Principles of Chemistry I</td>
<td>3</td>
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<tr>
<td>1022.02</td>
<td>Chemical Calculations</td>
<td>4</td>
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<td>575.11</td>
<td>Engineering Calculus</td>
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<td>971.16</td>
<td>Fundamentals of Chemistry</td>
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### Sophomore Year

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<tr>
<td>416</td>
<td>Principles of Chemistry Lab</td>
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<tr>
<td>336</td>
<td>Engineering Calculus II</td>
<td>4</td>
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<td>416.41</td>
<td>Matrix Algebra for Engineers</td>
<td>3</td>
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<tr>
<td>291.17</td>
<td>introduction to Physics</td>
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<td>576.16</td>
<td>Engineering II</td>
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### Junior Year

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<td>Difference Equations and Boundary Conditions</td>
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<td>291.18</td>
<td>Introduction to Physics</td>
<td>4</td>
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<td>576.17</td>
<td>Thermodynamics I</td>
<td>3</td>
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<tr>
<td>571.14</td>
<td>Engineering Economy</td>
<td>3.5</td>
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### Senior Year

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<td>577.15</td>
<td>Electromagnetics</td>
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<td>577.16</td>
<td>Economics elective (see below)</td>
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<th>Credits</th>
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<tr>
<td>561.31</td>
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<td>561.42</td>
<td>Human Factors Engineering</td>
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<tr>
<td>571.17</td>
<td>Computer in Engineering</td>
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<tr>
<td>572.21</td>
<td>Principles of Design I</td>
<td>3</td>
</tr>
<tr>
<td>561.10</td>
<td>Mathematics-statistics elective (see below)</td>
<td></td>
</tr>
<tr>
<td>561.11</td>
<td>Engineering science elective (see below)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>18</td>
</tr>
</tbody>
</table>

### Senior Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>569.91</td>
<td>Professional Seminar: Industrial Engineering</td>
<td>3</td>
</tr>
<tr>
<td>561.11</td>
<td>Manufacturing Systems</td>
<td>3</td>
</tr>
<tr>
<td>561.40</td>
<td>Ergonomic Design</td>
<td>3</td>
</tr>
<tr>
<td>572.22</td>
<td>Principles of Design II</td>
<td>3</td>
</tr>
<tr>
<td>561.06</td>
<td>Technical electives (see below)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>15.5</td>
</tr>
</tbody>
</table>

### Sophomore Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>331.150</td>
<td>Psychology and Management (social science elective)</td>
<td>3</td>
</tr>
<tr>
<td>561.99</td>
<td>Professional Seminar: Industrial Engineering</td>
<td>3</td>
</tr>
<tr>
<td>561.10</td>
<td>Mathematics-statistics elective (see below)</td>
<td></td>
</tr>
<tr>
<td>561.11</td>
<td>Engineering science elective (see below)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>

### Senior Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>336.19</td>
<td>Professional Seminar: Industrial Engineering</td>
<td>3</td>
</tr>
<tr>
<td>561.10</td>
<td>Operations Systems Design</td>
<td>3</td>
</tr>
<tr>
<td>561.16</td>
<td>Quality Control</td>
<td>3</td>
</tr>
<tr>
<td>561.16</td>
<td>Production Systems</td>
<td>3</td>
</tr>
<tr>
<td>561.16</td>
<td>Technical electives (see below)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>

### Economics Electives

Students may select from the following list.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>681.110</td>
<td>Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>681.119</td>
<td>Economics of the Government Sector</td>
<td>3</td>
</tr>
<tr>
<td>681.125</td>
<td>International Economics</td>
<td>3</td>
</tr>
<tr>
<td>681.129</td>
<td>Economic Growth and Development</td>
<td>3</td>
</tr>
<tr>
<td>681.123</td>
<td>Environmental and Natural Resource Economics</td>
<td>3</td>
</tr>
<tr>
<td>681.125</td>
<td>Regional and Urban Economics</td>
<td>3</td>
</tr>
<tr>
<td>681.141</td>
<td>Economics of American Industries</td>
<td>3</td>
</tr>
</tbody>
</table>

### Mathematics and Statistics Electives

Students may select from the following list.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>229.42</td>
<td>Vector Calculus for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>224.57</td>
<td>Elementary Numerical Analysis</td>
<td>3</td>
</tr>
<tr>
<td>224.70</td>
<td>Advanced Statistics course (with advisor's approval)</td>
<td>3</td>
</tr>
</tbody>
</table>

### Engineering Science Electives

Students may select one of the following courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>561.22</td>
<td>Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>561.12</td>
<td>Linear System Analysis</td>
<td>3</td>
</tr>
<tr>
<td>561.19</td>
<td>Principle of Electronic Instrumentation</td>
<td>3</td>
</tr>
<tr>
<td>561.17</td>
<td>Mechanics of Deformable Bodies</td>
<td>3</td>
</tr>
<tr>
<td>561.20</td>
<td>Mechanics of Fluids and Transfer Processes</td>
<td>3</td>
</tr>
</tbody>
</table>

### Potential Electives

Students may select from 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 electives and 3 semester hours with consent of advisor.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>561.96</td>
<td>Individual Investigations</td>
<td>3</td>
</tr>
<tr>
<td>561.132</td>
<td>Introduction to Industrial Engineering</td>
<td>3</td>
</tr>
<tr>
<td>561.130</td>
<td>Artificial Intelligence in Design, and Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>561.143</td>
<td>Advanced Engineering/Human Factors</td>
<td>3</td>
</tr>
<tr>
<td>561.156</td>
<td>Advanced Managerial Psychology</td>
<td>3</td>
</tr>
<tr>
<td>561.150</td>
<td>Information Systems Design</td>
<td>3</td>
</tr>
<tr>
<td>561.153</td>
<td>Microcomputer Applications</td>
<td>3</td>
</tr>
<tr>
<td>561.155</td>
<td>Quantitative Investment</td>
<td>3</td>
</tr>
<tr>
<td>561.156</td>
<td>Economic Decision</td>
<td>3</td>
</tr>
<tr>
<td>561.152</td>
<td>Quality Engineering I</td>
<td>3</td>
</tr>
<tr>
<td>561.155</td>
<td>Reliability and Practice</td>
<td>3</td>
</tr>
<tr>
<td>561.156</td>
<td>Regression Analysis</td>
<td>3</td>
</tr>
<tr>
<td>561.157</td>
<td>Digital System Simulation</td>
<td>3</td>
</tr>
<tr>
<td>561.158</td>
<td>Contemporary Topics in Industrial Engineering</td>
<td>3</td>
</tr>
</tbody>
</table>

### Specialization in Quality Engineering

Quality engineering is a specialization in the engineering profession that is concerned with the design, manufacture, delivery, maintenance, and use of products and services over their life cycles. Quality is the fitness of these products or services to meet customer needs. Engineers must identify and improve quality throughout all phases of the product’s or service’s creation and use. Quality has an economic dimension in those cases that occur after as well as during the design, development, and manufacture of products and services.

The basic requirements of quality engineering are similar to those of industrial engineering. Consequently, a specialization in quality engineering can be obtained through the
Graduate Programs

Graduate programs in industrial engineering are tailored to meet the needs of the individual. Each student's program of study is based on his or her background, career objective, and sound academic practice. The curriculum is flexible; the goal is academic excellence.

There are five principal areas of academic focus in the graduate program in industrial engineering: manufacturing, human factors engineering/ergonomics, engineering management, quality and production control, and operations research and applied statistics.

Manufacturing courses, detailed by the 30 series, delve into selecting appropriate manufacturing methods, manufacturing operations, and production control. Students are introduced to the design and production of manufacturing systems. Contemporary topics in computer-aided process planning, computerized design, computer-aided manufacturing, concurrent engineering, and applications of artificial intelligence in manufacturing are covered.

Ergonomics, or human factors studies, concentrate on applying the psychological, physiological, and sociological aspects and arts in problems in manufacturing and service systems. These problems concern fitting tasks and organizations to the people who perform them. The student learns to consider the human element in all phases of human performance. Experience is gained in relating these studies to the design, planning, and operation of manufacturing and service systems.

Ergonomics, or human factors studies, concentrate on applying the psychological, physiological, and sociological aspects and arts in problems in manufacturing and service systems. These problems concern fitting tasks and organizations to the people who perform them. The student learns to consider the human element in all phases of human performance. Experience is gained in relating these studies to the design, planning, and operation of manufacturing and service systems.

Engineering management studies concentrate on engineering administration, engineering economics, and information systems. This area is covered by courses in the 50 series.

The quality and production control area consists of concepts, theories, techniques, and practices of quality engineering and production control. This area is covered by courses in the 50 series.

Students in operations research and applied statistics concentrate on the development and application of mathematical models and statistical analysis, and computer sciences for modeling, analyzing, and optimizing systems. Various methodologies in this area include mathematical programming, simulation, multivariate statistical analysis, and digital systems simulation. Courses in the 50 series are covered.

Students in the graduate program participate in research in the areas of their academic concentration. Ongoing manufacturing research encompasses flexible manufacturing systems, design, optimum control of processes, adaptive manufacturing control, parametric robotic control, and automatic pattern recognition of parts. Current research in human factors engineering/ergonomics consists of investigating the effects of visual and auditory displays on human information processing, predicting human performance time statistics with cognitive tasks, and the effects of aging on human performance. Other research in this area includes computer-aided problem solving, machinery-person compatibility, ground vehicle control, intelligent highway vehicle systems, and techniques of ergonomics data collection and analysis.

Some current research in engineering management consists of information economics, organizational structure, project management, stochastic and statistical models, and economic risk analysis. Quality and production control research is currently focused on measures for corporate quality, computer-oriented layout and scheduling, just-in-time production, location and location analysis, and statistical regression analysis, on the model approach to process control, and inventory recursive accuracy-resource procedures.

Ongoing research in operations research and applied statistics is centered on optimization, expert systems in scheduling and sequencing, simulation and random number generation, and the development of programming techniques for classification problems. Other research is directed toward extending the capabilities of computer graphics.

Master of Science

Two M.S. programs are available: thrust and concentration. Students considering eventual admission to a Ph.D. program should select the concentration option, which requires a minimum of 30 semester hours of 100- or 200-level courses, including a maximum of 12 semester hours of research. Students who elect the concentration option must complete a minimum of 30 semester hours of course work at the 100 or 200 level, including at least 18 semester hours at the 200 level or in the 100 level with the designation "advanced" or "concentration" in the title course.

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 chief and the Graduate College dean.

Students in all programs need a background in computer programming, probability, statistics, and mathematics equivalent to that required in accredited undergraduate engineering programs. Each written and verbal desire in the English language are essential. Engineering management and human factors students will find psychology and engineering economics to be useful preparation. "Courses may be required for students with non-engineering backgrounds.

Students are required to maintain a 3.00 minimum grade point average on all graduate course work and 3.00 minimum grade point average on 400-level courses. Admission to the University of Iowa at Iowa City is an undergraduate engineering curriculum for regular admission status.

Admission

Students with an M.S. objective may be admitted to an ABET accredited bachelor's degree curriculum in any engineering discipline or in the mathematical or physical sciences with a 2.90 minimum grade point average and/or an equivalent test score on the Graduate Record Examination (GRE) General Test. Applicants from non-U.S. institutions must meet equivalent test score requirements for regular admission. Students may be considered for conditional admission with a letter of recommendation and a Test of English as a Foreign Language (TOEFL) GRE General Test scores.

Students from business or social science programs who have adequate mathematical preparation also may be considered for regular or conditional admission. Students on conditional status must achieve regular status within two sessions of registration by attaining a 3.00 minimum grade point average and gaining regular acceptance by the industrial engineering program faculty; otherwise, they are dismissed. Admission may be limited by the number of faculty and other available resources.

Students with a Ph.D. objective may be admitted from an ABET accredited bachelor's degree or a professional curriculum in industrial engineering discipline or in the mathematical and physical sciences with a 3.00 minimum grade point average and/or an acceptable GRE General Test score (ordinarily at least 500 verbal, 700 quantitative). Applicants from outside the United States must meet the abovely-mentioned requirements for regular admission as
determined by The University of Iowa. Students also may be admitted from business or social science programs as determined individually. Students who want to enter the B.S. degree and who have a B.S. degree or an M.S. degree without thesis usually are not admitted to the M.S. program. All applicants to the Ph.D. program are reviewed by the faculty as a committee of the whole.

Financial Aid
A number of one-quarter-time and one-half-time graduate student teaching and research assistantships are available. Awards are based on academic academic records and assessments of their potential contribution to the research and teaching goals of the program. Advanced graduate students also may qualify for higher stipend instruction appointments. Students should write to the chair of the industrial engineering department for further information.

Special Facilities and Laboratories

Engineering Core
Information about laboratories affiliated with core courses organized by other departments can be found in the Catalog sections for each of the other engineering departments.

Required and Elective Course Laboratories
Many laboratories occupying the north wing of the fourth floor in the Engineering Building. Most classes use computer terminals. Faculty offices in the Engineering building laboratories also are located there. The laboratories are described below.

INTEGRATED MANUFACTURING SYSTEMS LABORATORY
This laboratory has equipment that supports instructors and research work in manufacturing operations and systems. Included are a variety of assembly robots, automatic vision systems, and microcomputers of various types. Hewlett-Packard workstations, a digital oscilloscope for computer pattern recognition, a terminal computer system, a dual-channel strip-chart recorder, a programmable controller, programmable switches, actuation devices, and reconfigurable construction units for modeling physical material handling systems. Software is available for part geometry, generating computer numerical control (CNC) programs, computer process planning, expert systems, and for other general purposes.

HUMAN FACTORS/ERGONOMICS LABORATORY
This laboratory facilitates human factors/ergonomics research and education. It contains microcomputers and microcomputer systems with numerous peripherals for the display collection and analysis of human performance data as well as alternative forms of information displays and human machine records.

IOWA DRIVING SIMULATOR (IDS) LABORATORY
Many students and faculty in engineering/the human factors program are associated with the new, larger vehicle simulator located in the Engineering Recreational Facility. The facility houses a state-of-the-art computer video system for generating high-definition visual scenes, which include other moving vehicles, traffic signals, and real-time weather. The simulator is open to the public on Tuesdays and Thursdays. This IDS is being developed for research in traffic safety, transportation, and the impact of alcohol and other factors on driving.

COMPUTER-ASSIGNED MANUFACTURING (CAM) LABORATORY
This laboratory is used to teach CAD (computer-aided design) and CAM programming and to set up projects to demonstrate various computer-integrated manufacturing technologies. Hardware and software are available to design parts and plan processing, including generation of CNC program files.

Typical activities conducted in the laboratory include geometric modeling, assembly of geometric files, and other design data to create process planning experiments, assignment of part codes and identification of the most cost-effective machining assignments for the parts. Processing, definition of the operation sequences and calculation of optimal process settings; generation of CNC part programs and support data, and downloading of appropriate machining instructions and data to the CNC machine (mill or lathe) to make the parts.

Laboratory equipment includes IBM, Apple II, and Apple II microcomputers; small-scale manufacturing tools (milling machine); and different types of industrial controls.

COMPUTER NUMERICAL CONTROL (CNC) MACHINE TOOL LABORATORY
Students gain hands-on experience in programming and operating a CNC lathe and an automated storage and retrieval system in this laboratory. CNC programs can be developed on the machine control workstation or downloaded via RS232 to a link from its programming station in the CAM Laboratory. Research studies in the machine tool feasibility of various machining centers for different cutting tools and machining parameters are being conducted. An automated storage and retrieval system and robot for assembly of hydraulic components are used for instruction and research purposes.

Additional to the laboratory include the purchase of a full-scale CNC milling machine, a coordinate measurement machine, and additional test, measurement, and recording equipment to interface with the machine tools.

MANUFACTURING PROCESSES LABORATORY
This laboratory provides improved facilities and equipment for automated arc welding and conventional processing equipment. A Threat Arc Welding (CAMW or MIG) system is used in undergraduate courses in diecasting process courses and is used in research to investigate welding process relationships, including high-speed welding. A robot welding robot integration cell is also planned for the laboratory to facilitate further investigation of the welding process variable control problems and analytically to control the welding processes.

INTELLIGENT SYSTEMS LABORATORY
Hewlett-Packard workstations, IBM PC, and MultiMedia microcomputers with associated display and operating systems are housed in this laboratory. Software for design and building intelligent systems is available, including expert system shells, ESP, VAXEN, KUP, and Prolog. VAXEN is an integrated development environment for VAXEN that allows designers to develop intelligent systems. Projects that are being pursued in this laboratory include the design and development of an expert system that analyzes and designs a system to design and analyze intelligent systems.


courses

Special

5.060 Comprehensive System Training Assignment Industrial Engineering 2.6.4

Industrial engineering faculty is contributing to the Comprehensive System Training Program, which is designed to provide the students with an understanding of the systems, organization, policies, and the needs of the systems to be managed. The program is designed to provide the students with an understanding of the systems, organization, policies, and the needs of the systems to be managed.

5.610 Educational Laboratory Industrial Engineering 2.6.4

Research projects in quality engineering for improving processes, developing new processes, and analyzing and evaluating new engineering systems. Computer software, experts, simulation systems, and specific case studies are used.

Manufacturing

5.181 Process/Process Engineering 2.6.4

Design and development of a comprehensive process engineering plan for a manufacturing system. This includes material handling, storage, and transport. The system is design and evaluation of a manufacturing process, development and evaluation of computer-aided manufacturing systems, and application of computer-aided manufacturing systems. The course includes the design of a manufacturing process, development and evaluation of computer-aided manufacturing systems, and application of computer-aided manufacturing systems.

5.131 Manufacturing Systems 2.6.4

Design and development of manufacturing systems for a manufacturing system. The system is design and evaluation of a manufacturing process, development and evaluation of computer-aided manufacturing systems, and application of computer-aided manufacturing systems. The course includes the design of a manufacturing process, development and evaluation of computer-aided manufacturing systems, and application of computer-aided manufacturing systems.

5.122 Introduction to Manufacturing Systems 2.6.4

Design and development of manufacturing systems for a manufacturing system. The system is design and evaluation of a manufacturing process, development and evaluation of computer-aided manufacturing systems, and application of computer-aided manufacturing systems. The course includes the design of a manufacturing process, development and evaluation of computer-aided manufacturing systems, and application of computer-aided manufacturing systems.

5.134 Comprehensive Engineering 2.6.4

Design and development of manufacturing systems for a manufacturing system. The system is design and evaluation of a manufacturing process, development and evaluation of computer-aided manufacturing systems, and application of computer-aided manufacturing systems. The course includes the design of a manufacturing process, development and evaluation of computer-aided manufacturing systems, and application of computer-aided manufacturing systems.

5.191 Artificial Intelligence in Design and Manufacturing 2.6.4

Design and development of manufacturing systems for a manufacturing system. The system is design and evaluation of a manufacturing process, development and evaluation of computer-aided manufacturing systems, and application of computer-aided manufacturing systems. The course includes the design of a manufacturing process, development and evaluation of computer-aided manufacturing systems, and application of computer-aided manufacturing systems.

5.194 Advanced Manufacturing Processes 2.6.4

Design and development of manufacturing systems for a manufacturing system. The system is design and evaluation of a manufacturing process, development and evaluation of computer-aided manufacturing systems, and application of computer-aided manufacturing systems. The course includes the design of a manufacturing process, development and evaluation of computer-aided manufacturing systems, and application of computer-aided manufacturing systems.
Mechanical Engineering • Engineering 355

Interdisciplinary team in which the mechanical engineer is an important member.

M.E. SYSTEMS
Mechanical systems and machines are the foundations of human technology. Examples of such systems and devices are manufacturing equipment, automobiles, traction, ships, home appliances, packaging machinery, and aircraft. Mechanical engineers find employment opportunities in a wide variety of jobs, including those in industry, government, and academia. Mechanical engineers form an integral part of most industries, including aerospace, firms, energy-generation utilities, automobile manufacturers, food and metal-processing industries, petroleum, reflectors, electronics, and computer-manufacturing heavy construction vehicles, marine transportation, thermal control 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 course design course, 58.80: Mechanical Engineering Project. Participation in established research projects may be arranged.

The undergraduate education of a mechanical engineer at The University of Iowa is based on four curriculum stems: mathematics and basic sciences; engineering 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 mathematics and basic sciences are the engineering sciences, statics, dynamics, thermodynamics, mechanics of deformable solids, mechanics of fluids and transfer processes, heat transfer, and electric circuit sciences. An understanding of these sciences enables a mechanical engineer to design parts of systems, to understand the total mechanical system, to plan the production and utilization of energy, to plan and operate industrial manufacturing facilities, and to design automatic control systems for machines and other mechanical systems.

In addition to the purely mechanical engineering considerations, there are many complex issues in our modern society that involve environmental, economic, managerial, and political decision making. Therefore, mechanical engineers must possess appreciation of social and humanistic issues related to government, business, military service, language, and international relations.

Curriculum

To earn a Bachelor of Science in mechanical engineering, students must complete a minimum of 128 semester hours of credit. The curriculum is arranged so that courses in the four stems are introduced in an effective sequence and with a balanced emphasis. The humanities and social science elective courses must be selected to satisfy the humanities and social science requirements of the College of Engineering.

IOWAHAN YEAR

First Semester
4-15 Principles of Chemistry I 3 s.h.
10.3 Accelerated Electric 4 s.h.
228.01 Engineering Calculus 4 s.h.
57.3 Engineering I 3 s.h.
*Social science elective 3 s.h.
Total 17 s.h.

Second Semester
4-16 Principles of Chemistry Lab I 2 s.h.
228.06 Engineering Calculus II 4 s.h.
228.40 Mama Algebras for Engineers 2 s.h.
29.17 Introductory Physics I 4 s.h.
57.6 Engineering II 3 s.h.
Total 15 s.h.

SOPHOMORE YEAR

First Semester
228.42 Vector Calculus for Engineers 3 s.h.
29.18 Introductory Physics II 4 s.h.
57.7 Statics 3 s.h.
57.8 Thermodynamics I 3 s.h.
57.15 Materials Science 3 s.h.
Total 15 s.h.

Second Semester
228.41 Differential Equations for Engineers 3 s.h.
57.6 Electric Circuits 3 s.h.
57.5 Dynamics 3 s.h.
57.16 Mechanics of Deformable Bodies 3 s.h.
*Humanities or social science elective 4 s.h.
Total 16 s.h.

JUNIOR YEAR

First Semester
225.39 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
57.12 Linear Systems Analysis 3 s.h.
57.30 Mechanics of Fluids and Transfer Processes 4 s.h.
57.31 Principles of Design I 3 s.h.
57.38 Principles of Electronic Instrumentation 4 s.h.
58.51 Professional Seminar: Mechanical Engineering 3 s.h.
Total 17 s.h.

Second Semester
29.83 Modern Physics 3 s.h.
58.40 Thermodynamics II 3 s.h.
58.45 Heat Transfer 3 s.h.
58.52 Mechanical Systems 3 s.h.
58.51 Professional Seminar: Mechanical Engineering 3 s.h.
*Humanities elective 3 s.h.
Total 15 s.h.

JUNIOR YEAR

First Semester
58.46 Thermal-Fluid Systems Design 4 s.h.
58.55 Mechanical Systems Design 4 s.h.
58.91 Professional Seminar: Mechanical Engineering 3 s.h.
Technological elective 3 s.h.
*Social science elective (100 level) 3 s.h.
Total 17 s.h.

Second Semester
58.80 Experimentation in Engineering 4 s.h.
58.86 Mechanical Engineering Project 3 s.h.
Technological elective 5 s.h.
*General elective (100 level) 3 s.h.
Total 15 s.h.

Technical Electives

These permit students to develop a broader background and a deeper understanding in selected fields of mechanical engineering. Because most of these courses build on earlier courses in the curriculum, students’ choices may result in an interest developed in the basic courses. Students should consult with their academic advisor before selecting elective courses.

Guidelines for selecting technical electives are:

• a minimum of two electives from mechanical engineering courses must be taken;
• engineering courses at the 100 level, as well as mathematics, physics, or chemistry courses at a more advanced level than those required in the curriculum, may be taken as technical electives;
• one electrical course may be chosen from engineering courses that are required in another engineering curriculum;
• one course from the College of Business Administration may be elected, with the exception of accounting or economics courses numbered below 100: economics courses may be taken as social science electives; and
• a maximum of 3 semester hours of individual technical electives are recommended, with individual investigations are not usually undertaken, 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. The following are some technical elective course suggestions:

Control Systems Engineering

58.131 Feedback Control Systems 3 s.h.
58.132 Control System Design 3 s.h.
58.135 Control Theory 3 s.h.
58.136 Computer-Based Control Systems 3 s.h.

Mechanical Systems Engineering

58.110 Computer-Aided Engineering 3 s.h.
58.119 Introductory Mechanics of Deformable Bodies 3 s.h.
58.11 Planar Kinematics and Dynamics of Machinist 3 s.h.
58.131 Financements of Vibrations 3 s.h.
Research

Fluid Mechanics
The graduate program in fluid mechanics provides the student with a rigorous and broad foundation in theoretical, numerical, and experimental aspects of the subject. It is especially suitable for those seeking careers in teaching and/or research in academic and industrial organizations. Emphasis on fundamentals and principles and techniques of solving problems in fluid mechanics are emphasized, with focus on the use of computer, both in the mathematical modeling of flow phenomena and in the acquisition and processing of experimental data. Although most of the relevant courses are offered by the Department of Mechanical Engineering, students are strongly encouraged to take applied mathematics and classical mechanics courses offered by the mathematics and physics departments in the College of Liberal Arts and by other departments in the College of Engineering.

Current research projects include computational modeling of viscous and turbulent flows; vortex dynamics; unsteady flows; flow separation and control; turbophysics; ship hydrodynamics; viscous flow around bluff bodies; propulsion flow and propulsion body interactions; free-surface effects; nonlinear wave theory; two-layer hydraulic interactions; underwater acoustics; low Reynolds number flows; quantitative flow visualization and image processing, and shear 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 practical aspects of the subject, thus preparing them for careers in industrial practice, teaching, and government. The program emphasizes fundamentals of thermodynamics, heat transfer, and combustion, and associated analyses, numerical, and experimental methods used in energy conversion systems. Area of concentration include fluid mechanics, thermodynamics, heat transfer, phase-change, and combustion.

Although most of the relevant courses are offered by the department, students are encouraged to supplement them with courses from other areas, such as the College of Science and physics in the College of Liberal Arts and other department in the College of Engineering, to order to balance their programs.

Current research projects include, analytical, numerical, and experimental studies of convective and reactive heat transfer with real gas and surface effects; capillary condensation and liquid transfer; shock ignition of particle-laden gases; butyciglycerol conversion; two-phase, two-velocity, transition to detonation in granular media; natural convection; turbulence jet as well as turbulent flow; diffusion flames, spray atomization and combustion; cloud-cell and boundary layer interactions, transport phenomena in multiphase systems, drying and solidification, ferro fluids and double-diffusive convection, optical controllability of thermal systems; experiment design, real-time and few visualization of complex combustion 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 systems design, design, and testing. The program emphasizes fundamental principles, techniques, and experimental tools used in analyzing and designing mechanical systems. Areas of concentration include machine dynamics, optimal design, structural optimization, control systems, and fatigue and fracture mechanics.

Although most of the relevant courses are offered by the Department of Mechanical Engineering, students are encouraged to take appropriate courses offered by the mathematics, statistics, and physics departments in the College of Liberal Arts and by other departments in the College of Engineering.

Current research projects include state space theory of structural optimization, design sensitivity analysis of rigid and flexible mechanical systems, computer-aided design, computer-aided engineering visualization and communication, geometric modeling, mechanical system modeling, integrated computer aided design and engineering, real-time dynamic simulation; vehicle system dynamics; dynamic systems with constraints motion; design sensitivity analysis of structural systems; shape optimal design, optimization of built-up structures; optimal structural design under dynamic loads; computer-aided analysis, design and optimization of aerospace mechanical systems; connecting rod modeling and connecting rod design of internal combustion engines based on interference of mechanical system and control system simulation, programs; simulation of hydraulic control; hydraulic, combustion, and fatigue behavior and life prediction under constant and variable amplitude loading.

Master of Science
The M.A. program requires a minimum of 30 semester hours beyond the baccalaureate degree. Students may choose either a thesis or the non-thesis option. 500 level courses are not included in the program requirements. Total hours of credit are more than 18 semester hours of credit for the thesis option and 18 semester hours of credit for the non-thesis option. 500 level courses are not included in the program requirements. Total hours of credit are more than 18 semester hours of credit for the thesis option and 18 semester hours of credit for the non-thesis option. The program offers specializations in the following areas: Mechanical Engineering, Electrical Engineering, or Computer Engineering. The program requires a total of 36 semester hours of credit, including a minimum of 24 semester hours of credit in courses numbered 500 or above. The remaining 12 semester hours of credit are divided between the conceptual and practical aspects of the program.
The requirements for the M.S. may be completed within one calendar year. However, students with productivity skills or other constraints may take up to two calendar years to complete the degree.

Doctor of Philosophy

Typically, Ph.D. programs in mechanical engineering require approximately 90 semester hours of credit—including research for the dissertation—beyond the M.S. degree. Students must pass the qualifying examination administered in the department to be formally admitted to the doctoral program. The student takes the comprehensive examination after passing the qualifying examination and when six course work specialties are nearly completed; in any case, the comprehensive examination shall be taken no later than 28 months after the first registrations in the Ph.D. program. To be admitted to the comprehensive examination, the student must be in good academic standing and must be recommended by his or her advisor. The exam is administered by the student's committee. Admissions to Ph.D. candidacy is recognized upon successful completion of the comprehensive examination. Having satisfactorily completed the exam, the student usually has only to complete and defend the dissertation at the final examination.

Requirements for the Ph.D. degree usually can be completed in three to four years beyond the M.S. degree.

Admission

Students who have earned a baccalaureate or master's degree in an engineering curriculum or in a curriculum in the mathematical or physical sciences are eligible to be considered for admission to the graduate program in mechanical engineering. In order to be considered for regular admission, the student must have completed graduate-level courses in all previous college-level work and minimum Graduate Record Examination (GRE) General Test scores of 550 verbal and 700 quantitative. For students whose native language is not English, a minimum Test of English as a Foreign Language (TOEFL) score of 550 may be substituted for the GRE verbal requirement. Students may, under exceptional circumstances, be considered for conditional admission with a lower TOEFL score or no TOEFL test scores. The student with conditional status must achieve regular status within one semester (excluding summer session) after admission. To satisfy the requirements, the conditionally admitted student must achieve a 3.0 minimum grade-point average on an initial registration of 9 semester hours at The University of Iowa. Students who have not submitted their GRE and/or TOEFL scores by the end of the first regular semester after admission will have their registration for the subsequent semester canceled by the Graduate College.

Financial Aid

Financial support is available to M.S. and Ph.D. students, primarily through teaching and research assistantships from the Department of Mechanical Engineering, the Center for Computer-Aided Design, and the Iowa Institute of Hydraulic Research. These awards are made on a semi-annual, academic year, basis. Awards and responsibilities are competitive and are based on the student's potential contribution to the teaching and research goals of the department. Students who fulfill their scholarship responsibilities and continue to make satisfactory progress toward the degree objective receive preference in new scholarship awards. Advanced doctoral students also may qualify for higher stipend instructor positions. All applications for financial support should be submitted directly to the department chair.

M.S. students with a one-quarter-time or more appointment are required to register for a minimum of 9 semester hours during fall and spring semesters until they have completed 30 semester hours of course and research work beyond the baccalaureate degree. Ph.D. students with one-quarter-time or more appointments must register for a minimum of 9 semester hours during fall and spring semesters until they have completed 60 semester hours of course and research work beyond the baccalaureate degree. Once they meet these minimums, graduate students must register for a minimum of 3 semester hours each semester. Students with appointments must register during summer sessions. All registrations should accurately reflect the amount and type of work undertaken, the use of University facilities, and the amount of coursework taken by the facility. One semester of full-time M.S. or post-Ph.D. comprehensives examination is permitted for students who have completed their requirements but have not yet received their degrees.

Special Facilities and Laboratories

Undergraduate Instruction

Engineering Core

The laboratories for fluid and transport processes contain a wind tunnel, a water flume; a water bath for long-term testing, and an apparatus for small-scale experiments to demonstrate the principles of pipe, surface, and heat transfer.

For information about laboratories affiliated with more courses covered by other engineering departments, see the subsection for each department.

Required and Elective Course Laboratories

The mechanical engineering laboratory for experimental engineering provides undergraduate students with exposure to contemporary sensors, signal conditioners, microcomputers, and computer-based data acquisition systems.

The laboratory for mechanism engineering provides workshops for either group or individual project activities in mechanical engineering design, construction of mechanism, and testing. The thermal and fluid research laboratory is equipped with data acquisition systems to provide a wide range of flow visualization, steady-state measurement of low-temperature flow phenomena in test sections, and laser anemometer systems, and computer-based data acquisition systems.

In the department, the facilities are available to all undergraduate and graduate students with CCG, CCGS, low-speed wind tunnel, a water flow system, and a low-speed wind tunnel. The computer laboratory, computer-based design, and computer-based fluid dynamics laboratories provide the necessary support.

Graduate Students

Facilities for research in the thermal sciences and systems consist of a research infrastructural test facility for the measurement of turbulence, a low-pressure combustion test facility, a low-pressure laboratory for the study of heat transfer, an aero-acoustic test facility, and an aerodynamic test facility. The fluid dynamics laboratory facilities include the University of London, the University of Wisconsin, the Iowa Institute of Hydraulic Research, and the Center for Computer-Aided Design, all research facilities associated with the study of fluid mechanics, heat transfer, and turbulence. The University of London, the University of Wisconsin, the Iowa Institute of Hydraulic Research, and the Center for Computer-Aided Design, all research facilities associated with the study of fluid mechanics, heat transfer, and turbulence. The fluid dynamics laboratory facilities include the University of London, the University of Wisconsin, the Iowa Institute of Hydraulic Research, and the Center for Computer-Aided Design, all research facilities associated with the study of fluid mechanics, heat transfer, and turbulence.

Several laboratories are served by computer-based data acquisition systems. Workstations connected to IBM and ICL computers are available for the study of fluid mechanics, heat transfer, and turbulence.
Mechanical Engineering

5.8.19 Complex Fluids and Fluid Dynamics

5.8.20 Advanced Topics in Thermal and Fluid Engineering

5.8.21 Advanced Control Theory

5.8.22 Advanced Control Theory

5.8.23 Advanced Control Theory

5.8.24 Energy Principles in Structural Mechanics

5.8.25 Topos in Solid Mechanics

5.8.26 Theory of Variationality

5.8.27 Continen in Mechanical and Fluid Stability

5.8.28 Mechanical Design in Structures

5.8.29 Advanced Numerical Analysis

5.8.30 Advanced Numerical Analysis

5.8.31 Advanced Numerical Analysis

5.8.32 Advanced Numerical Analysis

5.8.33 Advanced Topics in Mechanical Engineering

5.8.34 Graduate Seminar, Advanced Topics, and Research

5.8.35 Industrial Engineering

5.8.36 Industrial Engineering

5.8.37 Industrial Engineering

5.8.38 Industrial Engineering

5.8.39 Industrial Engineering

5.8.40 Industrial Engineering
Graduate College

The University of Iowa has been a leading center of advanced study for three-quarters of a century. Presently, more than one-fifth of its enrollments is in the Graduate College. The unusually high ratio reflects the breadth of the University's graduate programs and resources, the strength of its graduate faculty with a long tradition of personal and professional concern for students, and the opportunities afforded graduate students for involvement, recognition, and support.

The Graduate College is responsible for the review and approval of proposals for new graduate programs and for the periodic survey and evaluation of existing programs. Through its administration of scholarship, fellowship, and research maintenance funds, the college encourages and supports the work 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, appointment, and support of graduate students.

The faculty of the Graduate College is made up of all University faculty members in 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 in charge of the Dean of the Graduate College.

Degree Programs

The Graduate College confers the Master of Arts, Master of Science (M.S.), Master of Business Administration (M.B.A.), Master of Arts in Teaching (M.A.T.), Master of Architecture (M.Arch.), Master of Social Work (M.S.W.), Doctor of Philosophy (Ph.D.), and Doctor of Musical Arts (D.M.A.) degree.

The college currently confers degrees in the following major fields:

Accounting—M.A.
American Studies—M.A., Ph.D.
Anthropology—M.A., Ph.D.
Archaeology—M.A., Ph.D.
Astronomy—M.A., Ph.D.
Biochemistry—M.S., Ph.D.
Biological Sciences—M.S., Ph.D.
Biological Sciences—B.S., M.S., Ph.D.
Chemistry—M.S., Ph.D.
Chemical Physics—M.S., Ph.D.
Chemical Physics—M.S., Ph.D.
Chemical Physics—M.S., Ph.D.
Chemistry—M.A., Ph.D.
Chemistry—M.A., Ph.D.
Computer Sciences—M.A., Ph.D.
Comparative Literature—M.A., Ph.D.
Computer Science—M.S., Ph.D.
Criminal Justice and Corrections—M.A.*
Dance—M.A.
Dental Hygiene—M.S.*
Dental Public Health—M.S.
Economics—M.A., Ph.D.
Economics—M.A., M.A.T., Ed.S., Ph.D.
Electricity and Computer Engineering—M.S., Ph.D.
Endodontics—M.S.
English—M.A., M.A., Ph.D.
Environmental Science—M.A., Ph.D.
Environmental Science—M.A., Ph.D.
Geography—M.A., Ph.D.
German—M.A., Ph.D.
Greek—M.A., Ph.D.
History—M.A., Ph.D.
Hospital and Health Administration—M.A., Ph.D.
Human Nutrition—Ph.D.*
Industrial Engineering—M.S., Ph.D.
International Relations—M.A.
Lettres—M.A.*
Lecture Studies—M.A.
Library and Information Science—M.A.
Linguistics—M.A., Ph.D.
Mass Communications—Ph.D.
Mathematics—M.S., Ph.D.
Mechanical Engineering—M.S., Ph.D.
Medical Microbiology—M.S., Ph.D.
Molecular Biology—M.S., Ph.D.
Museum Methods—M.A.*
Neuroscience—Ph.D.
Nursing—M.A., Ph.D.
Operative Dentistry—M.S.
Oral and Maxillofacial Surgery—M.S.
Ornithology—M.S.
Pathobiology—M.S.
Pediatric Dentistry—M.S., Ph.D.
Periodontology—M.S., Ph.D.
Pharmacy—M.S., Ph.D.
Pharmaceutical Chemistry—M.S., Ph.D.
Pharmacy—M.A., Ph.D.
Physics—M.S., Ph.D.
Physics—M.S., Ph.D.
Psychology—M.S., Ph.D.
Political Science—M.S., Ph.D.
Preventive Medicine and Environmental Health—M.S., Ph.D.
Psychology—M.S.
Psychology—M.S., Ph.D.
Public Affairs—M.A.***
Quality Management and Productivity—M.S., Ph.D.
Radiation Biology—M.S., Ph.D.
Religion—M.A., Ph.D.
Rural Sociology—M.S.
Science Education—M.S., Ph.D.
Social Science—M.S.
Social Work—M.S.W.
Sociology—M.A., Ph.D.
Spanish—M.A., Ph.D.
Speech Pathology and Audiology—M.A., Ph.D.
Statistics—M.S., Ph.D.
Stomatology—M.S., Ph.D.
Theatre Arts—M.A., Ph.D.
Urban and Regional Planning—M.A., M.S., Ph.D.

*Degree offered with or without thesis
**Degree offered without thesis
***Degree offers unavailable

Ad Hoc Interdisciplinary Ph.D. Programs

In addition to the degree programs listed above, the graduate faculty has authorized the awarding of ad hoc interdisciplinary Ph.D. degrees. There are no provisions for ad hoc interdisciplinary programs at the master's level. Students seeking approval for ad hoc interdisciplinary Ph.D. programs must previously have been admitted to and enrolled in a departmental program in the Graduate College.

For details, see Section XIX in "Rules and Regulations of the Graduate College" in this section of the Catalog.

Aging Studies Program

The Aging Studies Program is a multidisciplinary interdisciplinary 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, personal, research, or service career interests in aging. An entry is made on a student's transcript certifying completion of an approved curriculum in aging studies. For further details, see "Aging Studies Program" in the College of Liberal Arts section of the Catalog.

Applied Mathematical Sciences

The Applied Mathematical Sciences Program is a broad-based interdisciplinary program leading to the Ph.D. Students combine study of theoretical and applied aspects of mathematics, computer science, statistics, or operations research, or computer science with study in a science (Biology, biomedical, engineering, medical, physical, or social). See "Applied Mathematical Sciences" in the College of Liberal Arts section of the Catalog for a list of faculty and a further description of the program.

Genetics

The Ph.D. program in genetics is an interdisciplinary program involving members of the Departments of Biochemistry, Biological Sciences, and Microbiology as well as the number of faculty members in clinical departments. See "Genetics" in the College of Liberal Arts section of the Catalog for a list of participating faculty, degree requirements, and courses offered.

Human Nutrition

The Human Nutrition Program provides interdisciplinary training for doctoral candidates who wish to serve in research or teaching in a medical setting. See "Human Nutrition" in the College of Medicine section of the Catalog.

Interuniversity Center for Film and Critical Studies

In Paris

The University of Iowa is one of a consortium of 21 colleges and universities associated with
the Council on International Educational Exchange (CIEE), which sponsors the Study Abroad Programs and a Contemporary Criticism and Culture Program. The University offers academic opportunities at the Centre Universitaire Americain du Conte et de la Citrope à Paris.

The Film Studies Program is designed to explore film situations in terms of the work of filmmakers and critics. The curriculum provides courses in critical and historical film theory, formal structures, history, and aesthetics. Participants study the relationships between film and other art forms: film culture, film and language, and film and psychoanalysis. Students discuss the evolution of the early cinema and the silent films of Griffith, Lang, Eisenstein, and Vidor; the classic Hollywood film; French cinema during and after the transition to sound; and European and American avant-garde cinema. Participants study the works of Aljet, Fried, Arlott, Laces, and Poitou, and others in an understanding of contemporary French culture, mass media, and the visual arts.

The Contemporary Criticism and Culture Program focuses on recent developments in French political thought and social institutions, linguistics, social sciences, and literary theory. It covers recent theoretical concepts in the fields of linguistics, psychoanalysis, anthropology, history, and philosophy, as they relate to verbal and audiovisual representations in literature, painting, photography, film, and television. The interdisciplinary nature of this program makes it widely applicable to the work of students majoring in the problems of criticism and culture. It is of particular value to those who want to explore the interactive complexity of modern French thought in a variety of disciplines.

A recent addition to the program is a specialization in Jena, inspired by the application to historical research of insights from other fields, such as linguistics, social geography, anthropology, sociology, and economics. This theme is also applicable in the French historical approach has been a preoccupation with the long-term evolution of populations and the construction of language and the social ethics of groups of ordinary people, seen in their urban or rural contexts.

Students may concentrate in two of the program's course offerings by developing an individual program consisting of courses from both study center components.

Participating students are registered in both the University of Paris-III—Center and eligible to take the courses offered within the University of Paris as well as those directly sponsored by the center. The program is open to both undergraduate and graduate students from The University of Iowa. For further information, contact the Department of Communication Studies.

Joint Law and Graduate Degree Programs

Joint programs under which students can simultaneously pursue degrees in the College of Law and the Graduate College have been developed with the law college and a number of departments in the Graduate College. See the College of Law section of the Catalog.

Joint Programs within the Graduate College

Various joint programs have been developed with graduate students simultaneously toward two graduate degrees. Consult the appropriate sections of this Catalog for further information. Established joint programs include: Business Administration/Library and Information Science; Economics/Urban and Regional Planning; Hospital and Health Administration/Business Administration; Urban and Regional Planning; Economics/Urban and Regional Planning; Preventive Medicine and Environmental Health/Urban and Regional Planning; and Business Administration/Nursing.

Medical Scientist Training Program

The Medical Scientist Training Program (MSTP) is an interdisciplinary M.S./Ph.D. program offered jointly by the College of Medicine and the Graduate College. See "Medical Scientist Training Program" in the College of Medicine section of the Catalog.

Molecular Biology

The Ph.D. program in molecular biology is interdisciplinary in nature, involving members of the Departments of Biological Sciences, Biochemistry, Medicine, Microbiology, Pathology and Physiology and Psychiatry. 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 involving areas of 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.

Graduate/Physician Assistant Joint Programs

Students who already have a baccalaureate degree may pursue either a Master of Science with a major in preventive medicine and environmental health or a Master of Arts with a major in exercise science in the Graduate College and a Bachelor of Science 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 and "Exercise Science" in the College of Liberal Arts section of the Catalog.

Quality Management and Productivity

The Interdisciplinary Program in Quality Management and Productivity is a nondegree program. Consists of the Departments of Statistics and Actuarial Science, Industrial Engineering, and Management Sciences, the program seeks to train students who are interested in the total quality management of products and services, and the industrial and commercial world. Details are provided in the College of Liberal Arts section of the Catalog.

Transportation Studies

The Program in Transportation Studies is an interdisciplinary, nondegree-granting program that coordinates coursework leading to student certification in the areas of planning, analysis, and operation of transportation systems. Students participate in component work toward a graduate degree in civil and environmental engineering, geography, or urban and regional planning. When the graduate degree is awarded, an entry is made on the student's transcript certifying completion of the Program in Transportation Studies. For further details, see "Transportation Studies" in the College of Liberal Arts section of the Catalog.

Urban and Regional Planning

The graduate program in urban and regional planning is a professional master's program that prepares students for positions in government and the private sector. The program is strongly oriented toward the realities of life in the Midwest and serves students in the urban and regional context.

Research Resources

The major and diverse research activities of the University are centrally administered by the Office of the Vice President for Research, which has a comprehensive Graduate College. For further information, see "Research and the Special Resources at Iowa" in the Catalog.

Financial Assistance

Approximately half of the University's graduate students receive some form of graduate student assistance. Eligibility requirements and application procedures are set forth in "Financial Assistance" in "Rules and Regulations of the Graduate College" in the Catalog. The following are the primary sources of assistance.
Graduate College

Available in most departments, students typically receive grants in the range of $9,000 to $11,000 for half-time assistantships; assistanies also are eligible for tuition scholarships. Assistantship (four-quarter time or more) recipients are classified as residents for fee purposes.

IOWA ARTS FELLOWSHIPS

For two-year University of Iowa graduate students entering M.F.A. programs; stipend is $10,000 for the academic year, with full tuition paid, for as many as two years. Students may also be eligible for summer assistance. For information contact the M.F.A. arts offices.

IOWA INTERNSHIP FELLOWSHIPS

Two-year awards for doctoral students new to graduate study in The University of Iowa, 12 month stipend of $12,000, with full tuition paid; no departmental service obligations.

GRADUATE OPPORTUNITY FELLOWSHIPS

For first-year graduate students from underrepresented ethnic minority groups; one-year stipend of $9,000 for the academic year.

THE UNIVERSITY OF IOWA FELLOWSHIP PROGRAM

For two-year graduate students entering doctoral programs; typical stipends are $15,000 per year on a year-round basis, with all tuition paid, for as many as four years; departmental participation assures that the recipients will be involved in departmental life, including seminars, research, or writing full time.

SCHOLARSHIPS

Scholarships provide up to full tuition and fees.

GRADUATE FELLOWSHIPS

Graduates receive stipends of $3,000 for the academic year.

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 teachships, 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 sources of 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 by the graduate students in each 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 them.

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 the Manual of Rules and Regulations of the Graduate College.

The Academic Program

Section I. Admission to the Graduate College

A. APPLICATION PROCEDURE

All students seeking to register for the first time in the Graduate College of the University of Iowa must submit a formal admission statement from the director of admissions. Applicants may obtain the proper forms from the Office of Admissions.

In addition to these forms, official transcripts from each undergraduate and graduate institution attended must be submitted to the director of admissions for the designated deadline prior to the session in which admission is expected. Specific deadline dates will be established by the dean of the Graduate College and the director of admissions and printed in the Catalog and elsewhere.

B. GRADUATE RECORD EXAMINATION

All applicants prior to consideration for admission must take the Graduate Record Examination (GRE). In addition to this, applicants may elect to have their GRE, the GRE Subject Test, or the Graduate Management Admission Test (GMAT). Applicants for whom GRE data are incomplete, without the exception of scores on the GRE or the GMAT, must be given the opportunity to complete the GRE, the GRE Subject Test, or the GMAT, as directed by the departmental policy, before being admitted. If the GRE, the GRE Subject Test, or the GMAT are required by the departmental policy, the same admission policies must be applied to the student's academic standing. For more information, see the program information section of The Graduate College.

C. ENGLISH FOR FOREIGN STUDENTS

Prior to consideration for admission, foreign students whose native language is other than English must either pass TOEFL (Test of English as a Foreign Language), unless they have received a degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand. The examination is given at various times of the year and in many countries throughout the world. Inquiries should be addressed to the director, TOEFL, Educational Testing Service, Princeton, New Jersey 08541.

Foreign students transferring from unaffiliated degree programs of other universities in the United States who have not taken this examination will be expected to pass the Graduate College's examination or receive a passing grade prior to consideration for admission.

The Graduate College will advise the departments of those students passing the TOEFL test. Individual departments may require such students to take and pass a course at The University of Iowa in English usage designed especially for foreign students.

D. EARLY ADMISSION

Admission to the Graduate College is not the equivalent of acceptance as a candidate for an advanced degree, which must be earned through work successfully completed at the University of Iowa. See "Section XI. Master's Degrees," "Section XII. Two-Year Degrees," and "Section XIII. Doctor's Degrees."
average of at least 2.50 (3.00 for doctoral) and acceptance by the major department, or be dismissed.

3. Special—Students with a valid bachelor's degree may be admitted to the Graduate College. Registration as a special student is allowed for only one semester or one summer session. Before registration for any subsequent session, including another summer session, a special student must file an application and be admitted by a department or program to regular or conditional status. A special student registering as a special student must take no more than two courses during a semester or eight semester hours during the eight-week summer session.

II. 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 minimum standards. For nonresidents, students must present a minimum grade-point average of 2.50 is required for admission to conditional status. A minimum of 2.50 is required for admission to regular status. The grade-point average is computed only on graduate work. All students should have completed at least 12 graduate hours. If the student has not completed 12 graduate semester hours, the grade-point average is computed on the undergraduate and graduate work combined. In cases in which a student applying for admission has a grade-point average below the minimum required, the application will be reviewed and a decision rendered.

ôExceptionô score above a point to be

accepted by the Graduate College dean, his or

her papers shall be forwarded to the department

counselor and for a score of 2.00 and above.

Students applying for admission to a doctoral program with 12 or more semester hours of graduate work must have a minimum grade-point average of 3.00 on the graduate work. For students with less than 12 semester hours of graduate work, a minimum of 2.70 is recommended.

Departments, or committees charged with graduate degree programs, may, and often do, set additional minimum admission requirements that are set forth above and the Graduate College as a whole. Information concerning departmental or program requirements may be obtained directly from the administration.

For State Board of Regents' formal admission requirements, see the Iowa Code, Code of Regents sections of the College.

II. ADMISSION OF FACULTY MEMBERS TO GRADUATE STUDIES
Persons who hold faculty rank of assistant professor (including clinical assistant professor) or above at the University may be admitted as special students. (See "Section 6.04" above.) A person holding faculty rank as specified above must apply to the Graduate College dean, or the dean of the appropriate departmental program to work leading to an associate's, bachelor's, master's, or doctoral degree, except in departments in the department of his or her appointment or a closely-related department. Such petitions must have prior appeal of the department of appointment, dean of the college of appointment, and the department in which study is to be pursued, and the Graduate Council.

A. REAQUIREMENTS

Students who are admitted to and enroll in the Graduate College, but not then to register for a period of 30 months or more, must apply for readmission. Their acceptance is dependent on 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 registration.

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 addition to a credit grade graduate and undergraduate courses, two hours of undergraduate credit may be substituted for one summer hour of graduate credit, with permission limited to a total of 18 semester hours. This equates to a minimum of 18 semester hours. This equates to the maximum of 18 hours and 120 credit hours. The maximum for the eight-week summer session is eight semester hours, or nine semester hours if two or more semester hours of undergraduate work are included. The maximum semester-hour registration for an academic year is 30 semester hours. The eight-week semester will be arranged on a basis proportionate to that stated above with the approval of the Graduate College dean. Nine semester hours in the regular semester constitute full-time registration. (Full-time is required to carry at least nine semester hours during a semester as a condition of their appointments.) One-quarter-time and one-third-time are permitted to register for the maximum 15 semester hours per semester in the eight-week session period during the eight-week summer session.

B. COURSES NOT INCLUDED IN TOTAL REGISTRATION
In addition to a full schedule, a graduate student may register for courses listed in the Schedule of Courses as carrying zero semester hours of credit.

C. CHANGES IN ANNOUNCED CREDIT
Graduate students may not register for more credit in any course than that printed in the Schedule of Courses, but may register for less credit, or no credit, by permission of the instructor. The number of courses a graduate student may take for limited or no credit is subject to the consent of the advisor and the approval of the dean of the Graduate College.

D. SCHEDULES FOR TEACHING AND RESEARCH ASSISTANTS AND OTHER APPRENTICE

1. One-half-time apprentices may register for not more than 12 semester hours during a semester or six semester hours during the eight-week summer session.

2. Five-eighth-time apprentices may register for not more than 15 semester hours during a semester or five semester hours during the eight-week summer session.

3. Two-thirds and three-quarter-time apprentices may register for not more than nine semester hours during a semester or five semester hours during the eight-week summer session.

4. Seven-eighth-time apprentices may register for not more than seven semester hours during a semester or four semester hours during the eight-week summer session.

5. Full-time apprentices, including full-time instructors, may register for not more than the semester hours during a semester or three semester hours during the eight-week summer session.

A. RETROACTIVE REGISTRATION

No form of retroactive registration is permitted.

B. REGISTRATION FOR PART OF A SESSION
A graduate student may register at any time during the semester or the eight-week summer session for not more than one semester hour of credit for each of the remaining weeks of classes (not including the examination period) in the term. The final 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, independent study, thesis, or research, with the signed approval of the instructor concerned and the Graduate College dean.

E. EXTRADIMAL REGISTRATION

After admission to a departmental program in the Graduate College, registration for work done off campus may be accepted for resilience credit under the following circumstances:

1. Traveling Scholar Program of the Committee on Institutional Cooperation (see "Section III."

2. Research at approved locations under the direction of members of the graduate faculty of The University of Iowa

3. Work as part of a regularly scheduled course or research program.

4. Course taught off campus by members of the graduate faculty (see "Section III."

5. Graduate and undergraduate courses from another Iowa Regents' university (see "Section IV."

6. As many as nine semester hours of graduate work taken at the Joint-Campus Graduate Center at St. Louis, or by faculty of the Iowa Regents system, provided the work is acceptable to the student's major department for the approved degree.

Extramural registration does not count toward residence requirements, in the following circumstances:

1. Course work transferred from another institution.

2. Correspondence courses.

3. Three-hour and three-quarter-time apprentices may register for not more than nine semester hours during a semester or five semester hours during the eight-week summer session.

4. Seven-eighth-time apprentices may register for not more than seven semester hours during a semester or four semester hours during the eight-week summer session.

5. Full-time apprentices, including full-time instructors, may register for not more than the semester hours during a semester or three semester hours during the eight-week summer session.

A. RETROACTIVE REGISTRATION

No form of retroactive registration is permitted.

B. REGISTRATION FOR PART OF A SESSION
A graduate student may register at any time during the semester or the eight-week summer session for not more than one semester hour of credit for each of the remaining weeks of classes (not including the examination period) in the term. The final 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, independent study, thesis, or research, with the signed approval of the instructor concerned and the Graduate College dean.

E. EXTRADIMAL REGISTRATION

After admission to a departmental program in the Graduate College, registration for work done off campus may be accepted for resilience credit under the following circumstances:

1. Traveling Scholar Program of the Committee on Institutional Cooperation (see "Section III."

2. Research at approved locations under the direction of members of the graduate faculty of The University of Iowa

3. Work as part of a regularly scheduled course or research program.

4. Course taught off campus by members of the graduate faculty (see "Section III."

5. Graduate and undergraduate courses from another Iowa Regents' university (see "Section IV."

6. As many as nine semester hours of graduate work taken at the Joint-Campus Graduate Center at St. Louis, or by faculty of the Iowa Regents system, provided the work is acceptable to the student's major department for the approved degree.

Extramural registration does not count toward residence requirements, in the following circumstances:

1. Course work transferred from another institution.

2. Correspondence courses.
K. 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 L.C.1") and upon establishment. See "Section K.E.3." for special fees applicable to postcomprehensive examinations, which should not be confused with extramural registration for residence credit. |

L. CORRESPONDENCE COURSES
Correspondence programs do not count as residence credit. Not more than nine semester hours of graduate correspondence work can be applied toward an advanced degree. Such credit may be acceptable for the student's plan of study and must be earned after the student has entered the Graduate College. In some instances, graduate-level correspondence study credit earned after a student has received a bachelor's degree but before enrolling in the Graduate College may later be counted toward an advanced degree with approval of the Graduate College dean upon recommendation of the original department. A graduate student may not register for correspondence courses without the approval of the executive officer of his or her major department and of the Graduate College dean.

M. SYSTEM OF COURSE NUMBERS
Courses primarily for graduate students are numbered 200 or above in each department. Courses numbered 100 to 199 are open to graduate and undergraduate students and are numbered from 100 to 199. Courses below 100 are not accepted for graduate credit. Graduate credit may be counted for failure of courses numbered 100 to 199, those given as readings, special projects, or independent study having course number of 100 or above.

N. AUDITING OF COURSES
Upon the recommendation of the instructor and the dean, the dean of the Graduate College may permit graduate students to audit courses for zero credit. Auditing is permitted only for a student who is currently registered.

O. DROPPING OF COURSES
All graduate students who drop courses after the deadline established by the dean of the Graduate College for each semester and published by the registrar shall receive the grade of withdraw unless the entire registration is withdrawn. This regulation may be waived by the Graduate College dean on the recommendation of the Student Health director or the Counseling Service. No student withdraws registration after the deadline date, the student must obtain permission from the dean of the Graduate College before being permitted to reenroll.

Section III. Traveling Scholar Program
A. PURPOSE
The program, under the auspices of the Committee on the Study of the Cooperative 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 libraries, and literary collections.

B. PROCEDURE
1. A CIC Traveling Scholar first must be recommended by his or her own graduate advisor and the faculty member at the host institution, the graduate dean at both institutions will be fully informed by the advisor and have the power to approve or disapprove.
2. A CIC Traveling Scholar will be registered at the home university, and fees will be collected by the home university.
3. Check for the work taken will be received at the home university.
4. Those desiring additional information should inquire at the office of the Graduate College.

C. CONDITIONS
CIC Traveling Scholars will normally be limited to two semesters or three quarters on another campus. Each university retains its full right to accept or reject any student who wishes to study under its auspices.

Section IV. Academic Standing, Probation, and Dismissal
A. NONDOCTORIAL STUDENTS
A student, except one on conditional status, shall be placed on probation if, after completing eight semester hours of graduate work, he or her cumulative grade-point average on graduate work done at The University of Iowa falls below 3.00. If, after completing eight semester hours of graduate work at this university, his or her grade-point average remains below 3.00, he or she shall be denied permission to reenroll; otherwise, the student shall be returned to good standing.

B. DOCTORAL STUDENTS
A doctoral student on regular status shall be placed on probation if, after completing eight semester hours of graduate work, the student's cumulative grade-point average on graduate work done at The University of Iowa falls below 3.00. If, after completing eight semester hours of graduate work at this university, his or her cumulative grade-point average remains below the required level, the student shall be dropped from the program and denied permission to reenroll unless he or she applies and is accepted for a nondegree degree or certificate program. If, after completing the second eight semester hours, the cumulative grade-point average is at least 3.00, the student is returned to good standing.

C. RESTRICTION ON STUDENTS ON PROBATION
A student on probation shall not be permitted to take comprehensive or final examinations leading to any degree or certificate, nor may the student receive any graduate degree or certificate.

D. DEPARTMENTAL REGULATIONS AND DISSEMINATION OF INFORMATION
In addition to the above, the departmental regulations, requirements, and procedures for the conduct of the department and the office of the Graduate College may be found in a copy of the catalog. Each departmental program shall provide all new students with this catalog. Each departmental program shall establish a mechanism by which communication with the department to each student may be made as the need arises. Wherever departmental rules differ from the above, these rules shall be supplemented and explained to incoming students.

E. ACADEMIC PROGRESS, DEPARTMENTAL PROBATION, AND DISMISSAL PROCEDURES
It is the responsibility of each graduate department to determine the standards it expects for academic progress, and to determine what measures shall be taken when a student is in academic difficulty. In addition, the departmental rules in a graduate department on probation shall be made known to the student in writing. It is the responsibility of the departmental program to determine which courses shall be available to students on probation. It is the responsibility of the departmental program to determine which courses shall be available to students on probation. If a student should be ruled to be in academic difficulty, the department shall establish procedures for handling such students. Procedures for the handling of such students should be determined by the Graduate College dean and shall affect a fair and equitable review. A description of these procedures shall be included in the
departure regulations described above. See "Section N.D.2."

F. GRADE AND COLLEGE REVIEW OF DEPARTMENTAL DISMISSAL

Questions involving judgment of performance will not be reviewed beyond the departmental level. If, however, the student feels there has been some form of procedural irregularity concerning dismissal, the student may request a review by the Graduate College. This review may be conducted by the Graduate College alone, or at the Dean's discretion by 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 work at other institutions will be entered on the student's permanent record by the registrar and a report of this action will be sent to the student and to his or her major department. Credit for courses toward an advanced degree at Iowa State will be accepted by the department and the dean of the Graduate College.

B. RESIDENCE TRANSFER CREDIT

After admission to a departmental program in the Graduate College, residence graduate credit from another Iowa State graduate program may be counted as residence credit at this university, provided such work is acceptable to the student's major department on the basis of the department's decision of the applicability toward the degree. See "Section A.D.2." and "Eligibility" for minimum semester hours required on campus by the master's and doctor's degree.

C. OPTION IN CREDIT

For courses or seminars in independent study, thesis, and research, an instructor may report that credit is earned when the number of semester hours for which a student is registered.

D. GRADUATE CREDIT FOR VETERANS

Credit may be granted for studies pursued in war and military situations under such regulations as may be formulated by the national educational agencies and under such subcontract of training rules as the Graduate Council may authorize from time to time in meet group or individual situations. The value of such credit in satisfying requirements for a degree will be determined by the major department with the approval of the dean.

E. WITHDRAWAL OF REGISTRATION AND PROPORTIONAL CREDIT FOR STUDENTS ENTERING MILITARY SERVICE

1. Students who leave within the first six weeks of the semester receive no credit.
2. Students who leave within the period of seven to nine weeks receive one-half credit.
3. Students who leave within the period of 10 to 12 weeks receive two-thirds credit.

4. Grade reports for the one-half and two-thirds credit periods of instruction report grades only as satisfactory or unsatisfactory. (B) Credit is to be assigned on the basis of total registration rather than per course. (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 on a specific courses. (c) In each instance, the instructor reports the student's credit, grade, and date of withdrawal. No credit is granted unless the student's work is satisfactory at the time of leaving.

7. The amount of credit in thesis and research is to be reported in the registry to individual instructors on the above basis except that less or no credit may be assigned.

Section VI. Marking System

M. CARRIES CARRYING CREDIT GRADUATE CREDIT

These are A-, A+, A, B+, B, B-, C+, C-, and S-satisfactory.

M. CARRIES CARRYING NO GRADUATE CREDIT

These are D+, D, D-, F, I-incomplete, W-withdrawn without credit, R-registered, and U-unsatisfactory.

N. AUDIT

It is assigned when a student registered for zero credit attends as an auditor in the course; if the student fails to meet the instructor's requirements for class attendance, W is assigned.

O. 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 assigned. (See next paragraph, "S."). Students who receive the grade of I must remove that mark within the first session of registration after the closing date of the semester for which it is given, or the grade becomes F, except that students with F's from the spring semester are exempt from completing the course during the succeeding summer session.

Specific deadlines for the submission of student work to the faculty and for the faculty's report on I 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 grade is given.

P. TRIALS, RESEARCH, READING, INDEPENDENT STUDY, AND SPECIAL PROJECTS

Grades of S and U may be used for registrations in thesis, research, reading, 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 in a later date, a student's GPA may change the S to a letter grade. In addition, departments may ask the Graduate College dean for permission to use grades of S and U as described above for courses which, because of their special or experimental nature, are judged to be more appropriate for such grading. In general, these requests may be granted for no more than one session and must be renewed by the Graduate Council before being entered for longer periods. The type of grading system to be used in the above cases should always be mutually understood by the instructor and student.

Q. GRADES OF 5 AND U

S grades may be used for courses taken by a graduate student outside the major department or interdepartmental degree program provided that the instructor of the course and the student's departmental adviser approve the registration. Amendments for satisfactory/unsatisfactory grading in these courses are accomplished by signing a card with appropriate signatures in the Registrar's Office at the time of registration, or no later than the last day of the third week of a semester or the third day of the second week of a summer session. No changes from lower grades to satisfactory/unsatisfactory grades or vice versa will be allowed after these dates.

It is not the policy of the Graduate College to abandon the traditional letter grades described in this section; however, in certain exceptional situations, departments having several courses of this nature may request that all varying types of effort may expect the permission of the Graduate Council to allow students receiving in one area to register in courses in another area which are designated as satisfactory/unsatisfactory basis. In these instances, satisfactory/unsatisfactory cards will be used in the described in the preceding paragraph.

R. GRADE-POINT AVERAGE

This is based on only graduate work graded A+ or A, A-, A+, B-, B+, B+, B+, C+, C-, C-, C-, and S-satisfactory. A grade of A+ has a value of 4.33 in computing a grade-point average. The cumulative average is computed as so not 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 3.0 or above (3.0); (c) a CMAT score of a 16 or above or a score on a CMAT exam above a 3.0; (d) a satisfactory rate of progress in completing the program for the degree.

2. Evidence will be given to candidates for the degree.
3. Recommendations for graduate scholarships may be made to the Graduate College by the appropriate department executive, director, or dean. A graduate scholarship may be awarded either on academic merit or on the basis of need. The amount of scholarship for the academic year may vary, but in no case exceed the comprehensive fee assessed. Scholarships will be credited to the student's University account.

B. GRADUATE COLLEGE FELLOWSHIPS
Fellowships are awarded by the Graduate College upon recommendation by departments to students with outstanding academic records. Fellowships must be registered in full-time status. 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 in consultation with the Graduate Council.

C. FACULTY RESEARCH ASSISTANTSHIPS
Faculty research assistanceships are awarded to qualified graduate students and serve two purposes: to provide research service to professional 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 priced in proportion, and a limited academic schedule is permitted ("Section E.2"). 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 assistantships are not to exceed the appointee's own costs. Graduate appointments beginning in the May session are for the nine-month academic year and the Graduate College will upon recommendation of the departments in March of each year, although applications may be considered at any time. Application should be made on the form provided by the Graduate College and should be accompanied by recommendations and/or a letter commenting on the student's qualifications.

D. GRADUATE ASSISTANTSHIPS
Several departments and programs have two purposes: assistance in the instructional program of the University and the preparation of future college teachers. In order to achieve both aims, scholarhip 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
Solutions, fellowships, and research assistantships on the Graduate College budget must be registered as regular students in good standing in order to hold such appointments. Appointment as a research assistant or/and student status is terminated. In no instance may a student be permitted or ordered to attend classes as a terminal requirement for the appointment to the Graduate College by the director of the administration.

II. DISMISSAL OF ASSISTANTS
A uniform policy defining procedures to be followed in the dismissal of assistants has been approved by the Board of Regents. Copies of this policy are available in the office of the Graduate College dean.

G. CREDIT
No academic credit is allowed for the teaching or research service for which the student receives payment as a graduate or a faculty research assistant.

H. LOANS
Graduate students requiring financial assistance may apply for loans at the Office of Student Financial Aid. See "Financial Aid" in the Learning at Iowa section of the Catalog.

I. OTHER FORMS OF SUPPORT
Many departments offer financial assistance in the form of fellowships, part-time employment on research projects, or part-time teaching. Inquiries should be addressed directly to the major department.

J. RESEARCH SCHOLARSHIPS AND POSTDOCTORAL FELLOWSHIPS
These provide for independent research. Appointment is made through the Office of the Vice President for Academic Affairs.

Section VIII. Advanced Programs Offered in the Graduate College
The major areas in which the Graduate College offers degree programs are listed under "Degree Programs" at the beginning of this section of the Catalog.

Section IX. General Requirements for Advanced Degrees
A. APPLICATION FOR DEGREE
The student must file an application for an anticipated degree with the registrar not later than ten weeks after the start of the semester in which the degree is to be conferred. The student must have the application signed by his or her advisor. Failure to file the application prior to the deadline will result in postponement of graduation in a subsequent session.

H. ENROLLMENT IN FINAL SESSION
The student must be enrolled during the session in which the degree to be conferred is to be conferred but need not be enrolled in the University campus during that session. Students may request by registering for independent study, research, or theses according to the practice in the various departments. Doctoral candidates who have completed all work except the final examination may register for the comprehensive examinations described in "Section III.B.6" if such registration is appropriate. Master's candidates who have completed all work except the final examination may register for 3 credit hours. Such students must register in the "postcomprehensive examination" if such registration is appropriate. Registration in a correspondence course will not satisfy this requirement.

Students completing all requirements (including the final examination and their thesis) but enrolled in a first graduate degree while enrolled in a second graduate degree while enrolled in the Graduate College will not receive their degree 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 toward the Master of Arts degree, Master of Science degree, Master of Business Administration degree, Master of Education in Teaching degree, and other master's degrees as approved by the graduate faculty.

B. PLAN OF STUDY
The applicant for a master's degree must file a plan of study approved by the advisor and the departmental executive with the Graduate College within the session in which the degree is to be granted and by a date to be established by the Graduate College dean. The plan shall meet the requirements for the degree approved by the graduate faculty. See also "Section IV.D. Departmental Regulations and Disclaimers of Information."

C. MAJOR AND RELATED FIELDS
The plan of study shall provide for reasonable concentration in the major field of interest, subject to the approval of the major department, and include related subjects in other departments.

D. RESIDENCE REQUIREMENT
Of the 30 semester hours required for the degree, at least 24 semester hours must be completed under the supervision 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 E.2. Extramural Registration") in addition to regular structures, in cases where at least eight semester hours on campus are required, except for nonthesis programs which require sufficient contact between the student and the graduate faculty and have received approval from the Graduate Council and the dean of the Graduate College for reduction of this on-campus requirement.

E. REGISTRATION OF OLD CREDITS
Credits for a master's degree dating back more than ten years from the session in which the degree is to be conferred are not counted toward fulfillment of degree requirements. This rule may be waived for the dead in cases decided by military service.

F. LIMIT ON PROFESSIONAL COURSES
Work taken by a student in the Colleges of Dentistry, Law, or Medicine which is approved for a professional degree may not be credited to a graduate program leading to a Master's degree if it is to be granted unless the student has earned a bachelor's degree or has completed work equivalents to that required for a bachelor's degree.
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degree at The University of Iowa. The work accepted from the student's major field of study in the Graduate College shall be approved as a part of the plan of study by the student's advisor and the major department. Work completed with registrar for a professional degree in law, medicine, or dentistry will be counted as part of the residence requirement for nondegree students in the Graduate College only when the student is registered in an appropriate joint degree program.

II. MASTER'S DEGREE WITH THESIS

A master's degree with thesis consists of at least thirty semester hours of graduate study, including the thesis and must be completed within not more than five years from the beginning of the semester in which the thesis is first registered.

The master's degree with thesis requires a minimum of thirty semester hours of graduate study, including the thesis. The thesis committee shall consist of at least three members of the graduate faculty and may be approved by the Graduate Council.

III. FINAL EXAMINATION

The requirements for all master's degrees include a final examination which, at the discretion of the major department, may be written or oral. Such an examination will not duplicate course examinations. It will be evaluated by the examining committee as satisfactory or unsatisfactory, with two unsatisfactory votes nullifying the committee's report until satisfactory.

The examination is to be held by the major department in the Graduate College not later than 48 hours after the examination.

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.

E. EXAMINING COMMITTEE

The examining committee for the master's degree consists of at least three members of the graduate faculty, appointed by the Graduate College dean upon recommendation of the major department or program, at least two of whom are from the major department. If the examination covers work in another department, one member of the committee must be from that department. Upon recommendation of the major department, the dean may appoint additional qualified persons (not necessarily members of the graduate faculty) to serve as voting members of the examining committee, and if at his or her discretion, the Graduate College dean may add a member to the committee.

Section XII. Two-Year Degrees

A. MASTER OF FINE ARTS DEGREE

This degree is awarded for creative work in the visual arts, dramatic art, music, dance, or literature. It is designed for students preparing themselves professionally in such fields as painting, design, music, decoration, sculpture, photography, acting, producing, writing, design, technical performance, composition, orchestration, musicology, poetry, fiction, and translation. Central to the program, the thesis may consist of a novel, a painting, a play, a musical composition, a dance performance, or any other approved art form.

The program for the Master of Fine Arts degree requires at least two years of residence credit in a graduate college. This minimum requires 48-hour residence credit, of which at least 24 of which must be graduate credit (exclusive of thesis credit). The Master of Fine Arts degree may be earned while the student is working toward the Master of Arts degree, but the student must meet all requirements for each degree separately, with a minimum combined total of 60 semester hours of graduate credit.

For other requirements, see "Section XII. Plan of Study"; "C. Master and Related Fields; "E. Reduction of Credit"; "H. Master's Degree with Thesis"; "F. Final Examination"; and "E. Examining Committee."

B. SPECIALIST IN EDUCATION DEGREE

This degree is granted upon completion of a prescribed two-year, postbaccalaureate program designed for students preparing themselves professionally in such fields as teaching, administration, and supervision, and special services.

At the minimum of 60 semester hours required for the degree, at least 36 semester hours must be completed in residence at the university, of which 15 semester hours must be earned while the student is on campus within the 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 graduate fields, supervised experience, and in a minimum of 9 semester hours of research culminating in a written project.

Courses successfully completed less than two years prior to the final examination will be evaluated by the major department in order to determine the acceptability of credit that shall be given for such work. Limitation of such old work will be reviewed by the appropriate College by the departmental executive at the time of admission for the degree.

Other requirements and regulations applicable to the educational specialist degree are the same as prescribed for the two-year master's degree in "Section XII. Plan of Study"; "C. Major and Related Fields"; "F. Final Examination"; and "E. 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 addition.

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 field of social work by meeting the following requirements:

1. A minimum of 24 semester hours in residence at The University of Iowa;

2. A minimum of 60 semester hours in graduate social work, including a research requirement;

3. A final comprehensive examination, written or oral or both, covering all work for the degree.

The requirement of 60 semester hours must be interpreted to mean that a student who can satisfy the faculty of the school that he or she has accomplished, in the junior or senior year, all requirements for graduation in part or parts of the graduate curriculum in social work may be permitted, upon recommendation of the faculty of the school, to qualify for the M.S.W. degree on less than 60 semester hours. It is possible that a student on less than 60 semester hours of graduate social work study may be permitted.

The curriculum is organized into four general areas: social work practice, human growth and behavior, the social sciences, and research. During the two-year graduate program, class work is combined with field practice in various settings. Since class work and field practice are arranged sequentially, students can enter the School of Social Work only in August.

For other requirements, see "Section XII. Plan of Study"; "C. Major and Related Fields; "F. Limit on Professional Courses"; "H. Master's Degree with Thesis"; and "E. Examining Committee."

Section XIII. Doctor's Degrees

A. CHARACTER OF PROGRAM

The Graduate College offers 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 market existence in research or other creative work, and superior competence in the discipline. The Doctor of Musical Arts degree indicates market existence in performance and pedagogy.
G. LIMIT ON PROFESSIONAL COURSES
Work taken by a student in the Colleges of Dentistry, Law, or Medicine while enrolled for a professional degree may be credited to a graduate program leading to a doctoral degree if it is taken after the student has earned a bachelor's degree in the profession. The work accepted from the professional college must be directly related to the student's major field of study in the Graduate College, and the load of study must be approved by the student's advisor and the major department. Work completed while registered for a professional degree in law, medicine, or dentistry will not be counted as part of the one calendar year which must be spent in residence as a doctoral student on the campus of this university.

H. JURY PROGRAM FOR ALUMNI AND DOCTORAL DUELS
Those students who expect to continue their study through the doctoral degree may file a joint program for an 8 year's and doctor's degree. The master's examination may be completed with the comprehensive examination for the doctorate for those candidates. The examination committee will report the student's status on the final examination for the master's degree and for the comprehensive examination. Upon recommendation of the department and approval of the Graduate College dean, students who are well qualified by previous training may submit a plan of study that leads directly to the doctoral degree without earning the master's degree as an intervening part.

I. REQUIREMENT IN FOREIGN LANGUAGES
There is no general Graduate College requirement in foreign languages. Those departments that do require competence in one or more foreign languages establish standards as to the written and oral competence, as well as methods of testing. Specific requirements will be described in the department's catalog or in its standards and procedures (see "Section A.2."). Departmental executive officers are responsible for reporting completion of requirements to the regional language area director.

Specifics of departmental requirements in foreign languages are listed in the Graduate College catalog and may be changed upon request by the student.

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 times 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, administration only on campus, is intended to act as an external examination of the candidate's mastery of the major and related fields of study, including the kind of research in which competency has been certified. The comprehensive examination is not a declared qualifying examination. It is intended to evaluate the candidate's mastery of the subject area or area 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 the defense of the thesis and related subjects, are the two principal examinations in the doctoral degree.

The comprehensive examination will be evaluated by a committee consisting of the committee chair and the chairperson of the major department and the Graduate College. Two "unsatisfactory" votes will fail the committee to complete the report unsatisfactory. In the event of a report with two or three votes of "satisfactory with reservations," the six or eight stipulations of the committee should be recorded with the report form. The statement must specify the time allowed for satisfying the objections and must be specific in defining the area of further examination in a particular area is required, or in describing any additional courses or other procedures that are required. The candidate will not be admitted to the final oral examination until such provisions have been satisfied. The chairman of the major department should promptly send a written report in the Graduate College giving the date of removal of "reservation.

In the event of a report unsatisfactory on a comprehensive examination, the candidate will not be given the final examination without the candidate's approval of the committee's recommendation for remission of the oral examination or not sooner than four months after the final examination. The examination may be repeated only once at the option of the department.

K. POSTCOMPREHENSIVE REGISTRATION
The student is required to register each semester after passing the comprehensive examination until the degree is awarded. If a student who has been recommended to candidacy for the graduate degree is not recommended by the student's advisor, 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 needed, and thesis necessary to complete the plan of study.

When the recommendations required for the plan of study have been approved, the student may meet the ongoing registration requirement by registering for at least one unit of Postcomprehensive registration and paying a special minimum fee for any semester in which the department (i.e., department chair or dean of graduate studies, as the student's advisor determines that the student is neither making significant use of University facilities except library privileges) or part-taking of consultation with the faculty. It is understood that no registration for an entire semester 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
1. DISCUSSION 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 graduation date on which the degree is to be conferred.

Two copies of the approved dissertation must be deposited at the office at least ten days prior to the graduation date. The final deposit can be no later than the end of the semester (summer excluded) following the session in which the final examination is passed. Failure to meet this deadline will require reexamination of the student.

Regulations regarding preparation of the dissertation copy shall be promulgated by the dean of the Graduate College. Dissertations will be microfilmed and thus made available on a permanent basis. An abstract of the dissertation, not to exceed 350 words of text, is to be deposited with the dissertation. The abstract must be approved and signed by the dissertation advisor. The abstract is published in the journal of Dissertation Abstracts International. One copy of the dissertation is bound and indexed at the University’s Main Library.

If the dissertation is in some respect from (e.g., printing, size, performance in music) the dissertation will help the student and faculty advisor work on an appropriate method. Preparing the work, if at all help is needed. Once the accompanying manuscript is accepted, it is treated the same as any other thesis.

Written dissertations shall be made available to all members of the examining committee not later than two weeks before the date of the examination.

2. DISCUSSION FOR THE MAJOR DEGREE

A nonrefundable fee of $30 is charged each candidate to cover the cost of processing the dissertation and abstract.

3. 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 dissertation—not a mere recapitulation of the procedures followed—and intensive questioning on areas of knowledge constituting the immediate content of the dissertation.

The final examination may be held until the next session after the student passes the comprehensive examination, or until the thesis is accepted for final 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 "10.1 Comprehensive Examination.")

Final examinations for the degrees are open to the public. Members of the faculty of the Graduate College are especially invited to attend and, subject to the approval of the chair, to participate in the examination.

The report of the final examination is due in the Graduate College office not later than 48 hours after the examination. The final examination will be evaluated as satisfactory or unsatisfactory. Two ununsatisfactory votes will, with the unanimous report unsatisfactory. In case of a report of unsatisfactory in the final examination, the candidate may not present himself or herself for reexamination until the next session. The examination may be repeated only once, at the option of the major department.

4. EXAMINING COMMITTEES

The comprehensive and final examinations are conducted by committees of no fewer than five members of the graduate faculty appointed by the Graduate College. The members of the examining committee, except that departments may require the dean’s permission to replace one of the five members of the graduate faculty by a representative scholar of professional rank from another academic institution. A number of the graduate faculty from outside the major department is required in those cases when a related field outside the major department is included in the comprehensive examination. For the final examination, one member of the committee must be a member of the graduate faculty from outside the major department.

Upon recommendation of the major department, the Graduate College dean may appoint additional qualified persons (not necessarily members of the graduate faculty) to serve as voting members of the examining committee. A voting member may be added at the discretion of the Graduate College dean.

Section XIII: Exceptions

Pertinent to these regulations may be made for appropriate and justifiable reasons on behalf of any graduate student through the departmental executive to the dean and the Graduate Council.

Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>100:53 History of Medicine</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>100:55 History of Science</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>100:82 Cancer Biology</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>100:84 Cell Biology</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>100:86 Virology</td>
<td>3.0</td>
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<tr>
<td>100:88 Molecular Biology</td>
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<tr>
<td>100:90 Microbiology</td>
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</tr>
<tr>
<td>100:92 Immunology</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>100:94 Pathology</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>100:96 Physical Diagnosis</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>100:98 Preventive Medicine</td>
<td>3.0</td>
<td></td>
</tr>
</tbody>
</table>
In makeup for a University Theatre production.
College of Law

Dean: H. William Ivory, Jr.
Assistant Deans: Arthur E. Rocheleau, W.R. Knight
Assistant Deans: Lula K. Cole, Thomas C. Sawell
Professors: Mr. C. Andrew, David C. Banks (By J. Ty Professor), Nathan R. Bower, Arthur E. Rocheleau (John P. Byrne Professor), William L. Reid, Samuel J. Burson (William & Harriette Professor), William C. Boul (C.M. Kelton Professor), Kathleen C. Carter, Martha R. Chambless (Robert S. Collins (Wife Professor), B. Charles Clifton, Michael D. Green, William Jones, Jr., Joseph Randall (Professor), Sidney A. Metnick (Prof.), Ben and Dorothy Wilks Professor, W.H. Knight, Kenneth J. Jones, David F. Luce, Perry Sugarbroad (Professor), Paul M. Mayhew, John D. Beattie, Michael J. Lake, Peter W. Seay, John A. McDonald, James J. Tenchonich, Les E. Verlon/White, David R. Venable (Dean D. Virginia Tarver Professor), Larry C. Ward (Dallas Professor), James H. Wease (Dean S. Munsey Professor), Gerald B. Wehrin, Alan J. Wilbe (Joseph R. White Professor), Gregory F. Williams

Adjunct Professor: Andrew C.T. Myers

Associate Professor: S. James Amsay, Peter D. Rance, Enrique C. Cornejo, Meri Under, Barry D. Morinotto, Mark J. Orde, Randall C. Thomas, Alison Wary

Clinical Faculty: Dorothy Adams, John S. Allen, Lisa K. Cox, Bob Duffield, Paul Fagel, Leonard A. Scherst, Robert A. Schwetzen

Lecturers: Nicholas Johnson, Philip A. Led, Barry A. Chauvin, Georges K. Kot, Amanda Pickinfield

Degrees: J.D., LL.M.
The objective of formal legal education is to establish a solid foundation for a lifetime of professional growth. The educational elements necessary to build that foundation are varied. For example, thorough familiarity with the influence of legal principles and the operation of legal systems is an important component.

The University of Iowa plans emphasis on developing the student's legal skills and an appreciation of the role of law and lawyers in society. These objectives are best achieved through an educational program that encourages active student participation in the learning process and creates regular opportunities for individuals and small groups to confer with experienced attorneys who are genuinely interested in each student's professional development.

The University of Iowa College of Law confers upon its graduates the degree of Juris Doctor (J.D.). Students may elect a joint degree program, simultaneously earning both a law degree and a master’s degree in the Graduate College. Persons who hold a J.D. may pursue the LL.M. in International and Comparative Law.

A law degree from Iowa is a highly respected credential in the job market. Iowa graduates hold prominent positions on the bench, in the bar, in government, in business, and in education throughout the country.

Full-Time Policy

The policy believes that students receive a better legal education when they devote all of their time to the law school requirements. For the most part, students are expected to pursue their law studies full time. This policy is consistent with the accreditation standards of the American Bar Association and the Association of American Law Schools.

In extraordinary circumstances, it may be possible for students to enroll for fewer than 10 semester hours per semester. Students who believe they may need to enroll for fewer than 10 hours at any point during their academic career should contact the dean's office before registering for classes.

Entrance Dates

The college offers two starting dates in which students may enroll: late May at the beginning of the last week of August in the beginning of the fall semester. Most students elect to enroll in the fall, but a few choose to enroll in May of their third year of study; these students also may attend summer school at any point during their academic career.

The May entering class may number up to 45. Students entering May usually have a fall semester of work in the first 2 weeks of summer session, and if they remain on the accelerated track by attending summer school (or the subsequent semester, they can graduate twice months earlier than would otherwise be possible. Thus, the accelerated program at the University of Iowa is gaining in popularity.

First-Year Curriculum

Development of professional skills begins in the first year with emphasis on careful reading, general writing skills, legal research, and argumentation. Students concentrate on developing analytical skills for example, reading and understanding judicial opinions; gain a sense of the role of legal institutions in society.

First-year classes are as follows:

Full Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>91:102 Introduction to Legal Reasoning</td>
<td>4.5 h</td>
</tr>
<tr>
<td>91:120 Contracts and Sales</td>
<td>3.5 h</td>
</tr>
<tr>
<td>91:124 Criminal Law</td>
<td>3.5 h</td>
</tr>
</tbody>
</table>

Spring Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>91:104 Civil Procedure</td>
<td>3.5 h</td>
</tr>
<tr>
<td>91:163 Constitutional Law</td>
<td>3.5 h</td>
</tr>
<tr>
<td>91:121 Contracts and Sales</td>
<td>3.5 h</td>
</tr>
<tr>
<td>91:125 Property Law</td>
<td>3.5 h</td>
</tr>
</tbody>
</table>

Legal Stipathology

Students who enter law school in May take all of the above over the summer session and two regular academic semesters; plus 91:310 Appellate Advocacy 1 and 2 to 12 semester hours of electives.

Entering first-year students are expected to take all first-year courses and may not register for different courses or fewer hours without permission of the associate dean.

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 teaching in civil, lower level into substantive courses taught by regular, full-time faculty. The program's purpose is to provide meaningful and legal analysis, argumentation, research, and writing.

In the fall semester, students are divided into sections of approximately 30 students. In the spring (for accelerated students), each section includes approximately 20 students. In the small section, courses are given a high priority of challenging assignments, in which each student receives feedback from the instructor, including class attendance, written work, especially readings, oral reports, and so forth.

First-year students receive one additional semester hour for their first-year small section courses, plus one additional semester hour for their second-year small section. A mandatory course is applied to the grade distribution in all first-year courses.

Upperclass Curriculum

In the second and third years, students are exposed to a broad array of substantive areas of the law, with focus on the employment of interviewing, counseling, drafting, transaction planning, litigation, and negotiation. They also concentrate on writing, research and writing opportunities in particular areas of interest.

Very few common requirements exist in the second and third years. All students must take 91:310 Appellate Advocacy 1 in the second year before graduation in the spring. 91:232 Constitutional Law II and 91:308 Professional Responsibility.

Law 373
Writing Requirement
All students must earn five writing credits in order to graduate. They earn one of the credits with satisfactory completion of 91210 Applecid Advocacy I. The remaining four may be earned through any combination of courses and activities that carry writing credit, including seminar papers, small section writing courses, independent research papers, 911400-509 Legal Clinics, 911412 Client Counseling Board, 911408 More Clark Board, delivered appellate advocacy acumen, and moot-court, including the Iowa Law Review, Journal of Corporation Law, and Transnational Law and Contemporary Problems.

Specialization
Students may pursue their interest in a particular subject area by selecting appropriate course work and independent research projects. For example, in the corporate business area, students may take as many as 23-25 semester hours of course work: 9112414 Corporations I and II (3 semester hours), 911248 Business Planning II (4 semester hours), 911217 Corporate Finance (3 semester hours), 911248 Securities Regulation (3 semester hours), 911243 Federal Income Tax (3 semester hours), 911233 Employment Discrimination: The Law of (3 semester hours), and 911254 Employment Discrimination: Disproof of (2 semester hours).

Independent Research and Seminars
Students may register for 1-3 semester hours of independent research, in which the student, between semester hour and semester hours. In selecting topics for independent research or seminars, students should keep in mind that papers they write may be eligible for entry in one of several collections.

More writing may be taken for up to 5 semester hours, including writing credits. The usual format is a semester hour of credit for the class period (usually taken in the fall), and up to 2 semester hours of credit so that the writing portion of the seminar usually done in the spring.

Legal Clinic, Internships, Clerkships
Students who have completed one half of the work toward their J.D. degrees are eligible to apply their theoretical knowledge to real cases under the supervision of faculty members and other attorneys through participation in the College of Law Legal Clinic Program.

Students in the programs listed in law offices in Iowa City or the surrounding area, where they act as staff attorneys, working in all phases of the legal process. Typical assignments include Student Legal Services, the Iowa City Attorney Services Corporation, Iowa City Legal Services, and U.S. Bankruptcy Court.

The clinics offer either clinical or clerkship programs. In the clinical program, students represent financially distressed farmers in bankruptcy proceedings, inmates of Iowa correctional facilities in habeas corpus and civil cases, clients in the AIDS project, and other clients in a wide range of criminal and civil cases. In the clerkship program, students act as law clerks to the court judges. They observe court proceedings, conduct research, and draft legal memoranda and court papers.

The College of Law also participates in programs that do not carry academic credit. Each summer it participates in the University of Northern Iowa, in which their students work as paid employees for county attorneys throughout the state. These before-places students in a variety of legal clerkships and internships that provide insight into the workings of the legal system.

Joint Law and Graduate Degree Program
The college has developed programs with a number of University graduate programs through the Graduate College, under which students pursue degrees simultaneously in both colleges. Joint degree candidates may earn up to 12 semester hours earned for the graduate degree toward the 90 required for the J.D. In addition, the courses they count toward both degrees and the 12 semester hours are earned after admission to the joint degree program and after matriculation at the College of Law.

Graduate departments establish their own requirements for the joint degree program, including the number of hours the law school and joint degree. For the J.D. that may be counted toward the graduate degree.

Joint graduate degree programs have been initiated with the Department of Accounting, American Studies, Anthropology, Business Administration, Computer Science, Counseling Education, Economics, English, Finance, Journalism and Mass Communication, History, Human Nutrition Research, Industrial Relations and Human Resources, Library and Information Science, Music, Philosophy, Political Science, Robotics, Sociology, Social Work, Spanish, and Urban and Regional Planning.

Mauri departments have joint program advice. For more information, consult the assistant dean of the College of Law and the individual graduate departments.

L.M. in International and Comparative Law
In keeping with its educational mission of encouraging both broad social awareness and technical professional competence, the College of Law offers a strong program in study of the role of a nation in national, comparative, and international law. It does so essentially for three reasons: first, virtually any lawyer in this era of accelerating globalization must familiarize with the rapidly changing laws and understanding of international law and foreign legal systems; second, lawyers often are called upon to advise directly or indirectly, the theory and document of U.S. foreign policy; and third, in offering unique insight into the blend of law and legal process, the study of international and comparative law helps establish the foundations vital to superior lawyering skills.

American and foreign students with a J.D. are eligible to work toward the Master of Laws (L.M.) in International and Comparative Law. Candidates from the United States must have earned a baccalaureate degree from an approved college and must have graduated with high rank from a law school that is a member of the Association of American Law Schools or has a J.D. approved by the American Bar Association. Foreign applicants must have graduated with high rank from a law school with a faculty that maintains equivalent standards. Foreign applicants who hold degrees from institutions other than English-speaking universities usually score at least 570 on the Test of English as a Foreign Language (TOEFL).

L.M. candidates are encouraged to use the college for individualized program of study. Each student works with a faculty advisor or course section. Lawyering of law students who took the L.M. must complete 144 semester hour courses over a minimum of 12 credit hours. 84 of the 114 must be in international and comparative law, and 24 must be taken after successful completion of the minimum course requirements for the preliminary L.J. degree.

Cocurricular Programs
Client Counseling
In the client counseling program, students are eligible to work on a law office or other client counseling program class. They gain experience in counseling and representing legal, ethical, and logical issues arising in the context of these activities. Client Counseling (911410), offered to 56 credit hours in student and 9 credit hours in law. In addition, the students participate in a simulated experience to conduct two civil litigation, a deposition, and a final counseling session, in which they advise clients of legal alternatives.

Approximately 14 students are chosen by the Client Counseling I and II program participants in Client Counseling II. This program is similar to Client Counseling I but more intense. The simulated client counseling competition is held in the
Financial Aid

The College of Law administers an extensive financial aid program designed to help students meet their educational expenses while attending law school. Most aid is from three different loan programs awarded directly by the college through admissions services. Federal student Perkins Loans and Iowa Low Income Foundation Loans, which are awarded to students matriculating at the College of Law. Both loans are awarded on eligibility determined on the Family Financial Statement (FFS) as submitted by the American College Testing Service (ACT) and the University’s Office of Student Financial Aid.

All students who wish to receive any type of aid from the college must submit the FFS to the ACT by March 1 for the following academic year. For more information, contact the College of Law Financial Aid office.

The college also has a limited amount of scholarship money, awarded on need and merit. For entering students, scholarships are awarded on LSAT score and academic record, with need assessment through the FFS. A limited number of merit scholarships are awarded without regard to need; funded through private gifts, they are offered to students who present the strongest credentials. Recipients are identified by the admissions committee and are informed of their status as merit Scholars when they are admitted to the College of Law.

Selected Scholarships

Adams-Cobb Law Scholarship Fund: for second- or third-year law students, preferably from the metropolitan central area.

P. Arnold Duas: awarded on the basis of merit and need.

D.J. Reininger: for students who display a strong academic record, personal achievement, and the potential to contribute significantly to the legal profession.

J.P. Logan Scholarship: awarded to Iowa residents with financial need who plan to practice in Iowa.

E.A. McDermott International: for third-year students specializing in international law.

O.K. Patton Memorial: for students who have read The Framed Bank by Karl Löwe and Bieber. The winner is awarded $1,000.

Walter Powers: for students who have made high scholastic achievement.

Lucille and Walter Stewart Fund: for needy and deserving students in the College of Law.

Jack N. Vollmer: for students who were born in or who completed grades 1-12 in Iowa and who earned a bachelor’s degree from the University of Iowa or who earned an Iowa high school diploma, with priority given to persons in the Seventh Judicial District.

Assistantships

Most faculty members at the college hire research assistants at a modest hourly salary.
obtained by writing to the Director of Admissions, The University of Iowa.

LAW SCHOOL APPLICATION MATCHING FONN
The LSAT/LSAS registration packet includes Law School Application Matching Forms, without which the University cannot request the applicant's LSDAS report from Law Services. To avoid processing delays, applicants should include the matching form with their application materials.

Since it takes approximately three weeks from the time the University requests the LSDAS report until it arrives, applicants should send matching forms and corresponding materials well in advance of the March 1 deadline.

TRANSCRIPTS
Applicants are responsible for submitting an official transcript from each college or university they have attended to Law Services, Box 7099, Iowa City, IA 52242-0099. Each applicant who accepts admission to the College of Law must submit transcripts showing current status of degree with the University's Office of Admissions. This is in addition to the LSDAS report.

LAW SCHOOL ADMISSION TEST
Applicants for admission must take the Law School Admission Test (LSAT) administered by Law Services. The test is given several times each year and may be taken at numerous locations in the United States and abroad. Applicants are urged to take the test during the fall preceding the fall or summer session for which they are applying.

The February test date is the last date on which the admissions committee can consider an applicant's LSAT score for admission to the following fall or summer. The test date may put the applicant's LSAT score before his or her grade point average, which must be at least 3.0 for the entering class.

Foreign students whose native language is not English must take the Test of English as a Foreign Language (TOEFL).

INTERNATIONAL
Admission is for the fall term only; applicants are granted only in extraordinary circumstances.

DEPOSIT
Applicants accepted before April 1 may make a guarantee deposit of $50 by April 1. Those accepted after April 1 must make the deposit within two weeks upon notification of acceptance. This deposit need not be made if a financial aid application is under active consideration. However, the deposit is due within two weeks after action is taken on the financial aid application. For those who enroll, the deposit is credited to the first semester bill. Applicants who fail to make the deposit by the specified time forfeit their place in the entering class.

Academic Policies

Residence Requirements
To satisfy the academic residence requirement, students must complete 90 weeks of class during which they are enrolled for a minimum of ten class hours per week. Partial credit is earned pro rata when fewer than ten hours are taken.

Full residency credit is awarded only when a student enrolls for ten or more class hours during the term and earns credit for at least six semester hours. During the summer term, full residency credit is earned only when a student enrolls in a minimum of four semester hours for each summer session attended.

Transfer Credit
No more than two semesters of residency (30 weeks of full-time residence) and no more than 30 semester hours may be transferred from another law school. No credit is transferable for any course in which a grade lower than C is earned. Grades received at another law school are not counted in calculating the weighted cumulative grade point average.

Courses Taken Prior to Admission to the College of Law
Except for transfer students from other law schools, students must not receive credit toward residency requirements for courses taken prior to admission to the College of Law. They also must not receive credit for the 90-semester-hour requirement for the J.D. by taking law-related graduate courses before being admitted to the College of Law. This applies to all law students, including those enrolled in joint degree programs with the Graduate College.

With approval of the dean and in consultation with the faculty admissions committee, students may count toward the J.D. up to 6 semester hours that they earned in law courses taken at the college or at another recognized law school while they were graduate students of another institution and before they were admitted to the College of Law. To be eligible toward award credit for such course work, the dean and the admissions committee must consider the nature of the course, the grade earned (minimum of B), how much time has gone by since the course was taken, and the law school at which the course was taken.

Courses Transferred from Other Law Schools
Students who take courses outside the College of Law must first obtain permission from the dean. If "special permission of the instructor" is indicated in the course catalog, the student also must secure the instructor's signature.

Students not enrolled in a joint degree program may apply toward the J.D. a minimum of 6 semester hours earned in courses outside the College of Law. Such courses are approved only if they contribute to the professional competence of an attorney or broaden the student's understanding of law, the legal process, or any particular legal subject. More information about limitations on accreditation of non-College of Law courses is available from the registrar's office.

Externtships
Students may be able to arrange externships for academic credit under certain nonprofit organizations and government agencies. Most externships are established for the summer, for a maximum of 6 semester hours of credit. Externships for 6 to 15 semester hours also may be arranged for the fall or spring semester. All students who participate in externships must write a report in paper. Externship credit counts toward the maximum allowable clinic credit.

Recent externships have been arranged with the U.S. Department of Justice, a U.S. district court judge in Richmond, a bankruptcy judge in California, and the Asian Law Alliance in San Francisco.

Grading Policy
A numerical grade is assigned to each student for each course and is recorded in the University's permanent record.

The highest grade awarded at the College of Law is 'A', the lowest 'F'. No academic credit is given for grades below 60.00 or for grades of 'F'.

Numerical grades may be translated into letter grades as follows.

<table>
<thead>
<tr>
<th>Numeric Grade</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>92-100</td>
<td>A</td>
</tr>
<tr>
<td>88-91.99</td>
<td>A-</td>
</tr>
<tr>
<td>84-87.99</td>
<td>B+</td>
</tr>
<tr>
<td>79-83.99</td>
<td>B</td>
</tr>
<tr>
<td>74-78.99</td>
<td>B-</td>
</tr>
<tr>
<td>69-73.99</td>
<td>C</td>
</tr>
<tr>
<td>64-68.99</td>
<td>D</td>
</tr>
<tr>
<td>59-63.99</td>
<td>D-</td>
</tr>
</tbody>
</table>

Professors may assign students for grade or grade with distinction academic conduct, for example, plagiarism. Such reasons are subject to appropriate due process.

With the Dean's permission, a student may receive a grade of either "pass" in grade of 65 or higher or "full" and is not used in computing the student's cumulative grade point average. Rather, the grade received for the course remains on the transcript and is used in computing the grade point average.

If the course being repeated is a seminar, the dean designates the section in which the student will be assigned.

The faculty does not apply a mandatory grade curve beyond the first year, but grades in second and third-year courses are expected to approximate the curve used in large-section first-year courses.

Pass/Fail Grades
For students taking courses pass/fail, the "pass" supervisor or instructor is required to assign a numerical grade (i.e., between 59 and 55) or failing academic performance. Individual faculty
members may allow students to withdraw rather than receive a failing grade.

Miscellaneous Grading Marks
Marks other than "pass," "fail," and numerical grades are as follows:

"W" means withdrawn. It causes no course or residency credit and is not used in computing the cumulative grade-point average.

"I" means incomplete. It causes no course credit toward a degree until it is changed, nor is it used in computing the cumulative grade-point average. A grade of I may be reported only in exceptional cases and only if the unfinished part of the work is small and it is unrealistic for reasons acceptable to the instructor, and if the student's standing in the course is satisfactory. Students request an incomplete by completing the unfinished work during their next term of residence.

Class Ranking
Students in the top ten percent in each class may be informed of their exact rank; grade-point average at the 80.5 percentile and 90.5 percentile are reported.

Students are ranked following the fall semester, spring semester, and summer sessions each year. Final class standing is based on the September ranking and includes students who completed all graduation requirements by August, May, and the previous December. For purposes of ranking, undergraduate students, the same system is used, based on the expected graduation date.

Release of Transcripts
A student's grades are not given to persons outside of the College of Law, including prospective employers, without written permission of the student.

Class Attendance and Preparation
Students must be regular and punctual in attending classes and must be prepared to participate in class discussions. Students may be dropped from the course at the discretion of the instructor, for excessive absence or misconduct.

Students also are expected to attend special class meetings and be punctual in submitting course assignments, memos, and papers.

Examination Policy
One examination is given in each course, with few exceptions. Before taking an exam, each student is assigned an identification number for that exam. Instructors report final exam grades by each student's number to the dean's office, where the grades are kept on file for two years. After the grades are recorded, the dean's office gives the name corresponding to the student's number to the instructor, who then assigns final grades for the course. This permits the instructor to award credit for class participation and ensures anonymity in exam grading.

Students and the registrar's office receive only the final grades.

Students who have more than one examination scheduled for the same day, two exams within 24 hours, or exams four days in a row may schedule a make-up time for one of the exams. Students who have exams three days in a row may schedule one only with permission of the instructor.

Students usually reschedule exams on the second morning immediately following a regularly scheduled exam. Whenever possible, the dean arranges four days as an acceptable study period between the end of regular classes and the first regularly scheduled upperclass exam.

Exam Policy for Students Who Need Extra Time
Students at a substantial disadvantage in taking timed exams should receive additional time to complete the exam, commensurate with the extent of their disadvantage. Disadvantages include not having English as a primary language at the time of the exam, or having a physical or other recognized medical disability. Judgments concerning eligibility and the amount of additional time to be provided are made by the instructor of the course to which the exam is to be taken. Students seeking additional time must make a request to the registrar's office at least two weeks before the end of classes.

Drop/Add Policy
Students may add or drop a regularly scheduled course or summer during the first two weeks of the semester. After the first two weeks, students must have consent of the instructor to add or drop a course.

Students may not drop a course once the final examination in the course has been distributed. Individual instructors may set a policy of not permitting drop after a certain time limit, imposed in hardship cases, they are encouraged to distribute written notices of their policies during the first week of class.

A student who, after two weeks, elects to drop a course for reasons not related to hardship may not receive credit in the course in a later semester without the instructor's permission.

Students who wish to drop Appellate Advocacy or a course with a strong showing doing may do so prior to the distribution of the problem and the finalization of participants in their rounds. After the problem has been distributed, only the faculty advisor may withdraw a student and only upon prior approval of the faculty advisor.

Withdrawal
Fees: Students who withdraw during the academic year or who fail to re-enroll for the second semester are not eligible to return to school. Instead, they must compete with other applicants for the year in which they wish to return. The reasons for the withdrawal and the quality of work done prior to withdrawal or failure to re-enroll are considered when students apply.

Unless granted a leave of absence by the dean, second and third-year students who fail to enroll for any semester during the academic year must obtain permission from the admissions committee if they wish to re-enroll.

Students who fail to complete at least 27 semester hours of credit at the time of withdrawal or failure to re-enroll, the student may be expelled from the College of Law after paying tuition are entitled to a pro-rata refund.

Audit
Students may audit a class with the instructor's permission. The class is not filed within the pre-registration period.

Student Conduct
Students are expected to act in a manner appropriate as a professional. An act or omission that is dishonest or designed to take unfair advantage may subject a student to sanctions as serious as expulsion from school.

Academic Advising
Associate Dean for Academic Affairs:
The associate dean for academic affairs and admission works on academic programs and problems of the law school and coordinates the activities of the admissions office.

Assistant Dean for Student Affairs:
The assistant dean for student affairs helps students plan their course work and is responsible for planning and scheduling that the registrar cannot serve.

Aside from academic advice, the assistant dean also counsels and makes referrals concerning personal, family, and professional problems that interfere with students' law school careers.

Assistant Dean for Admissions:
The associate director of admissions provides counseling regarding financial aid for current students and the needs and concerns of minority students. The associate director also counsels students on academic and personal matters when the assistant dean for student affairs is not available.

Faculty Advisor: Each faculty member advises first or second-year students in their area of study.

Small Section Instructors: Small section instructors advise students in their small sections, during student the year round of study.

Ombudsman: Each year one or two tenured faculty members are selected by the law faculty to serve as law school ombudsman. Students who have a problem or grievance should seek the ombudsman's help. All complaints are handled in strict confidence.

Registrar: The law school registrar is in charge of student record keeping and should be consulted first for information about course enrollment, scheduling, residence requirements, job program status, student car accidents for various loans agencies and state bar application, and progress toward graduation.
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*Note: The above courses cover a wide range of topics within the field of law, including international law, constitutional history, comparative law, and specialized areas such as police disorder, public interest advocacy, and tax policy. Each course delves into specific issues, such as property and contract law, evidence and procedure, and ethical problems in tax practice.*
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Interim dean: Janet A. Clift
Associate dean, academic affairs: Len Montgomery
Associate dean, academic affairs: Richard P. Hess
Associate dean, student affairs and curriculums: Paul B. Plantz
Associate dean, Finance Affairs: John B. Knob
Assistant dean, administration and finances: William L. LeBlanc
Consultant to the dean: Woodrow W. Smith, Paul M. Seltzer
Assistant to the dean: Richard E. Schmid
Degrees: B.S., M.A., M.D., M.P.T., M.S., Ph.D.
The College of Medicine, as an integral part of the University, contributes to the educational programs of several thousand students, not only those in the College of Medicine, Pharmacy, Nursing, and Dental schools but also in the life sciences areas of the College of Liberal Arts and the health-related programs of other colleges.

Additionally, it serves health professionals throughout the Midwest who take part in a year-round program of continuing medical education. The college also operates and maintains health care facilities in undergraduate and graduate medical education.

Medical Scientist Training Program

The Medical Scientist Training Program offers an M.D.-Ph.D. program in collaboration with the University of Illinois at Chicago. This program provides opportunities for graduate students interested in medical science to obtain advanced degrees in medical science and to participate in research.

Combined M.D.-Master’s Degree Programs

The College of Medicine offers combined M.D.-Master’s Degree Programs in the following disciplines: laboratory medicine, microbiology, molecular biology, and virology.

Interdisciplinary Programs and Centers

The college offers interdisciplinary programs and centers that focus on various aspects of health care, including research and education.

Faculty

Faculty members are dedicated to teaching, research, and public service.

Graduate Programs

The college offers graduate programs leading to master's and doctoral degrees in various fields of medicine.
Cancer Center
A Cancer Center was established in 1980 to coordinate the efforts of University of Iowa faculty and staff in research, education, and demonstration programs related to all aspects of cancer.

Alzheimer's Disease Research Center
This center studies Alzheimer's disease and related neurological conditions from the viewpoint of neurochemistry, neuroimmunology, neuropsychology, and neuroendocrinology. The center's purpose is to improve the diagnosis and treatment of these conditions, to disseminate information on new research in the public, and to contribute to a better understanding of the neural basis of cognition.

Educational and Patient Care Facilities
First- and second-year classes are taught in the Rowen Science Building and the Medical Laboratories.

The Health Library for the Health Sciences is a vital resource centrally located on the medical campus.

Students acquire clinical experience in the 8th-bed University of Iowa Hospitals and Clinics complex, in the adjacent 305-bed Veterans Affairs Medical Center, and in a score of affiliated hospitals and ambulatory care centers.

Faculty members of the Colleges of Medicine and Dentistry make up the 560-member clinical staff at The University of Iowa Hospitals and Clinics, whose 16 clinical services are directed by the heads of the corresponding academic departments in those colleges. These faculty members also provide instruction for the 444 medical students and dentists who make up the house staff of the hospitals and clinics, whose faculty members are provided for teaching all nonclinical specialties, for residencies in all such specialties, and for fellowships in a number of subspecialties.

The University of Iowa Hospitals and Clinics serves as a tertiary care center for the state of Iowa and portions of adjoining states, with most patients being referred for care and treatment not readily available in their home communities. For details about The University of Iowa Hospitals and Clinics, Veterans Affairs Medical Center, and related academic and health services, see "The University of Iowa Health Care: The Special Resources at Iowa's Section of the Catalogue.

Research Facilities
The Eukaryotic Medical Research Building, opened for occupancy in early 1989, was designed to provide flexible research space that rapidly adapts to the changing needs of interdisciplinary research programs. The facility serves interdisciplinary groups of faculty scientists, each of whom is researching a human biology problem at the advancing edge of science, and enables them to conduct research in close proximity to other researchers. In order to accommodate this, the facility's laboratories have been designed to accommodate a wide range of research. The spaces, mechanical systems, and available support services offer the greatest flexibility and adaptability for current and future research.

Research facilities for the College of Medicine have been extended by approximately thirty thousand square feet of space, including new space at the University Research Park.

A number of facilities that support the research and teaching endeavors of College of Medicine faculty are administered through the dean's office. University of Iowa research facilities housed in the College of Medicine include the Electron Microscopy Facility and a Computer-Assisted Image Analysis Facility. The clinical care unit, which arranges for the purchase, housing, and veterinary care of a wide variety of animals, also is responsible for investigator training in the use of research animals and for compliance with all laws relating to animal research. (See "Research Activities" in the Special Resources at Iowa's Section of the Catalogue.)

The bioengineering facility provides specialized electronic design, construction, and repair services. The medical instrument facility designs and fabricates scientific equipment and provides precision machine services and custom signal processing. The medical graphics, photography, and information services sections offer consultation, design, and production services in three various art forms. The spectrum of composition is greatly expanded by Computer-Generated Graphics System.

The F3 facility meets federal guidelines for recombinant DNA research. The F3 facility is designed to be used for research on other biologically hazardous animals and microorganisms. The Radiation Facility is located in the foothill area. Radiation sources available include six electron-numbered and one machine at a 12,000 Curie atom-37 gamma ray my source. These units make it possible to simulate a variety of specimens, animals and inanimate, up to very high dosages.

The Electron Spin Resonance Facility provides investigators to detect free radicals as well as to study paramagnetic relaxation metal complexes.

The Protein Structure Facility provides services such as amino acid analysis, protein sequencing, and HPLC separations. In addition, instruments for the specific characterization of macromolecules, the peptidases of proteins and peptides, and the measurement of kinetic parameters are made available to investigators for use in their research. The FACs system to the Flow Cytometry Facility rapidly analyzes 4-50000 cells on the basis of fluorescence and high-scattering properties.

The High-Field Nuclear Magnetic Resonance Facility provides NMR spectroscopy through either a staff operator or by hands-on usage.

A facility for mass spectrometry provides service for the qualitative and quantitative identification of important biological molecules. The Thermo-Culture Hybridoma Facility provides tissue culture media for tissue culture. It prepares cell cultures to form hybridomas from which monoclonal antibodies are isolated. The Flow Cytometry Facility provides facilities, technical personnel, and consultation services to investigators studying diverse problems in cell biology, immunology, endocrinology, hematology, cell physiology, and cell kinetic. The flow cytometer will measure any optically detectable cellular property.

The Iowa University Affiliated Faculty, a unit of the Division of Developmental Disabilities Department of Pediatrics, provides interdisciplinary training, exemplary services, technical assistance, and information dissemination and participation in research to enhance the quality of life for persons with developmental disabilities. Professionals from many disciplines (e.g., audiology, dentistry, education, family practice, pediatrics, nursing, nutrition, occupational therapy, physical therapy, psychology, teacher's aides, social work, speech language pathology, and rehabilitative engineering) work together as teams to provide short-term educational and treatment support in community services for persons with developmental disabilities.

The Office of Consultation and Research in Medical Education is made up of educators specializing in a broad range of areas who serve the faculty, staff, and administration. The office provides educational consultation, interacts and cooperates in educational research endeavors, and conducts faculty development activities.

Doctor of Medicine
The University of Iowa College of Medicine accepts 175 freshmen students each year into the Doctor of Medicine (M.D.) degree program.

The curriculum in medicine at the University is based on a strong tradition of excellence. It is continually reevaluated to meet the changing needs of the new physician and society.

Basic Medical Sciences (First Three Semesters)
The first three semesters present a core of basic science courses for study of medicine.

First Semester
The first 163 credit hours for Medical Students are centered around a series of clinical situations. The language of this discipline is presented in the context of problems the physician will meet. In the small group discussions that follow the clinical cases, students will use various problem-solving approaches.

A 40-103 Gross Human Anatomy for Medical Students includes clinically relevant areas of embryological and surface anatomy with particular emphasis on the anatomical and histological dissection of the human body is underway, and the relationship to the living system is increased.
• 40:104 Medical Embryology often lectures on human embryology, with emphasis on the clinical aspect of development. Registration is limited to medical students; graduate students are admitted to 40:217. The course is offered fall semester.

• 49:105 General Histology for Medical Students provides a course of study for the core information concerning cellular and tissue structure and function needed for the work to be accomplished in physiology and pathology.

• 115:102 Human Dimensions in Medicine is designed to introduce medical students to the importance of communication in the practice of medicine and to increase awareness of personal and social values. The course provides students with small-group experience through which they learn about and improve their ability to communicate sensitively with patients and colleagues.

• 63:110 Biostatistics provides guidelines for the interpretation of statistical principles in the biological and medical sciences. Time is given in the instruction of statistical methods in medical journals.

Second Semester

• 72:212 Medical Physiology often students an understanding of importance that an organ plays in its external function and assess a need for understanding the inter-organ function of organs. Much of the present in these two courses is presented from a clinical point of view. In the first course, a body organ's essential regulatory and exercise, exercise evaluation of the physiology mechanism will be in the clinical tracts.

• 41:103 Medical Microbiology includes immunology and a course of information on the classification and mode of action of infectious agents, as well as certain aspects of body response to the infection. These courses are designed for medical students.

• 50:224 Medical Neurosciences is an introductory course dealing with basic principles of neurophysiology and its methods, emphasis on the human central nervous system. The laboratory primarily involves the anatomical study of spinal cord nerves.

• 69:201 General Pathology for Medical Students includes pathology in this semester to increase efficiency of the learning process. Emphasis is placed on pathogenesis and altered function in cellular and tissue degeneration, infection, and growth disorders. Clinical problem solving and discussion periods have replaced laboratories in this course.

Third Semester

• 46:203 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 facilitated in small and large group in practice case analysis.

• 63:109 Preparative Medicine provides an opportunity to help prepare students in some of the sociological, economic, and public health aspects of medical practice.

• 71:105 Pharmacology for Health Science: Medical bridges the clinical and basic sciences provides students with principles that must be understood in order to properly the actions of drugs in patients. The course provides an understanding of the basic principles involved in the medical treatment of several diseases.

Several elective courses are available to students during the third semester. These offer 2 academic hours of credit, although there is no specific area that is not specifically covered in the regular curriculum and is open to medical students in the third semester. The three main topics are: Perspectives in Aging, Humanistic Medicine, Human Nutrition, and Spanish for Health Professionals.

Introduction to Clinical Medicine (Fourth Semester)

A major inter-disciplinary course, 50:111 Introduction to Clinical Medicine, fills the fourth semester. It includes participation by a large proportion of the faculty and is vital in providing students with the look for a lifetime of patient care.

The first of a series of mornings is devoted to improving the patient's approach and giving guidance in interviewing, counseling, and history taking. Following this is an intensive review of clinical medicine on an organ system basis, presented by teams of clinicians and basic scientists. The final group of students is spent in areas of medicine that do not fall naturally into organ systems, and on reexamination of some major subjects.

Throughout the 16 weeks of the course, students spend afternoon acquiring and practicing the clinician's skills in history taking and physical examination. Skills of health, concern, and compassion needed by all physicians are established in this semester.

In the clinical units, each student is evaluated individually several times to determine the level of skill achieved. If further work is needed, guidance and assistance are provided.

Clinical Clerkships (Third Year)

The third year includes the required clinical clerkships and provides students with opportunities in work with physicians of all disciplines as they care for their patients. Students spend nine weeks in external medicine, six weeks each in surgery, pediatrics, psychiatry, and obstetrics and gynecology, and two weeks each in anesthesia, dermatology, neurology, otolaryngology—head and neck surgery, orthopedic surgery, urologic, 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 smaller towns.

The clinical clerkship year is the most critical period of time in medical education, for it is when students take on the posture of physicians to learn firsthand the complexity of medical science when viewed at the bedside, and to understand the physician's responsibility for human life.

Period of Selective Study (Fourth Year)

Following the clerkships, the fourth year provides a period of selective study, giving students many options. The broad, comprehensive orientation to the different medical disciplines and the level of clinical specialization achieved during the clerkship year quality students to participate in a variety of medical experiences, ranging from advanced courses in specialty areas in community-based clerkships in primary care. All students must complete required courses in clinical pharmacology and dermatology.

Financial Aid

The College of Medicine's philosophy is that no student should be denied a medical education due to the lack of funds. Therefore, the College of Medicine itself actively seeks adequate financial aid to enable every student interested in a medical education to finance that education.

Financial assistance is provided by The College of Medicine on the basis of demonstrated financial need. Although limited grants are available for those very economically disadvantaged students, most aid is in the form of loans. Examples of available federal loan programs are the Health Professions Student Loan (HPSL), the Stafford/Student Loan (SSL), the Perkins Loan, and the Health Education Assistance Loan program (HEAL). In addition, the College of Medicine has a number of funds that support college loan programs through separate endowments and or contributions from alumni and friends of the College of Medicine. The largest of these funds are the Kellogg Medical Education Assistance Program, the Carroll Brown Medical Student Loan Fund, and the Soviets Endowment. The Dr. George Storz Medical Student Loan Fund, established by the Iowa Medical Foundation of the Iowa Medical Society also is available to AIS and ME&F students who are residents of the state of Iowa.

The College of Medicine also manages a number of endowment funds that support scholarships for students with in-state family, financial need. Information and advice concerning financial aid can be obtained through the Office of Student Affairs.

Educational Opportunities Program

The Educational Opportunities Program provides financial assistance to disadvantaged students from groups that are traditionally underrepresented in medicine—Black Americans, Hispanic-Americans, Native Americans, and Mainland Puerto Ricans.
Admission to the M.D. Program

The College of Medicine participates in the American Medical College Application Service (AMCAS), a nonprofit centralized application processing service for applicants to U.S. medical schools. Preliminary applications are processed by AMCAS beginning the close of the year preceding the starting point of the class for which application is being made. Prospective students are urged to apply as early as possible. The closing date is November 15.

Final applications will be forwarded to applicants whose AMCAS applications pass a reviewer conducted in the College of Medicine. A $20 fee accompanies the final application from applicants who have not completed work in residence. The University of Iowa. This fee is not refundable except to residents of Iowa who are denied admission.

Admitted applicants must also file with the University Office of Admissions, an official transcript from each college attended.

Requirements

Applicants for admission to the College of Medicine must have received the baccalaureate degree, or have completed three years of a curriculum qualifying them to receive the baccalaureate degree after completing the first year in medicine, or have completed three years of a baccalaureate program meeting the general graduation requirements of the college they are attending.

Prospective students must have earned at least 90 semester hours of credit, or the equivalent, including the following.

Biology: a complete introductory course.

Chemistry: one year of college algebra and trigonometry, or advanced college mathematics for applicants who completed college algebra and trigonometry in high school.

Chemistry: at the minimum, a complete introductory course in organic chemistry, ordinarily following a complete introductory course in modern general chemical principles.

Biological sciences: a complete introductory course in the principles of animal biology, or training in an introductory (non-science) and an advanced biology course.

All the foregoing must be taken with appropriate laboratories.

Applicants for admission to the College of Medicine must possess the capability to complete the entire medical curriculum and achieve the degree, Doctor of Medicine. The medical curriculum requires demonstrated proficiency in a variety of cognitive, problem-solving, communicative, and interpersonal skills. Therefore, the following skills and abilities must be met by all students admitted to the College of Medicine.

- Candidates must be able to learn, analyze, synthesize, solve problems, and reach diagnostic and therapeutic judgments.
- Candidates must have sufficient use of the senses of vision and hearing and the sense of smell necessary to perform a physical examination. Candidates must be able to perform palpation, auscultation, and percussion.
- Candidates must be able to relate reasonably to patients and establish sensitive, professional relationships with patients.
- Candidates are expected to be able to communicate results of the examination to patients and to their colleagues with accuracy, clarity, and efficiency.
- Candidates are expected to be able to learn and perform routine laboratory tests and diagnostic procedures.
- Candidates are expected to be able to display good judgment in the assessment and treatment of patients.
- Candidates must be able to learn to respond with promptness, quickness, and appropriateness in emergency situations.
- Candidates are expected to be able to accept criticism and respond by appropriate modifications of behavior.
- Candidates are expected to possess the perseverance, diligence, and consistency to complete the medical school curriculum and enter the independent practice of medicine.

Applicants who may not meet these standards are encouraged to contact the coordinator of admissions.

Fulfillment of the specific requirements for admission does not ensure admission to the College of Medicine. From applicants meeting the requirements, the admissions committee of the College of Medicine selects those who appear to be best qualified for the study and practice of medicine.

Applicants who have completed the baccalaureate degree and required courses five or more years before seeking admission to the College of Medicine are considered by the admissions committee only under exceptional conditions.

To be considered for admission, applicants must have attained at least a 2.5 grade-point average for all college work undertaken. Where courses are available on a graded or pass/fail basis, it is expected that applicants will have taken the required science courses for a grade.

Preference is given to applicants with high academic standing who are residents of Iowa. Consideration is also given to outstanding nonresidents.

Applicants are required to take the Medical College Admission Test administered by the Association of American Medical Colleges no later than the fall of the year preceding that for which they are seeking admission. Students may arrange to apply for this examination through the University's Evaluation and Examinations Service.

Personal interviews are not usually conducted but are occasionally requested by the admissions committee. Applicants who feel the interview is necessary may request that one be arranged by contacting the coordinator of admissions. Requests for interviews normally should be made by July 1. The specific purpose of the interview should be clearly stated.

Applications accepted on or prior to February 15 must submit a $50 advance payment by March 1. Applications accepted after February 15 must submit this payment within two weeks after they receive notification of acceptance. The advance payment is credited toward tuition and fees.

All students entering the College of Medicine are required to comply with the pre- and post-examinations screening program developed by the Student Health Service in cooperation with the University of Iowa Hospitals and Clinics.

Promotion Policies and Procedures

Promotions Committee

The purpose of the promotions committee is to ensure that each person who graduates from the University of Iowa College of Medicine has relevant skills, knowledge, judgment, ethical standards, and personal integrity to assume the responsibilities of a medical doctor. To perform its duties, the committee depends on the cooperation, advice, and judgment of faculty, students, and administration.

The promotion committee consists of the dean of the College of Medicine; two medical students elected by their respective classes through the American Medical Students Association (Office without Vote); there are five faculty members, one of which is selected by the dean to serve as chair. Two are from two different basic science departments, and three are from three different clinical departments. There is a medical student member from either the junior or senior class.

The dean of the College of Medicine makes faculty appointments to the committee after consulting with the executive committee and appoints the student member after consulting with the medical student council and the chair of the committee.

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 promotions committee to permit a student who has not satisfactorily completed courses in a preceding grading period to continue, provided that an appropriate 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 competence 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,
communication, and interpersonal skills and provide them with an understanding of the 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 A, B, C, and D. The individual student, not the college, determines the final grade. The letter F indicates unsatisfactory achievement at the passing level. The letter E indicates "better than," indicating achievement at an exceptionally high level. The letter I indicates work below the passing level. The letter L is used when, for good reason, the student has not completed the work in a course.

The promotions committee meets at least three times each year, following the completion of each academic semester and at other times as requested by the associate dean for medical student affairs.

The committee reviews with the course directors the records of all students who have received a grade of F or I during the previous grading period. The committee reviews the record of any student presented by the course directors committee or the associate dean for medical student affairs as doing continuing poor academic work, or failing to demonstrate proficiency in any of the eleven skills or against detailed above, or not meeting the medical ethics standards. The committee considers other business or procedures as deemed necessary to perform its duties as set forth in its charge.

The promotions committee recommends specific actions to be taken in the case of any student whose studies are concluded. The decision to withdraw the student's candidacy is in the best interest of the student and the student's colleagues. The specific recommendations are forwarded to action to the academic and executive committees, meeting in joint session to represent the faculty. Positive recommendations include immediate disqualification of the student from the college, withdrawals for academic reasons, and the student's return to the part of the curriculum, and allowing the student to continue either a regular or a delayed schedule. Students having unsatisfactory grades of failure are placed on academic probation. A grade of Incomplete, if not remediated in the time and manner specified in the promotions committee recommendation, becomes a grade of failure. Students who are probationary status may be considered for dismissal if further academic difficulties arise.

The promotions committee presents all recommendations for awarding the degree, Doctor of Medicine, at a joint meeting of the medical and academic executive committees, which act on the recommendations for the faculty.

Medical students are not permitted to drop courses after the deadline established by the dean of the College of Medicine, unless they may have received the dean's permission. Students who receive grades of F or I after the deadline receive a grade of W unless the entire registration is canceled. Students who drop a course without obtaining the dean's permission receive a grade of F unless the entire registration is canceled.

Relationship to Course Directors Committees

The course directors committees provide leadership and counseling for students and serve as a resource for and provide advice to the promotions committee.

Appeals

Students who want to appeal promotion, decisions must submit an appeal in writing to the dean of the College of Medicine within two weeks of the date of 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 appear personally before the joint session to make a statement and to answer questions.

Leave of Absence

The College of Medicine believes that certain students may benefit from being granted a leave of absence from the college for specific periods of time. A leave of absence should be requested from the associate dean for medical student affairs. Leaves are granted at the discretion of the dean.

Leaves must be arranged in advance of the student's absence. Students who reappearance during a leave must request permission from the course director. Students requesting a leave of absence who are not in good academic standing (no probation or in failing status in a course) must be reviewed by the Committee on Student Promotions.

At the discretion of the department, any unexcused absence from an examination, a major section of a basic science course, or a clinical clerkship may result in a grade of F.

Withdrawal

Students may withdraw from the College of Medicine upon submission of a written request to the office of the associate dean for medical student affairs.

Reinstatement

Applications for reinstatement by students who have withdrawn voluntarily or who have been required to withdraw from the college must be written in the office of the dean at least four months prior to the requested date of reinstatement.

The Faculty is authorized to refuse continued 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, such action 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 considerable benefit in resolving the problem. The medical school has a formal procedure for "Informal Complaints and Procedures" and an informal procedure, outlined below.

In the College of Medicine, students with problems or complaints should first attempt to resolve the issue with the faculty member involved. If a satisfactory outcome is not obtained, they may discuss the complaint informally with the associate dean for medical student affairs of the College of Medicine. The informal discussion does not necessarily lead to involvement at the office of the dean in an official capacity. Toward these ends, 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 transfer to the student's permanent record, which are part of the formal process. The informal procedure is intended for any situation students may encounter, including grading disputes and alleged dishonesty, alleged dishonesty during clinical rotation (e.g., falsifying patient data), and perceived incidents of discrimination or harassment. Complaints of sexual harassment are handled confidentially and in accordance with University policy and procedures.

When a student believes they have served a complaint to a faculty member or department, others should try to avoid contacting the department involved or bringing the complaints to the attention of those not involved in handling the complaint, which is the office of the dean in an official capacity (e.g., taking a year off or withdrawing from the campus). These procedures are intended to provide a method for informal complaint.
General Policies

Advising
When students declare their intended major to be one of the programs in the Division of Allied Medical Sciences, they are assigned to that program for academic advising.

Admission
Students are admitted to the College of Medicine at the time of formal admission to one of its programs. Admission policies and procedures vary from program to program. The Physician Assistant Program has an early admission process.

Students should consult the individual program descriptions and/or program offices for criteria in the admission process. Students may be admitted as degree or nondegree candidates (special students). Nondegree candidates are subject to College of Medicine rules for academic probation and dismissal.

To be considered for admission, applicants must have earned a cumulative grade-point average on all college work attempted as appropriate to each program: medical technology, 2.50; nuclear medicine technology, 2.50; and physician assistant, 2.70. Admission committees give special attention to grades in the sciences, particularly those prerequisite science courses required by the individual programs. The cumulative or science grade-point average for the last 60 semester hours may be used to satisfy the minimum grade-point average requirement, at the discretion of the program admission committee.

Student Health
Students admitted to division programs must show proof that they have had a recent physical examination including routine laboratory procedures and immunizations for their own and their patients' protection before they enter the programs. These records are maintained through Student Health Service, which should be consulted for further information.

Financial Aid
Students in the Division of Allied Medical Sciences completing programs are eligible to apply for undergraduate financial aid. Financial aid, grants, and other student employment placements are administered by the University's Office of Student Financial Aid and are awarded on the basis of demonstrated need. Part-time work in related areas is sometimes available.

Graduation Requirements for Baccalaureate Degrees

General Requirements
Students must earn a minimum of 124 semester hours of credit. The number required after admission to a specific program varies from program to program. Students should consult the program description and/or program director for more specific information.

The general requirements for graduation include quality as well as quantity of work completed. Candidates must earn a 2.00 minimum grade-point average in all college work attempted, all work undertaken at The University of Iowa, and all grades earned after admission to the College of Medicine. Students enrolled in a program that uses the pass/fail/honor grading system must pass all courses required to complete the program.

The residence requirement may be met by earning the final 30 consecutive semester hours in residence, or 45 of the last 60 semester hours in residence, or an overall total of 90 semester hours in residence.

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

General Education Requirements vary from program to program. Students must check the requirements of the specific program or degree. Specific requirements for the major are listed in each program description.

Double Majors
Students may earn more than one major in the College of Medicine by satisfying the requirements for each major.

Two Baccalaureate Degrees
Students who want to earn two baccalaureate degrees, each from a different college, must do as under a combined degree program and must have their combined course of study approved by the dean of the College of Medicine and the dean of the other college.

Second Baccalaureate Degree
Students who already possess a baccalaureate degree and who want to earn an additional bachelor's degree must complete at least 30 consecutive semester hours in the College of Medicine. Students who hold a B.A. or B.S. degree will be considered to have satisfied all General Education Requirements for graduation except for foreign language requirements. Holders of other degrees must meet college and program degree requirements. Students with a B.A. or B.S. degrees must satisfy the residence requirement for a bachelor's degree at Iowa. Candidates for a second Bachelor's degree must apply for its 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 College of Medicine and Liberal Arts. Although students begin their academic program in the College of Liberal Arts, they must be eligible for admission to College of Medicine baccalaureate programs in medical technology, nuclear medicine technology, or physician assistant.

Students who select this program must meet requirements specified by both colleges. Candidates in the combined program usually are able to meet the baccalaureate degree requirements of both colleges in about five academic years. The exact length of time necessary to complete the degree is determined by the major area of study selected in each college. Students who enter the combined degree program are assigned two faculty advisors, one in the major department of the College of Medicine and the other in the major department of the College of Liberal Arts.

Candidates in the combined degree program must satisfy all requirements for both degrees. They must complete an overall total of 134 semester hours of credit, including at least 30 semester hours of courses offered by the College of Medicine and at least 30 semester hours of courses offered by the College of Liberal Arts.

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

Minors
Students graduating from the College of Medicine may earn a minor or minors in any degree-granting department or program in the college outside of their major department or in another college of the University by meeting that department's requirements for the minor. In general, a minimum of 15 semester hours must be taken in the minor.

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 degree at which they believe the degree is to be conferred. Students who want to have a minor listed on their transcript must indicate that they have completed the minor program or that completion of the requirements for the minor is in progress.

Duplication
Duplication occurs when students take the same course more than once or when they take a course that duplicates in whole or in substantial part a course they have already completed. Course work is considered repeated if all of the following criteria are met: (a) the enrollment is in an identical section of a course that is credit-bearing and the course is not a required course in the degree program for which the degree is to be awarded; (b) the student receives a failing grade; and (c) the student retakes the course for which the student received a failing grade.

If a student repeats a course, the student should notify the registrar of the student's intention to retake the course and the student should take the course for a grade and should consult with the academic advisor to determine if the course will count toward the student's degree requirements.

Graduation Honors
Approximately the top one percent of the graduating students may be recognized for their scholastic achievement upon recommendation by the program and with the dean's approval. Minimum criteria have been established for the following designations: distinction, high distinction, and highest distinction.
Registration and Grading

Students are not allowed to register after the first week of the semester or the first one-and-one-half weeks of the summer session. The maximum permitted registration is 20 semester hours in a regular semester and 10 in the summer session. Students must obtain permission from the head of the division to register for more than the maximum semester hours allowed.

Changes in Registration

Courses may be added with the approval of the adviser and the course instructor at any time during the first one-fifth of the course. They may be dropped at any time during the first two-thirds of the course. Approval is required from the head of the division for all other changes in registration and is granted only in extraordinary circumstances. Students are assigned a mark of W (withdrawn) to any course dropped after the first one-fifth of the course.

Students who have registered for courses offered for variable or assigned credit may change the number of semester hours with the signatures of the instructor, the adviser, and the head of the division at any time prior to the end of the first two-thirds of the course.

Other changes in registration (such as an audit for 0 credit) may be made only during the first one-fifth of the course. It is the student's responsibility to see that the change of registration form is approved by the necessary individuals and delivered to the Registration Center. Changes in registration become effective only after the completed form is submitted to the Registration Center.

Withdrawal of Registration

Students may withdraw registration without academic penalty at any time prior to the end of the first four fifths of the course, but no credit is given for the course. Late withdrawal results in automatic assignment of F. Students who withdraw are not reenrolled 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 approval of the appropriate program director and course instructor. In addition to enabling these signature, students would register for zero credit in the course to be audited. The mark of R (registration) is assigned if the student's attendance and participation are satisfactory; if they are unsatisfactory, the mark of W (withdrawn) is assigned. Courses completed with a mark of R do not meet any college requirements and carry no credit toward graduation. Auditing may not be used as a second-grade-only option.

Second-Grade-Only Option

Repeating courses for the second-grade-only option is allowed in extraordinary circumstances. To repeat a course for the second-grade-only option, students must obtain the signatures of the course instructor, the program director, and the dean on a special form obtained from the office of the proper property signed form must be presented to the registrar's office before the end of the first one-fifth of the course. Both grades will remain on the permanent record, but only the second one is used to calculate grade-point average and is deemed earned.

Inclement Weather

A grade of I (incomplete) may be reported if the reason for inability to finish the course satisfactorily are acceptable to the program director and the course instructor. There also must be evidence that the course work will be finished within a reasonable period of time, usually by the end of the next academic semester. Inclement weather forms for submission of final grades for the next session result in the assignment of a grade of I. Changing the grade when an incomplete has been converted to an F requires the signatures of the dean and change of grade form.

Credit by Examination

The procedure for the acceptance of and the granting of credit by examination varies from program to program. The program director should be consulted for further information.

Reports to Students

Instructors contact any student whose work falls below the minimum acceptable level when the problem is recognized. Grades are reported on the student's record following an official protocol. No formal student reports are given.

Academic Progress, Program Probation, and Dismissal

Students are expected to maintain satisfactory academic and professional standards and to demonstrate reasonable progress toward the degree and objectives. Students who fail to maintain satisfactory academic progress or professional standards of behavior as determined in the program are placed on probation. Students who fail to meet satisfactory academic performance and/ or professional behavior improve. Students on probation are reviewed to good standing by the program director upon evidence that the problem has been corrected. Such action is usually taken at the end of a semester or session. Entrance students may be dismissed on probation, if they fail to meet the minimum state standards for admission.

Combined satisfactory scholarship or professional behavior may result in dismissal from a program. Students dismissed from a program must reapply for admission through the regular, established program admissions process, following review by the executive committee of the division, at least four months prior to the requested date of readmission. Students placed on probation or dismissed from a program are notified in writing of these actions by the program director, a copy is placed in their file.

Students are expected to attend classes regularly. The sale of a class or classes or examination because of illness are expected to present evidence that they have been ill. Any other absence must be approved in advance by the course instructor and program director. Any offense against good order committed by a student in a classroom, clinical setting, or laboratory may be summarily dealt with by the instructor or referred to the program director. The instructor reports to writing any disciplinary action taken against a student to the program director. Repeated or exceptional instances are reported to the dean.

Academic Misconduct

Plagiarism and Cheating

All cases of plagiarism and cheating in the College of Medicine are reported to the dean with a statement of relevant facts. The program director and the instructor concerned may submit recommendations for appropriate disciplinary action.

The individual instructor may reduce the student's grade, including assignment of the grade of F in the course. A report of this action is sent to the student, the program director, and the dean.

The dean, or a faculty committee appointed by the dean, may impose the following or other penalties as the offense may warrant: disciplinary probation, suspension (of additional hours to be specified), or dismissal. The program for a period of two or recommendations of expulsion from the program.

Appeals Procedure

Students who wish to appeal a decision should submit an appeal in writing within two weeks after the date of receipt of the decision in writing.

Unclassified Students

Persons who do not wish to be admitted to the College of Medicine but 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 by action of the faculty upon recommendations of the professor in charge of the course.

Nondepartmental Courses

50:000 Medical Studies Research Fellowship

50:1 Medicine Elective Fourth Year
recommended for others. Students should plan their study programs carefully so that courses in 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 the typical curriculum for undergraduate students, with options being exercised after consultation with program advisor. Programs are abbreviated as follows: MT—Medical Technology (MT-CD) cytogenetics track; MT-F—perfusion track; MT-BT—biotechnology track; NMT—Nuclear Medicine Technology; PA—Physician Assistant; PT—Physical Therapy.  

FRESHMAN YEAR
First Semester
4/1 Principles of Chemistry I 3.0
101: Introductory Chemistry 4.0
321M: Introduction to Scientific Computing 3.0
4.6

Second Semester
2:5 Principles of Anatomy II 3.0
4:6 Principles of Chemistry II 4.0
102: Introductory Physics II 4.0
1.5

Sophomore Year
First Semester
2:5 Principles of Anatomy II (MT, all tracks) 3.0
4:6 Principles of Physiology (MT, all tracks) 4.0
61:17 General Microbiology (MT, all tracks) 4.0
Humanities 3.0
Physical education 2.0
Social sciences 3.0
Total 15-16.0

Second Semester
2:42 Organic Chemistry I (PA) 3.0
29:1 College Physics I (NMT) 4.0
31:3 General Psychology 4.0
4.3

JUNIOR YEAR
First Semester
2:112 Cell, Tissue, and Organ Biology (MT-CD) 5.0
29:1 College Physics (PT) 4.0
61:128 Principles of Epidemiology (MT-BSI) 3.0
Foreign language 4.0
31:13 Introduction to Clinical Psychology (PT, MTP) 3.0
60:1 Principles of Human Anatomy (MTP) 3.0
72:130 Human Physiology (NMT, PT) 4.0
Computer science (MT, all tracks) 3.0
Total 15-16.0

Second Semester
2:128 Fundamental Genetics (PT, MT-CD) 3.0
2:153 Cell Physiology 4.0
29:1 College Physics (PT) 4.0
60:1 Principles of Human Anatomy (NMT) 3.0
60:11V Instrumentation in Clinical Laboratory Science (MT, all tracks) 3.0
69:150 Independent Study in Clinical Laboratory Science (MT, all tracks) 4.0
Foreign language 4.0
225:100 Biostatistics (NMT, PT) 3.0
225:102 Introduction to Statistical Methods (NMT, PT) 3.0
Total 14-15.0

SENIOR YEAR
General education, elective, or advanced courses in the Department of Biochemistry, Microbiology, Chemistry, Biology, or other courses specified for specific degree requirements.

MEDICAL TECHNOLOGY
Director: Marian Schwanhoefer
Assistant Director: Eunice Hylander
Medical director: James A. Givens
Associate professor: Jason A. Givens
Lecturers: Richard Sizel, Marian Schwanhoefer
Associate: Janet O’Connor, Carol L. Williams
Assistant in-teaching: Kathleen Kelly, Larry Wall
Administrative associate: Jodi Avradil
Adjunct associate: Thomas Freeman
Adjunct instructor: Barbara Bluhm, Mike Stefl, Denise Goodwin, Christine Illes, Donna D. Cullen, Jan Grom, 1992 Medics, Francie Eunder, Mike Lue, Marcia Loehr, Sarah Mothers, Heen\nSherri, Michael Moore, Joel Paschke, Beverly Penko, Darrell Penman, Dan Purcell, Kathryn Ryman, Carla Schanen, Georgina Schacter, Jennifer Sawyer, John Vahle, Susan Wysocka
Degree: B.S. in Medical Technology

Medical technologists/clinical laboratory scientists perform the laboratory tests on which physicians rely for accurate diagnosis and proper treatment of disease. They are in demand in hospitals, priory, and government laboratories, clinical, physicians’ offices, and industrial, pharmaceutical, biological, and environmental research laboratories. Medical technologists/clinical laboratory scientists are highly skilled health care workers who use a battery of sophisticated procedures and

Cytogenetics

69:1 Pharmaceutical Science

Cytogenetics

69:30 Medical Cytogenetics 3.0
Nuclear Medicine Technology

Director: Anthony W. Knight
Medical director: Peter F. Kehoe
Technical director: Mark A. Zavala
Professors: Sam F. Clark, Peter E. Rankin
Instructor: Robert H. Chang
Associate professor: Richard Richard, Karen Lynch, seven full-time.

Nuclear medicine is a medical specialty that uses radioactive tracers for diagnostic, therapeutic, and research purposes. It is a rigorous, dynamic field that has grown rapidly over the past few decades and continues to expand and grow in complexity. The continued expansion of the specialty has fostered an increasing demand for highly skilled and motivated nuclear medicine technologists.

Nuclear medicine technologists generally work in hospitals and clinics. At the heart of nuclear medicine technology is the use of sophisticated detectors and computers to trace the movement and localization of radioactive tracers in the human body. Other basic job responsibilities may include patient safety, quality control, radiopharmaceutical preparation and administration, and collection and interpretation of biological specimens to measure levels of hormones, drugs, or other body components. In all these functions, the nuclear medicine technologist works hand-in-hand with nuclear medicine physicians, radiation therapists, and radiochemists as an integral part of a highly specialized team.

The Nuclear Medicine Technology Program at The University of Iowa is fully accredited by the Commission on Allied Health Education and Accreditation and the Council on Medical Education of the American Medical Association. Fulfillment of the requirements established by these organizations involves three years of preparatory work in the College of Liberal Arts and the College of Medicine, and a minimum of 12 months of professional clinical experience, available at The University of Iowa Hospitals and Clinics and the Veterans Affairs Medical Center.

Upon satisfactory completion of the four-year program, students receive the B.S. degree in Nuclear 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 encouraged to pursue a course of study that is applicable to a baccalaureate degree, as community in biology, chemistry, biochemistry, or microbiology. In this way, students who are not admitted to the B.S. program can complete a degree in their chosen area.

Admission

Requirements for admission to the Nuclear Medicine Technology Program include the following:

- A minimum of 94 semester hours in core course work, with a 3.50 minimum cumulative grade-point average; fulfillment of the College of Liberal Arts General Education Requirements in rhetoric, foreign language, physical education, humanities, historical perspectives, foreign

For course descriptions, see "Radiology" in this section of the Catalog.
PHYSICAL THERAPY

Dates: Gary Seldinger
Professorship: Gary Smith, Gary Seldinger
Associate professor: Carl Buhler, Grant Nelson
Assistant professor: Thomas Cook
Adjunct professors: William Drexler, Barbara Cassady, Lawrence Blakeslee, Carrie Wadsworth
Adjunct lecturers: Donald Reis
Assistant researchers: Thomas Rauen, Kaye Laurenbach, Kim Lea, Bruce Miller, Richard Steffen, John Weber

Graduate degree: M.P.T. M.A. in Physical Therapy

Physical therapists participate in evaluation of the capabilities and disabilities of patients. They provide treatment in a variety of settings: private, or institution, or in the community. They focus on the role of exercise and activity in improving the quality of life for patients of all ages. They work with individuals who have a wide range of disabilities, including physical, sensory, or cognitive impairments. Physical therapists collaborate with other health professionals, such as doctors, nurses, social workers, and other therapists, to develop and implement treatment plans tailored to the needs of each patient.

Education in the program is available at all levels: the baccalaureate degree, the master's degree, and the doctorate degree. The Ph.D. in health science degree is offered in collaboration with the university's School of Public Health. Special emphasis is placed on the education of students who wish to pursue careers as physical therapists. The program includes courses in physical therapy, anatomy, physiology, kinesiology, and human development. The curriculum provides a comprehensive understanding of the musculoskeletal system and its role in movement, function, and posture. The program is accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE). The program is located in the College of Health and Human Sciences. The University of Iowa is highly regarded for its programs in physical therapy, and the degree program is highly ranked in the nation. The program is designed to prepare students for careers as physical therapists and to provide excellent opportunities for career advancement.
program focuses on theoretical and clinical applications for assessment and treatment of patient disorders in the three specialty areas. Clinical practical experiences are offered to complement these specialties.

The master's degree requires a minimum of 30 semester hours of graduate course work. Completion of basic professional physical therapy education is a prerequisite. Clinical experience is recommended.

Physical therapy research laboratories are available. These laboratories are well-equipped with electromyographs and equip for measurement of electromyograms (EMG's), shoe, seat, balance, and joint position tests. Use of additional equipment is limited. The master's degree requires at least 30 semester hours of graduate course work. Completion of basic professional physical therapy education is a prerequisite. Clinical experience is recommended.

Collaborative studies are encouraged with other departments such as psychology, internal medicine, pediatrics, orthopaedic surgery, and pharmacology. Students will also be required to complete a research project. The master's degree requires at least 30 semester hours of graduate course work. Completion of basic professional physical therapy education is a prerequisite. Clinical experience is recommended.

Admission
To be considered for admission, applicants must be graduates of an approved professional program of physical therapy and must have earned at least a 2.5 grade-point average on a 4.00 scale in all undergraduate work. Two years of clinical experience is 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 Examination (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 Office of Admissions evaluates application materials to ensure that the minimum Graduate College standards are met. The application is then sent to the department for review.

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).

Ph.D. in Physical Education (Therapeutics)
Doctoral training related to physical therapy is received in a program in exercise science (Division of Physical Education), with special emphasis on therapeutic applications. The program is described in detail under "Exercise Science and Physical Education" in the College of Liberal Arts section of the Catalog.

Students successfully completing the Ph.D. program in physical education with the specialty in therapeutic applications will:

- be able to teach at the basic professional and master's degree levels of physical therapy education and show promise of teaching at the doctoral level;
- be able to perform research and scholarship and be able to communicate findings in the specialty.

The following courses are recommended.

60:133 Introduction to Human Anatomy 3 s.h.
79:120 Introduction to Instructional Design and Technology 3 s.h.
71:320 Drugs: Their Actions, Mechanisms, and Use 3 s.h.
140:295 Electrophysiology in Kinesiology and Biomechanics 3 s.h.
130:285 Biomechanics I 3 s.h.
130:286 Biomechanics II 3 s.h.

Admission
To be considered for admission, applicants must be graduates of an approved professional program of physical therapy and must have earned at least a 2.5 grade-point average on a 4.00 scale in all undergraduate work. Two years of clinical experience is 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 Examination (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 Office of Admissions evaluates application materials to ensure that the minimum Graduate College standards are met. The application, including tests scores and copies of transcripts, is then sent to the department for review.

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).

Financial Aid
A number of teaching and research assistantships are available; part-time clinical work also may be available.

Courses
15:120 Physical Therapy Management and Administration 2 s.h.
15:121 Functional Aspects of Patient Care 3 s.h.
15:123 Electrophysiology 3 s.h.
15:126 Clinical Assessment 3 s.h.
15:130 Therapeutic Exercise I 3 s.h.
15:131 Therapeutic Exercise II 3 s.h.
15:132 Therapeutic Exercise III 3 s.h.
15:133 Therapeutic Exercise IV 3 s.h.
15:134 Therapeutic Exercise V 3 s.h.
15:135 Therapeutic Exercise VI 3 s.h.
15:136 Therapeutic Exercise VII 3 s.h.
15:137 Therapeutic Exercise VIII 3 s.h.
15:138 Therapeutic Exercise IX 3 s.h.
15:139 Therapeutic Exercise X 3 s.h.
15:140 Therapeutic Exercise XI 3 s.h.
15:141 Therapeutic Exercise XII 3 s.h.
15:142 Therapeutic Exercise XIII 3 s.h.
15:143 Therapeutic Exercise XIV 3 s.h.
15:144 Therapeutic Exercise XV 3 s.h.
15:145 Therapeutic Exercise XVI 3 s.h.
15:146 Therapeutic Exercise XVII 3 s.h.
15:147 Therapeutic Exercise XVIII 3 s.h.
15:148 Therapeutic Exercise XIX 3 s.h.
15:149 Therapeutic Exercise XX 3 s.h.
15:150 Therapeutic Exercise XXI 3 s.h.
15:151 Therapeutic Exercise XXII 3 s.h.
15:152 Therapeutic Exercise XXIII 3 s.h.
15:153 Therapeutic Exercise XXIV 3 s.h.
15:154 Therapeutic Exercise XXV 3 s.h.
15:155 Therapeutic Exercise XXVI 3 s.h.
15:156 Therapeutic Exercise XXVII 3 s.h.
15:157 Therapeutic Exercise XXVIII 3 s.h.
15:158 Therapeutic Exercise XXIX 3 s.h.
15:159 Therapeutic Exercise XXX 3 s.h.
15:160 Therapeutic Exercise XXXI 3 s.h.
15:161 Therapeutic Exercise XXXII 3 s.h.
15:162 Therapeutic Exercise XXXIII 3 s.h.
15:163 Therapeutic Exercise XXXIV 3 s.h.
15:164 Therapeutic Exercise XXXV 3 s.h.
15:165 Therapeutic Exercise XXXVI 3 s.h.
15:166 Therapeutic Exercise XXXVII 3 s.h.
15:167 Therapeutic Exercise XXXVIII 3 s.h.
15:168 Therapeutic Exercise XXXIX 3 s.h.
15:169 Therapeutic Exercise XL 3 s.h.
15:170 Therapeutic Exercise XLI 3 s.h.
15:171 Therapeutic Exercise XLII 3 s.h.
15:172 Therapeutic Exercise XLIII 3 s.h.
15:173 Therapeutic Exercise XLIV 3 s.h.
15:174 Therapeutic Exercise XLV 3 s.h.
15:175 Therapeutic Exercise XLVI 3 s.h.
15:176 Therapeutic Exercise XLVII 3 s.h.
15:177 Therapeutic Exercise XLVIII 3 s.h.
15:178 Therapeutic Exercise XLIX 3 s.h.
15:179 Therapeutic Exercise L 3 s.h.
15:180 Therapeutic Exercise LI 3 s.h.
15:181 Therapeutic Exercise LII 3 s.h.
15:182 Therapeutic Exercise LIII 3 s.h.
15:183 Therapeutic Exercise LIV 3 s.h.
15:184 Therapeutic Exercise LV 3 s.h.
15:185 Therapeutic Exercise LV1 3 s.h.
15:186 Therapeutic Exercise LVII 3 s.h.
15:187 Therapeutic Exercise LVIII 3 s.h.
15:188 Therapeutic Exercise LIX 3 s.h.
15:189 Therapeutic Exercise LX 3 s.h.
15:190 Therapeutic Exercise LXI 3 s.h.
15:191 Therapeutic Exercise LXII 3 s.h.
15:192 Therapeutic Exercise LXIII 3 s.h.
15:193 Therapeutic Exercise LXIV 3 s.h.
15:194 Therapeutic Exercise LXV 3 s.h.
15:195 Therapeutic Exercise LXVI 3 s.h.
15:196 Therapeutic Exercise LXVII 3 s.h.
15:197 Therapeutic Exercise LXVIII 3 s.h.
15:198 Therapeutic Exercise LXIX 3 s.h.
15:199 Therapeutic Exercise LXX 3 s.h.
15:200 Therapeutic Exercise LXXI 3 s.h.
PHYSICIAN ASSISTANT PROGRAM

Director: Debra B. office
Medical Director: Douglas W. Bacon
Professor: Douglas W. Bacon, Dean
School of Physician Assistant Studies

The physician assistant (PA) profession combines the skills and knowledge of health professionals in an interdisciplinary approach to patient care. The PA works as a member of the healthcare team, providing care to patients in a variety of settings.

The PA program is designed to prepare graduates for entry into the healthcare field. The program offers a comprehensive curriculum that includes didactic and clinical components.

The PA program is accredited by the Accreditation Review Commission on Education for the Physician Assistant (ARC-PA). It is recognized by the National Commission on Certification of Physician Assistants (NCCPA).

The program offers a 2-year course, consisting of 62 weeks of instruction, followed by a 12-week clinical rotation in a variety of settings. Graduates are prepared to take the National Certification Exam for Physician Assistants (NCCPA). Upon successful completion of the exam, graduates are eligible to practice as physician assistants.

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Professional Curriculum

FIRST YEAR

Phase I

50:105 Law and Medicine for Physician Assistant Students 1 s.h.
60:111 Great Human Anxieties for Physician Assistant Students 6 s.h.
61:112 Health Sciences Microbiology 4 s.h.
69:130 Clinical Pathology for Physician Assistant Students 1 s.h.
69:133 Introduction to Human Pathology 4 s.h.
71:125 Pharmacology for Health Sciences. Physician Assistant Students 6 s.h.
72:104 Human Physiology for Physician Assistant Students 4 s.h.
99:164 Seminar for Physician Assistant Students 3 s.h.
117:104 Seminar for Physician Assistant Students 1 s.h.
117:105 Introduction to the Medical and Physical Examination for Physician Assistant Students 1 s.h.
117:106 Introduction to Research and Reference for Physician Assistant Students 1 s.h.
117:107 Interpretation of Medical Literature 1 s.h.
117:108 Preventive Medicine for Physician Assistant Students 1 s.h.

Phase II

50:121 Introduction to Clinical Medicine for Physician Assistant Students 20 s.h.

SECOND YEAR

Phase III

The following are required clinical rotations.

60:100 Obstetrics and Gynecology for Physician Assistant Students 6 s.h.
71:555 Pediatrics for Physician Assistant Students 6 s.h.
71:555 General Surgery for Physician Assistant Students 6 s.h.
78:555 Internal Medicine for Physician Assistant Students 6 s.h.
115:555 Family Practice I for Physician Assistant Students 6 s.h.
117:201 Independent Study 1 s.h.

Elective clinical rotations are selected from the following:

60:25 Dermatology Elective for Physician Assistant Students 2 s.h.
64:100 Neurology Elective for Physician Assistant Students 2 s.h.
69:111 Otology and Gynecology Elective for Physician Assistant Students 2 s.h.
69:148 Orthopedics Elective for Physician Assistant Students 2 s.h.
71:100 Pediatrics Elective for Physician Assistant Students 2 s.h.
71:557 Pediatrics Elective (Neonatal, Neonatal Transplant) for Physician Assistant Students 2 s.h.
70:105 Pediatrics Elective (Neonatal, Neonatal Transplant) for Physician Assistant Students 2 s.h.
71:100 Obstetrics Elective for Physician Assistant Students 2 s.h.
71:100 Emergency Room Elective for Physician Assistant Students 4 s.h.
71:100 Surgery Elective for Physician Assistant Students 4 s.h.
71:111 Surgery Elective (Transplant/Organ Transplant) for Physician Assistant Students 4 s.h.
71:113 Surgery Elective (Brain Stem) for Physician Assistant Students 4 s.h.
71:100 Orthopedics Elective for Physician Assistant Students 4 s.h.
71:100 Internal Medicine Elective for Physician Assistant Students 4 s.h.
71:100 Internal Medicine Elective (Cardiology) for Physician Assistant Students 4 s.h.
71:100 Internal Medicine Elective (ERG) for Physician Assistant Students 4 s.h.
71:100 Internal Medicine Elective (Gastroenterology) for Physician Assistant Students 4 s.h.
71:100 Internal Medicine Elective (Geriatrics) for Physician Assistant Students 4 s.h.
71:553 Internal Medicine Elective (Hospital Medicine) for Physician Assistant Students 4 s.h.
78:555 Internal Medicine Elective (Infectious Disease) for Physician Assistant Students 4 s.h.
78:505 Internal Medicine Elective (Pulmonary) for Physician Assistant Students 4 s.h.
71:120 Emergency Elective for Physician Assistant Students 2 s.h.
115:550 Family Practice II for Physician Assistant Students 6 s.h.
115:554 Family Practice III for Physician Assistant Students 6 s.h.

Admission

To be eligible for admission to the physician assistant professional program, applicants must have completed at least 36 semester hours of college-level study, including:

College of Liberal Arts General Education Requirements in mathematics, physical education, skills, historical perspectives, humanities, quantitative or formal reasoning, foreign civilization and culture, social sciences, and foreign language;

complete required courses in inorganic and organic chemistry; and

a complete introductory course in at least one advanced course in zoology or animal biology.

It is also strongly recommended, although not required, that applicants' backgrounds include geometry, beginning calculus, and statistics.

Applicants must have achieved at least a 2.70 grade point average on the last 60 semester hours of college 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 3.25; a total of 125 semester hours of college credit, of which 55 semester hours were in the sciences; and from 34 to 40 hours of their study were of a health-related patient care experience.

Satisfaction of the basic admission requirements does not assure acceptance into the Physician Assistant Program. The admissions committee selects the applicants it considers best qualified. Applicants with previous health care experience involving direct patient contact receive preferential consideration. The committee requests interviews with the most qualified applicants.

Students are advised to pursue a course of study that is applicable to a baccalaureate degree, particularly in the areas of biology, chemistry, or biochemistry. In this way, students who are not admitted to the Physician Assistant Program can pursue the baccalaureate degree.

Each new class begins the last week in May. Applications are accepted beginning one year in advance of the time frame in which the student is expected to graduate. Each applicant must complete the Physician 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 their medical uniforms and diagnostic equipment, approximately $400. Microscopes are not required.

Combined Graduate Program

M.S. in Preventive Medicine and Environmental Health or Exercise Science

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 subspecialty areas of medicine with an increasing utilization of physician assistants in clinical research, medical education, and health care administration.

With these trends in mind, two combined graduate-level programs were developed at The University of Iowa in cooperation with the Departments of Preventive Medicine and Environmental Health and Exercise Science. The combined programs are designed to provide additional course work in either preventive medicine or exercise science complementary to the course work within the PA curriculum. The combined programs are three years in length with the majority of preventive medicine or exercise science courses completed in the first year and the regular PA curriculum completed in years two and three.

Following completion of the program, students earn a B.S. in the Physician Assistant Program from the College of Medicine and an M.S. in preventive medicine and environmental health or exercise science from the Graduate College.

Admission

To be considered for admission, applicants must have completed a baccalaureate degree with a 2.70 minimum grade point average. Suggested prerequisite courses include biochemistry, microbiology, immunology, and pharmacology. Satisfaction completion of the Graduate Record Examination (GRE) is required. The Office of Admissions evaluates application materials independently of minimum Graduate College standards or meet the application, including test scores and copies of the transcript, is then forwarded to the department. Applicants must complete both the Physician Assistant Program application and an application for admission to the Graduate College. Deadline for completed written applications is January 15.

Courses

117.11 Physician Assistant Clinical Second Year

117.32 Seminar for Physician Assistant Students 0.5 h. survey development of the physician assistant role in Physician Assistant Program.

117.32 Seminar in Basic Medical Sciences and Physical Examination for Physician Assistant Students 4 cr. Basic examination techniques for clinical data gathering; standard clinical laboratory results; their applications in a complete medical history, physical examination and abnormal findings through clinical, laboratory and imaging diagnostic procedures. Open only to Physician Assistant Program students.

117.103 Introduction to Research Design and Methodology 1 h. Design, implementation of research projects, from conceptualization to data presentation; emphasis on appropriate research design, critical evaluation, presentation, proper design, experimental research, statistical analysis, interpretation and reporting, information retrieval, current research, and evaluation of data. Open only to Physician Assistant Program students.

117.104 Interpretation of Medical Literature 1 h. The student portrays: summary of current research and clinical research article, literature review, computerized search, development of framework for analyzing research articles, medial critique. Open only to Physician Assistant Program students.

117.345 Preventive Medicine for Physician Assistant Students 1 h. Epidemiology: critical preventive medicine, occupational medicine, public health, emphasis on application of skills to primary care. Open only to Physician Assistant Program students. Same as EHS 402.

117.381 Independent Study 1 h. Health care research; writing of clinical review paper, diagnosis of treatment, written work, final research paper. Open only to Physician Assistant Program students.

BIOCHEMISTRY

Groups: Alan G. Goodridge, Associate Professor, Arthur W. van Wesel, Lisa E. Brownop, Alan G. Goodridge, Lisa E. Brownop, Kevin V. Fajer, Associate Professor, Arthur W. van Wesel, Lisa E. Brownop, Charles A. Crowell, Assistant Professor, Charles A. Crowell, Joseph L. Rodig, Associate Professor, Curt S. Ueland

Associate professors: Alice B. Pelton, Theophile A. Kitzinger, Larry T. Slobodan

Associate professor emeritus: Don F. Latch

Assistant professors: Robert J. Buttenheim, Frances C. Greer, David H. Pink, Andrew D. Bubnoff, Mark A. Gruen, Daron L. Winko, Mark S. West

Graduate degrees: B.S., M.S. in Biochemistry

Graduate degrees: M.S., Ph.D. in Biochemistry

Undergraduate Programs

See "Biochemistry" in the College of Liberal Arts section of the "Graduate Programs"

The Departments of Biochemistry offers programs of study leading to the M.S. and Ph.D. degrees. The Department also offers opportunities for qualified and interested students to pursue combined programs leading to the M.S. in Chemistry, M.D., or Ph.D. (medical scientific training degree).

The heart of the graduate program is the individual student. In the first year, students' educational needs are met with formal course work and tutorial research experience that serve as the base for selecting a thesis topic.

First-year students spend half of their time during the biochemistry courses usually 99.264, 99.265, 99.267, and the interdisciplinary molecular biology courses 142.310 and 142.315 for course descriptions, and "Biological Sciences" in the section of the Catalog. Students spend the other half of their time working in three different faculty research laboratories 99.261 (Research Techniques), learning scientific techniques in the context of ongoing projects. After the first year, students choose research laboratories for Ph.D. their thesis research, begin their thesis projects, and take courses that complement and develop their research and training. During this time, they must complete a minimum of 9 semester hours of courses consisting of a seminar and two short courses (1 semester hour each) in biochemistry and 6-semester hour elective science courses (100 or 200 level) in other departments.

The comprehensive examination is taken in May of the second year. After this examination, students are admitted formally to degree candidacy and must complete their research. The program culminates in the successful defense of the comprehensive test before an examining committee.

In addition to meeting these requirements and the general goals of the Graduate College, students are expected, as part of their training, to assist in teaching biochemistry for two or three semesters.

Throughout the program, students are encouraged to attend scientific symposia and to receive personal attention from the biochemistry faculty members who serve as research advisors.

Research

The department's current research interests include the study of protein structure and function, complex endocrine structure and function, regulation of gene expression, mechanisms involved in transcription and replication, enzyme mechanisms, signal transduction, inflammation, immune response determination and action, and mechanisms of hormone action.

Facilities

The Department of Biochemistry occupies modern research quarters in the Rowen Science Building, where The Departments of Anatomy, Microbiology, Pharmacology, and Physiology are housed. The building contains the tissue culture research building. The building contains tissue culture research laboratories, facilities, tissue culture rooms, tissue culture, and microscopy laboratories. A large Research Mass Spectrometry laboratory, located in the College of Medicine and available to biochemistry researchers, is equipped with the Protein Structure Facility, the Core Spectroscopy Facility, the Core Spectroscopy Facility, the Core Spectroscopy Facility, and the Core Spectroscopy Facility. The Core Spectroscopy Facility, the Core Spectroscopy Facility, the Core Spectroscopy Facility, and the Core Spectroscopy Facility. In addition, there are many general-use laboratories, including the Robert E. Prichard Clinical Research Center, and the Robert E. Prichard Clinical Research Center, and the Robert E. Prichard Clinical Research Center. These laboratories are equipped with a variety of instruments, including electron microscopy, scanning electron microscopy, and x-ray diffraction, and are available to students, postdoctoral associates, and visiting researchers.

Together, the department and the central support laboratories provide a wide variety of equipment required for modern biochemical research. The department's equipment includes a variety of analytical and preparative ultracentrifuges, a variety of spectrophotometers, a variety of microscopes, and a variety of other instruments, including infrared, mass spectrometry, amino acid analyzers, protein
FAMILY PRACTICE

Head: Chester E. Orrell
Professor: Charles S. Crenshaw, J. Lee Thoennes (Internal Medicine), George W. Williams
Associate professors: Elizabeth A. Burns, Craig L. Gavett, Edward L. Hall, John P. Mueller
Clinical associate professors: Robert L. Fasthagan, Gary D. Forbis, William R. McDonald
Assistant professors: Charles A. Bagley, George O. Scott, Richard Daynes, David Kaufer, Arthur Kindred
Associates: Larry D. Thier, Verne Varrighorn, Nicholas S. Calvas, John D. Kimball, Dennis L. Ware
Instructor: Steve E. Wartel, Jr.

The Family Practice Program was established in response to the need for more primary care physicians in Illinois and throughout the nation.

Appropriate core work in the department is included throughout the four-year M.D. program. The department's 18 elective senior seminars give students opportunities for exposure to various urban communities through work in affiliated hospitals or contracted facilities. At the department's central office on the University campus, and in preceptorships with selected family physicians throughout the state. There is also opportunity for independent study during the senior year.

Residency

The department directs a three-year residency program whose graduates are eligible for certification by the American Board of Family Practice. This residency trains practitioners to provide comprehensive and compassionate care to the local family unit, to practice as a specialist. In the integrative patient, allied health professionals, available in the physician and an efficient and effective family care unit.

The program is flexible, allowing residents freedom to tailor their three years to their own unique needs and interests. It includes a broad spectrum of clinical instruction in internal medicine, pediatrics, obstetrics and gynecology, psychiatry, medical and surgical subspecialties, and community medicine. The program currently offers 17 resident rotations.

The hospital-based clinical experience is a unique combination of exposure to practice in The University of Iowa Hospitals and Clinics, where physicians have been trained in their interests and in various community hospitals, where residency care is of nature more often to family practice.

During the first year, a large portion of the program is based at Iowa's relatively new Hospital in Iowa City, where residents have the opportunity to train in the participation in the practice—both inpatient and outpatient—as of the problem family physicians. Residents are specifically designed to provide broad-based experience of the students.

In the second year, the residents spend increased time at the Family Practice Center and at The University of Iowa Hospitals and Clinics.

Facilities

The department offices, located in the Sidra's Medical Building on the University campus in Iowa City, the center of department activities. It contains family medicine offices and the Family Practice Medical Office. Patient families are assigned to a resident with family supervision and are seen by appointment. Responsibility for the patient remains with the resident while with on-call service resident is also on call with the supervision of the emergency department.

The Family Practice Center is located in severalproblematic pavilions, the faculty office of practice, the organization and medical decision making, resident problem solving, and chart writing methods required to manage primary care.

Courses

154121 Human Development II in Medicine 1 lab. Group dynamics, communication, instruction, heart.
154121 Principles of Family Medicine 2.5 lab. Those who are present in medical emergencies, potential health care professionals, medical students, medical residents in affiliation with the program.
154122 Fundamentals of Family Medicine 2 lab. The student's knowledge of basic principles and techniques in family medicine.
154123 Clinical Practice II in Family Practice 2 lab. Creative experience with a practical situation in the role of chief resident, with inpatient care, and ambulatory care for the evaluation and treatment of family and related adult and chronic conditions.
154141 Family Practice Center, University of Iowa Hospitals and Clinics 4 lab. Global experience (4) with important, resident care. Courses of department required.
154142 Emergency Room Residency, University of Iowa 4 lab. Preparation in clinical practice of emergency medicine, knowledge of cardiac arrest, chest pain, emergency department, emergency treatment of patients in cardiopulmonary resuscitation. Includes instruction in emergency care, emergency treatment of patients in cardiopulmonary resuscitation.
154143 Family Practice Center, Clinical Laboratories 4 lab. Clinical experience in laboratory practice of family medicine. Courses of department required.
154144 Family Practice Center, Internal Medicine 4 lab. Clinical experience in internal medicine practice of family medicine. Courses of department required.
154145 Family Practice Center, Medical Education 4 lab. Clinical experience in medical education practice of family medicine. Courses of department required.
154146 Family Practice Center, Ophthalmology 4 lab. Clinical experience in ophthalmology practice of family medicine. Courses of department required.
154147 Family Practice Center, Physical Therapy 4 lab. Clinical experience in physical therapy practice of family medicine. Courses of department required.
154148 Family Practice Center, Nursing Education 4 lab. Clinical experience in nursing education practice of family medicine. Courses of department required.
154149 Family Practice Center, Nutrition Education 4 lab. Clinical experience in nutrition education practice of family medicine. Courses of department required.
154150 Family Practice Center, Obstetrics-Gynecology 4 lab. Clinical experience in obstetrics-gynecology practice of family medicine. Courses of department required.
154151 Family Practice Center, Pediatrics 4 lab. Clinical experience in pediatrics practice of family medicine. Courses of department required.
154152 Family Practice Center, Pathology 4 lab. Clinical experience in pathology practice of family medicine. Courses of department required.
154153 Family Practice Center, Radiology 4 lab. Clinical experience in radiology practice of family medicine. Courses of department required.
154154 Family Practice Center, Surgery 4 lab. Clinical experience in surgery practice of family medicine. Courses of department required.
154155 Family Practice Center, Pharmacy 4 lab. Clinical experience in pharmacy practice of family medicine. Courses of department required.
HOSPITAL AND HEALTH ADMINISTRATION

Academic advisor: James E. Motley
Professor: Sethuraman L. Raheja
Assistant professor: Geoffrey Morgan
Associate professor: Robert L. Lineberry, Janice R. W. Warner, William B. Wernig
Adjunct assistant professor: Cary J. L. Lambini
Adjunct associate professor: Beverly F. Smith
Adjunct professor: Anthony J. Mullen, John J. Hahn, Charles F. Wenzel
Chair: Robert B. Morgan

Genetics

Graduate degree: Ph.D. in Genetics
The Ph.D. program in genetics is an interdisciplinary program involving members of the Departments of Biochemistry, Biological Sciences, Microbiology, and Physiology and Biophysics, as well as a number of faculty members in clinical departments. See "Departmental College of Liberal Arts Sections of the Catalog for a list of participating faculty members, degrees, requirements, and deposits."
During the senior year, students are enrolled in the program in hospital and health administration with that of another field are encouraged to take courses in the field.

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 take courses in the field. The program with Urban and Regional Planning requires two-and-one-half years of full-time study. Other alternatives may be established on an individual basis. Students interested in a joint program should discuss their plans with both academic units and indicate their interest when submitting application materials.

Summer Internships, Fellowships, Residencies

The program includes placement of students in optional summer internships the summer between the first and second year of study. Most internships are arranged for students to work on their academic work with an administrative postgraduate fellowship or residency. Such experiences, in addition to the program, are designed to provide students with practical work experience in hospital and health administration and related fields. The program makes an active role in assisting students to identify and secure fellowships and residency positions.

Doctor of Philosophy

The Ph.D. program, the nation’s doctoral program in hospital and health administration, prepares students to assume positions in teaching and research as well as senior policy and executive assignments. Graduate 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. program requires completion of a minimum of 90 graduate credit hours, comprehensive examination, and a dissertation. In addition, candidates prepare a dissertation 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 are stipulated courses and are offered in the major.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>80:259</td>
<td>The Politics of Health Policy</td>
<td>3 h.</td>
</tr>
<tr>
<td>80:251</td>
<td>Planning for Health Policy</td>
<td>3 h.</td>
</tr>
</tbody>
</table>

Financial Aid

Approximately three-quarters of the students in the program receive some form of financial aid. Many efforts are made to provide financial aid to all students who demonstrate need.

In addition to various scholarships, grants, and loan programs administered through the school, the program provides qualified students with research scholarships that afford valuable experience in health services research and management projects. Research assistantship work is 10 to 20 hours per week and must apply for reappointment each semester. Appointment to a research assistantship provides a stipend and entitles the student to the status of a full-time student. In addition to these student financial aid programs, opportunities exist for part-time employment both on- and off-campus. Further information and applicative forms for financial aid are available from the Office of Student Financial Aid.

Center for Health Services Research

The Center for Health Services Research (CHSR), the research division of the Graduate Program in Hospital and Health Administration since 1981, is the University’s basic focal point for a broad-based program of health services research. With the coordination and support of the CHSR, faculty and staff from colleges and departments throughout the University investigate the organization, delivery, efficacy, and financing of health care services. CHSR research is conducted in a broad spectrum of perspectives and disciplines, including management science, health care organizations, economics, geography, organizational behavior, psychology, sociology, evaluation, environmental health, preventive and community medicine, nursing, and clinical medicine.

Through its research activities, the center promotes links among health researchers throughout the framework. CHSR also offers support in planning and providing conferences, seminars, workshops, and summer conferences and workshops.

All applicants are required to submit an application, transcript, GRE or GMAT scores, three letters of recommendation, and a written statement of interest in the program. Consideration, admissions, and interviews are made for the fall semester only. Campus visits are encouraged and personal interviews are required prior to admissions. Those unable to interview on campus interviews are made by telephone with a program alumni to the applicant’s home area.

Alumni Association

An active alumni association supports the program in a number of ways. Including scholarships, curriculum consultation, continuing education, research, and fund development. The association also functions as a network for persons entering the profession. Alumni serve as visiting faculty, consultants, and as presenters for summer internships, residencies, and fellowships.

Doctoral students may attend the Annual Symposium, a two-day conference for health care executives, focusing presentations by leaders in the health care field. The symposium brings together alumni, students, educators, and leaders of the health care industry to address and discuss critical issues in health care. The symposium is attended by the College of Pharmacy, the College of Public Health, the College of Social Work, and the College of Nursing, among other colleges.

Admission

Applicants to the master’s program are required to have a bachelor’s degree, except for the admission program applicants. Applicants to the Ph.D. program generally are expected to hold a master’s degree in a health-related field, although other degrees will be considered. A 3.00 grade-point average (on a 4.00 scale) is required. Candidates who do not meet these requirements are encouraged to take courses in health services management, economics, and statistics are strongly recommended.
**MEDICAL SCIENTIST TRAINING PROGRAM**

**Director:** Robert E. Fisher (Pathology and Immunology)

**Associate director:** Ramon J. Morales (Microbiology)

The Iowa Medical Scientist Training Program is a graduate degree program that prepares trainees for careers in academic medicine, with emphases on preclinical and clinical research. To accomplish this, the program provides efficient integration of graduate education, doctoral research training, and all clinical duties necessary for the medical degree. Requirements for both the M.S. and Ph.D. degrees can be completed in approximately seven years of combined studies.

In the first two years of the program, trainees are associated primarily with the College of Medicine for the basic science and introductory clinical portions of their curricula. The basic science core of the first two semesters consists of formal courses in biochemistry, histology, anatomy, microbiology, bacteriology, hematology, biochemistry, physiology, pharmacology, immunology, and preventive medicine. These courses provide the language and organizing concepts of the preclinical sciences that are the foundation for subsequent training in both research and clinical medicine.

During the summer between the first and second years, trainees engage in research under the supervision of a member of the program faculty. Entering medical students may also choose to do research during the summer before their first year.

In the second semester of the second year, trainees enroll in an introduction to clinical medicine sequence that provides instruction and practice in medical history taking, physical diagnosis, and clinical judgement. This clinical component is integrated into the basic science curriculum in the second year, and trainees are taught to think in a more clinical manner. In the summer of the second year, they engage in clinical experience through research training. This early clinical component integrates scientific and clinical aspects of the program and provides an overview of research needs in the health sciences. Training continues with clinical medicine during the graduate phase of the program through participation in weekly clinical conferences and voluntary clinical activities.

In years three through five, the graduate phase of the program, trainees enroll full-time in the departments they select to enter as a second-year student. This graduate experience is designed to prepare trainees for careers in independent investigations. Graduate training is supervised by departmental faculty and is pursued with the rigor and standards applied to all doctoral students at the University of Iowa.

Third-year trainees take advanced courses while defining their selection of a thesis problem and advisor. After completion of required courses and qualifying examinations, trainees focus on original research. The essential requirement for the doctoral Degree, while it is not possible at the outset to predict the amount of time this segment of the program will require, most trainees complete the Ph.D. research and thesis defense in approximately four years.

Immediately after completing graduate study, trainees receive the medical curricula to begin the final year of clinical clerkships. They return to the clinical environment with a wealth of information and sophistication in laboratory science that can be applied to problems of human disease, and as the final-year progresses, they continue to develop the clinical skills they began to acquire in the second year of the program. After completing the clerkship 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 support provided by a Medical Scientist Training Program. Stipends are paid from the National Institutes of Health (NIH) to the University of Iowa. Support for this grant is awarded to institutions and not to individuals. Departmental sources are continued throughout the completion of combined degree programs, provided the trainee's progress remains satisfactory. Support for trainees adjusted to advanced standing in the program is arranged on an individual basis.

**Admission**

Applicants must meet requirements for admission to the College of Medicine and the Graduate College at The University of Iowa. Trainees are expected to have completed requirements for a bachelor's degree at an accredited academic institution. In addition to outstanding academic credentials, including strength in biological, physical, and mathematical sciences, applicants should demonstrate aptitude and enthusiasm for research, as evidenced by scientific performance and by interactions with scientific investigators. Applicants are accepted from students who request admission to the M.D.-Ph.D. program. Consideration is also given to applications for admission from students of exceptional standing from individuals currently enrolled in the College of Medicine at The University of Iowa.

**Application Procedures**

The University of Iowa College of Medicine participates in the Medical College Application Service (MCAS), a program administered by the Association of American Medical Colleges (AAMC) to receive applications from students interested in entering medical school. Applications to the Medical Scientist Training Program are reviewed by the program selection committee after AMCAS applications are received. The deadline for receipt of applications is December 1. Applications should be submitted as early as possible to facilitate review by both the College of Medicine and the program director, and the program selection committee. Equal considerations is given to all applicants regardless of their state of residence.

**Courses**

50.2121: MTP Clinical Conference

50.2122: MTP Research Seminar

50.2123: MTP Seminar Series

50.2213: MTP Advanced Microbiology

50.2214: MTP Advanced Biostatistics

50.2215: MTP Advanced Immunology

50.2216: MTP Advanced Molecular Biology

50.2217: MTP Advanced Virology

50.2218: MTP Advanced Infectious Diseases

50.2219: MTP Advanced Genomics

50.2220: MTP Advanced Neurobiology

50.2221: MTP Advanced Neuropharmacology
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and research programs. For example, courses and seminars in clinical laboratory medicine, immunology, genetics, cellular and molecular biology, and electron microscopy are taught on an interdisciplinary basis.

Master of Science

Conditions for the M.S. are required to take a minimum of 12 semester hours of microbiology courses in three of the seven different subdisciplines available in microbiology. Students may substitute a course taken previously at The University of Iowa or elsewhere for the course requirements, upon obtaining approval from the M.S. committee. Additional course requirements or selections depend on students' interests and the advice of the examining committee. Students must write a thesis based on their own research and defend it satisfactorily in an oral examination.

Doctor of Philosophy

The minimum course requirements for the Ph.D. are 36 courses in one or more disciplines (at the seven subdisciplines available in microbiology) or 15 semester hours of coursework in two different areas. Students may substitute a course taken previously at The University of Iowa or elsewhere for the course requirements, upon obtaining approval from the Ph.D. committee. Students must pass a comprehensive examination and write a thesis based on their own research. The thesis must be defended satisfactorily in an oral examination.

Facilities

The department shares the Bowen Science Building with the Departments of Anatomy, Biochemistry, Pharmacology, and Biochemistry, Biological space and modern equipment are available for teaching and research.

Admission

Prospective graduate students should become familiar with the general admission requirements of the Graduate College. Departmental requirements include a review by the faculty within the first six weeks of fall semester. Courses must be completed in order to be admitted. Before beginning graduate work, students must have completed courses in biological sciences, chemistry (inorganic and organic), mathematics including calculus, and physics. Students admitted without the above coursework must take in their first year of graduate school. Students may have at least a 3.0 cumulative gpa to be admitted to the graduate program in microbiology. Preference is given to students applying for the Ph.D. program.

Courses

Microbiology majors may not use 61-218 to fulfill the sophomore hour requirement for their degrees.
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 fellowship and graduate research opportunities.

Facilities

Training is conducted primarily in laboratories and research facilities of the Departments of Biochemistry, Biology, Microbiology, and Pharmacology—those which offer graduate degrees—and the Department of Internal Medicine, Pathology, and Pediatrics, whose locus is clinical. Faculty laboratories and core research facilities available to students provide access to the most up-to-date research equipment, including an ultracentrifuge, computerized and an automated DNA sequence analysis apparatus.

Admission

Individuals seeking application materials and information about graduate training in molecular biology should contact the Molecular Biology Ph.D. Program.

Courses

142-210/211 Molecular Biology I 3 s.h.
142-212/213 Molecular Biology II 3 s.h.
142-214/215 Molecular Biology III 3 s.h.
142-230 Molecular Biology Research 4 s.h.
142-252 Seminar in Molecular Biology 1 s.h. (required of all students throughout the first two years)

In addition, all students are required to complete a minimum of 10 semester hours in four or more approved elective courses.

After successful completion of the comprehensive examination, usually at the end of the second year of graduate study, students advance to candidacy for the Ph.D. degree, which they describe full-time effort to completing their research, writing a Ph.D. dissertation. Upon successful completion of all requirements, including the dissertation and its defense in accordance with rules and regulations of the Graduate College, students are awarded the Ph.D. degree in molecular biology.
Academic Orthopaedics Program

In addition to the training described above under the orthopaedic program, this program includes an additional one or two years of research in a field to which the resident is interested, provided it is related to the musculoskeletal system. It may be done in one of the orthopaedic training or in a basic science department.

Laboratories

The orthopaedics laboratories deal with problems in these major subject areas:

- Biochemistry: the biochemistry of musculoskeletal diseases and collagen, both normal and altered in epithelial tissues and matrixes
- Biochemistry: problems of the upper extremity: biomechanics of the nerves, hip, and gait; total joint replacements (in collaboration with the College of Engineering)
- Cell biology and pathology: all studies on normal bone, cartilage, tendons, and muscles, and on those altered by appointments and disease
- Tissue translucence, radioactive isotopes, metabolic bone diseases; diet, bone, and cartilage transplantation, skeletal physiology: quantitative and quantitative aspects of treatments, mineral composition, and bone density; effect of in vivo and in vitro metabolic bone disease, and exercise

Facilities

The department has in the Roy J. Carver Pavilion of The University of Iowa Hospitals and Clinics a laboratory for the Veterans Affairs Medical Center. Facilities include 75 beds, an outpatient clinic, an outpatient operating room, a specialty laboratory unit, and a physical therapy facility.

Specialty clinics deal with disorders such as scoliosis, club feet, congenital dislocated hip, neuromuscular disease, metabolic disease, infection, repair, neoplasms, trauma, and birth, back, legs, hips, and hand problems.

Physicians in the outpatient clinic see approximately 155 patients per day. Appointments take 3 to 6 months to be seen by the respective doctors.

The department provides consulting service to University Hospital, Regional Child Health Specialty Clinic, and two inpatient units for the mentally retarded.

Courses

Courses numbered 701 through 999 are open only to senior medical students.

- 70:1 Clinical Orthopaedics for Physician Assistants Students

- 70:3 Clinical Orthopaedic Elective for Physician Assistants Students

OTOLARYNGOLOGY—HEAD AND NECK SURGERY

Head: Bruce F. Mooney
Clinical Assistant professors: Thomas J. Barta, John J. Smith, Robert T. S. Shands, and K. Van Oostrom
Clinical instructors: Howard W. Jeffers, William R. D. Sibert
Associate professor emeritus: Howard E. Smith
Clinical associate professors: Thomas J. Barta, Martin D. Phillips, Cheng, Harry F. Haffeman, Thomas C. McCullough
Clinical assistant professors: Peter L. Alm
Clinical instructors: Phyllis C. Codell, Russell E. Schults
Research scientist: David L. Schum, Susan Ann Thamann, Nancy S. Tse-Munang

The department provides one of the oldest and largest otorhinolaryngology—head and neck surgery training programs in the world. Currently it has a full-time class of 13, including several members from plastic surgery, radiology, speech pathology and audiology, and dentistry (orthodontics and prosthodontics).

The department's main objective is to provide a high-level educational program in otolaryngology—head and neck surgery for medical students and residents. To realize a teaching program, the department's faculty and staff carry a large patient load in head and neck oncology, head and neck plastic reconstructive surgery, facial trauma, craniofacial congenital defects (such as cleft lip and palate), neurotology, pediatric and geriatric hearing problems, voice problems, parotid embryology, surgery for disorders (including cleft lip and palate), and all the areas usually covered otorhinolaryngology.

There are eight divisions in the department that make up the program: rhinology, laryngology, otology, plastic and reconstructive surgery of the head and neck, oncology, otorhinolaryngology, head and neck, rhinology, otology, parotid embryology, craniofacial defects, speech pathology and audiology, and research. Another major objective of the department is to foster research programs designed to yield new knowledge in the field and provide models for students and resident research training.

There are several large-scale research programs within the department in vestibular neurophysiology, craniofacial reconstructive surgery, vestibular disorders, and other craniofacial defects, head and neck oncology, otologic implants, neurotology, facial nerve conductions, microvascular reconstructive surgery, craniofacial growth and development, neurosurgical anatomy, bone erosion in disease, and neuroendocrinology of the lower ear, and psychosocial.

Many of these research programs receive federal and private financial support.

Residency Program

The residency program in otolaryngology is in accord with the requirements of the American Board of Otolaryngology. It consists of a four-year course of basic and clinical science. The basic science lectures and laboratory courses are conducted during the first three and one-half months of residency.

After passing oral and written examination, students enter the clinical phase of the course, which includes supervised clinical and operative work, clinical conferences, and seminars pertinent to the practice of otolaryngology and its related fields.

Courses

- 60:3 Clinical Otolaryngology
- 70:100 Clinical Internship to Otolaryngology
- 70:101 Head and Neck Oncology
- 70:104 Basic Principles of Facial Plastic and Reconstructive Surgery
- 70:106 Pediatric Otolaryngology

- 70:108 Otolaryngology Elective for Physicians and Non-Medical Students

Programs in otolaryngology are designed for those with a basic understanding of basic science topics in order to provide more advanced training in otolaryngology—head and neck surgery. The department offers courses in otolaryngology—head and neck surgery training programs in the world. Currently it has a full-time class of 13, including several members from plastic surgery, radiology, speech pathology and audiology, and dentistry (orthodontics and prosthodontics).

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Residency Program
The department is approved for 20 residency positions in pathology, covering a rotation span of up to five years. The programs are designed to utilize the patient population of The University of Iowa Hospitals and Clinics and the Veterans Affairs Medical Center.

There is an initial rotation through the various laboratory services, including surgical pathology, autopsy pathology, cytopathology, clinical chemistry, clinical microbiology, hematology, immunohematology, and transfusion center. There is an 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, which is approved by the American Board of Clinical Chemistry. In addition, the department provides six 12-month externships and a variable number of externships for professional students in any of the areas of anatomical and clinical pathology. One of the externships is a full-time research position in a basic or experimental pathology.

Postdoctoral Training
The Department of Pathology offers post-doctoral programs in hematology, immunopharmacology, laboratory medicine, medical microbiology, and clinical pharmacology for physicians who have completed at least two years of residency training in pathology. The postdoctoral training consists of one year of diagnostic work and one year of laboratory research.

The department also provides postdoctoral research training in immunohematology, neuropathology, neuroanatomy, hemostasis, cancer biology, and clinical microbiology, as well as in other areas of cellular and molecular pathology. These positions are open to individuals with either Ph.D. or M.D. degrees.

Facilities
The Department of Pathology is well-equipped, to carry out the sophisticated technology of modern cellular and molecular pathology. It administers the 49,000 square feet of clinical laboratories of The University of Iowa Hospitals and Clinics and has individual research and core facility laboratories for cellular and molecular pathology research at the University of Iowa and the College of Medicine. Additionally, there are the College of Medicine Core Laboratories for surgical and chemical pathology, biochemistry, chromatography, ultramicroscopy, histology, autoradiography, and electron microscopic analysis.

Courses
60-009 Pre-Clinical Education 0.5 h.

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Courses
60-009 Pre-Clinical Education 0.5 h.
Graduate Programs

Master of Science

In cooperation with clinical departments in the College of Medicine, the Department of Pharmacology offers a Master of Science program in clinical pharmacology to applicants who already hold the Doctor of Medicine degree. The specific objective of this program is to provide increased emphasis on and training in the science of clinical pharmacology for residents in the various clinical specialties.

Completion of the M.S. program requires a minimum of two years. Satisfactory completion of the following two core courses is mandatory unless specifically waived by the Department of Pharmacology Faculty. Any of these course requirements may be waived at the request of the trainer if his or her affiliation and the departmental faculty agree that the trainer has met these satisfactorily at a prior time.

71:203 Pharmacology Research 1 s.h.
71:204 Pharmacology Seminar 1 s.h.
78:360 Clinical Pharmacology and Therapeutics Lecture Series 2 s.h.

The trainer must audit 71:201 Pharmacology for Graduate Students and take appropriate courses in the research training track selected and appropriate to his or her specialty.

eligibility for the M.S. in pharmacology requires demonstrated productivity in build research, satisfactory progress on the qualifying examination (written and oral), and satisfactory performance and defense of a research thesis.

Doctor of Philosophy

The following are core course requirements for the Ph.D. in pharmacology:

71:100 Biochemistry 1 s.h.
71:155 Principles of Drug Action 2 s.h.
71:201 Pharmacology for Graduate Students 2 s.h.
71:211 Advanced Pharmacology Research 1 s.h.
71:254 Drug Metabolism Seminar 1 s.h.
71:209 Neurons and Signal Transduction 3 s.h.
71:212 Molecular Pharmacology 4 s.h.
71:213 Molecular Biology and Molecular Biology 4 s.h.

The student must also take additional courses in the research training track selected (e.g., 71:207 Neurosciences). Individual faculty research efforts may require additional coursework.

There are no departmental foreign language requirements.

Students are expected to obtain maximum laboratory research experience during the first two years. As prerequisite to the comprehensive examination and in lieu of a preliminary

Financial Aid

Financial support is available for all predoctoral and postdoctoral researchers in pharmacology.

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PHYSICIAN ASSISTANT
PROGRAM

See “Director of Associated Medical Sciences.”

PHYSIOLOGY AND
BIOPHYSICS

Head: Robert D. Adams

Professors: Francine M. Altschul (Internal Medicine), Kevin P. Campbell, Robert J. Volck, Carl V. Gaddis (Elastic Structure), Robert A. Mauer, Jeffrey Pluntz, Michael J. Weish (Internal Medicine), Charles C. Wonder

Assistent professors: Edward G. Neil, Jr., Associate professors: Thomas S. Schmida, David S. Segal

Assistant professors emeriti: Charles H. Irig, Gordon W. Swift

Assistant professors: Hilda Chien, Wayne Schwab, Gary Worden (Internal Medicine, Pediatrics, Medicine-Biochemistry: Andrew Bovarn, George F. Stabios, Carl Segal (Internal Medicine)

Graduate degrees: Ph.D. in Physiology and Biophysics

The Department of Physiology and Biophysics offers graduate study leading to the Doctor of Philosophy degree. It includes instruction in physiology and biophysics for medical, dental, pharmacy, nursing, and related health professional students; and participates in the Medical Science Training Program, a cooperative M.D.-Ph.D. program conducted under the auspices of the Graduate School and the College of Medicine.

Graduate Program

The graduate program in physiology and biophysics is designed to provide broad general knowledge of fundamental life processes at the molecular, cellular, and organ levels, as well as an opportunity for intensive study in major areas of physiology and biophysics with emphasis on endocrinology, neuroendocrinology, and neuroscience. The program focuses on the development of modern research skills and their application in the conduct of original dissertation research.

Entering students are advised by the director of graduate studies, who provides guidance in the planning of required course work and an introduction to research activities of each faculty. The core curriculum includes two semesters of cell biology, two semesters of physical science, biochemistry, and one semester of molecular biology and neurophysiology, and one semester of medical physiology. The department also offers advanced, specialized courses in mammalian physiology, radiation physiology, environmental and exercise physiology, and neurophysiology. Students elect to take courses in other departments appropriate to the individual's educational and research objectives.

After completing course work and performing research on a comprehensive examination, based on an original research proposal, students devote themselves full time to research that culminates in the preparation of a doctoral dissertation and its defense in a final oral examination.

All degree candidates have supervised experiences as clinical laboratory and teaching assistants as part of their graduate programs.

Admission

Applicants for graduate admission must have completed undergraduate studies in an accredited institution prior to matriculation with a minimum of 3.00 overall grade point average, coupled with a combined verbal and quantitative score higher than 1200 on the Graduate Record Examination (GRE) General Test. The appropriate background for graduate study in cellular and molecular physiology and biophysics is an undergraduate major in one of the biological, chemical, physical, or biological sciences, or an engineering science with appropriate courses in biochemistry, genetics, physics, chemistry, and calculus.

Financial Aid

All full-time doctoral students receive financial aid in the form of tuition, stipend support, and stipend support from the Department of Physiology and Biophysics. Support is renewed annually subject to the conditions in meeting requirements for the Ph.D. degree.

Research

The major research interests of the department are in molecular and cellular endocrinology, cellular and developmental neuroendocrinology, and biophysics. Specific areas of interest include hormone receptors, reproductive endocrinology, pituitary hormones, regulation of gene expression, synaptic environment, neuronal differentiation, synthesis of axons, regulation of excitability, and cardiovascular electrophysiology and regulation.

Facilities

The Department of Physiology and Biophysics occupies two floors devoted to research and teaching in the Brown Science Building and has an additional laboratory facility in the Eckstein Medical Research Building and the nearby Oakdale campus. In addition to specialized equipment in faculty research laboratories, the department has an extensive microcomputer network with direct access to University network and computer systems and a computer imaging facility. The department also provides fluorescence microscopy, confocal microscopy, and equipment for cell culture and molecular biology. Graduate students have study space near the Jeaffers Library, which supports resources available at the Health Science Library.

Courses

20.130 Human Physiology

Basic concepts. Open only to medical, biological, and health science students. or students with consent of course director. Lecture: 2 hours per week. 2 credits; lab: 2 hours per week. 2 credits. 20.131 Introductory Physiology

Basic concepts. Open only to medical, biological, and health science students. or students with consent of course director. Lecture: 2 hours per week. 2 credits; lab: 2 hours per week. 2 credits. 20.132 Cellular Physiology

Basic concepts. Open only to medical, biological, and health science students. or students with consent of course director. Lecture: 2 hours per week. 2 credits; lab: 2 hours per week. 2 credits. 20.133 Pathophysiology

Basic concepts. Open only to medical, biological, and health science students. or students with consent of course director. Lecture: 2 hours per week. 2 credits; lab: 2 hours per week. 2 credits. 20.134 Biophysics

Basic concepts. Open only to medical, biological, and health science students. or students with consent of course director. Lecture: 2 hours per week. 2 credits; lab: 2 hours per week. 2 credits. 20.135 Biochemistry

Basic concepts. Open only to medical, biological, and health science students. or students with consent of course director. Lecture: 2 hours per week. 2 credits; lab: 2 hours per week. 2 credits. 20.136 Neurophysiology

Basic concepts. Open only to medical, biological, and health science students. or students with consent of course director. Lecture: 2 hours per week. 2 credits; lab: 2 hours per week. 2 credits. 20.137 Pharmacology

Basic concepts. Open only to medical, biological, and health science students. or students with consent of course director. Lecture: 2 hours per week. 2 credits; lab: 2 hours per week. 2 credits. 20.138 Genetics

Basic concepts. Open only to medical, biological, and health science students. or students with consent of course director. Lecture: 2 hours per week. 2 credits; lab: 2 hours per week. 2 credits.

20.139 Molecular Endocrinology

Basic concepts. Open only to medical, biological, and health science students. or students with consent of course director. Lecture: 2 hours per week. 2 credits; lab: 2 hours per week. 2 credits. 20.140 Developmental Endocrinology

Basic concepts. Open only to medical, biological, and health science students. or students with consent of course director. Lecture: 2 hours per week. 2 credits; lab: 2 hours per week. 2 credits. 20.141 Endocrinology

Basic concepts. Open only to medical, biological, and health science students. or students with consent of course director. Lecture: 2 hours per week. 2 credits; lab: 2 hours per week. 2 credits. 20.142 Neuroendocrinology

Basic concepts. Open only to medical, biological, and health science students. or students with consent of course director. Lecture: 2 hours per week. 2 credits; lab: 2 hours per week. 2 credits. 20.143 Metabolism

Basic concepts. Open only to medical, biological, and health science students. or students with consent of course director. Lecture: 2 hours per week. 2 credits; lab: 2 hours per week. 2 credits. 20.144 Immunology

Basic concepts. Open only to medical, biological, and health science students. or students with consent of course director. Lecture: 2 hours per week. 2 credits; lab: 2 hours per week. 2 credits.
Examples of ongoing departmental initiatives and activities include the State Health Registry of Iowa, which records in-custody data on all cases of cancer and birth defects that occur in residents of Iowa; the Aging Project, which examines health problems and needs of a representative sample of Iowa's elderly; the Preventive Intervention Center; the University Occupational Health Service, WORKSAFE Iowa; the Biostatistical Consulting Service; the Center for Human Health Environmental Contaminants; and the Clinical Trials Data Management Center, which serves the statistical design, data management, and analytical needs of a variety of multicenter clinical trials, including studies of new treatments for Alzheimer's disease and acute ischemic stroke.

All departmental programs are enhanced through affiliations with the University's Hepatic Laboratory, the Environmental Health, the Graduate Program in Hospital and Health Administration, the Center for International Rural and Environmental Health, the Health Services Research Center, and the Department of Internal Medicine's division of clinical epidemiology.

Graduate Programs

The master's program offers a degree with emphasis in occupational and environmental health, biology, or community health. Admission to the community health track is limited to those who already have a health profession. The Ph.D. program is available with an emphasis in occupational health, biology, or occupational and environmental health.

While pursuing a degree, students are expected to maintain a 3.0 grade point average, which, in addition, students who receive 7 semester hours or more of grades of C or lower in their academic course work are dismissed from the program.

A joint master's option exists between the Program in Urban and Regional Planning and the Department of Preventive Medicine and Environmental Health. This option results in an M.A. or an M.S. in planning and an M.S. in preventive medicine and environmental health. Specialized admissions to both academic units are required. (See Urban and Regional Planning in the College of Liberal Arts section of the Catalog.) The combined graduate-level course of study between the Physician Assistant Program and the Department of Preventive Medicine and Environmental Health provides a broad 546 foundation in preventive medicine. This core-year long curriculum consists of 26 credit hours of graduate courses in epidemiology, environmental health, biostatistics, and preventive medicine, and 95 semester hours of courses made up of the standard core curriculum of the Physician Assistant Program.

Electives may be selected from a wide range of course offerings in the Department of Preventive Medicine and Environmental Health and in other departments in the College of Medicine. Upon completion of the program, students earn an M.S. in the Physician Assistant Program from the College of Medicine and an M.S. in preventive medicine and environmental health from the College of Medicine. The program is described in detail under "Physician Assistant Program" in the College of Associated Medical Sciences section of the Catalog. The Graduate College has approved a proposal to change the joint program so that students would earn an M.S. in Preventive Medicine and Environmental Health.

Admission

Application deadlines for U.S. citizens are July 15 for fall semester, December 1 for spring semester, and March 1 for summer semester. These deadlines apply both to University of Iowa and non-Iowa University of students.

Application deadlines for foreign students are April 15 for fall semester, October 1 for spring semester, and March 1 for summer semester. Minimum grade-point average requirements are 3.0 for admission to the master's program and 3.0 for the Ph.D. Applicants must have taken the Graduate Record Examination (GRE). The recommended score for most students is a combined verbal and quantitative score of 1050 or higher. Also, if required by the University Foreign Admissions Office, non-U.S. citizens must complete the Test of English as a Foreign Language (TOEFL); a minimum combined score of 600 is considered acceptable for most students. Separate English courses are required for foreign students whose TOEFL score is between 550 and 600. Scores of 529 or less will require intensive English programs.

Applicants must have an undergraduate liberal or course background in science or mathematics, depending on their proposed program of graduate study. However, in order to gain admission to the Ph.D. program with emphasis on community health, applicants must exceed the knowledge level of those with an advanced degree in the health sciences and with an undergraduate major in environmental health or environmental health science.

Applicants must meet the requirements for the M.S. or Ph.D. programs but do not have to meet the minimum grade-point average requirements. Also, applicants are required to specify on the application for admission that they have been admitted to the professional health program. Also, applicants must have an undergraduate degree in a field related to the profession.

Financial Aid

A limited number of research assistantships, teaching assistantships, and tuition grants are available within the department.

Institute of Agricultural Medicine and Occupational Health

The Institute of Agricultural Medicine and Occupational Health is the first agency in the western two-thirds of the nation to concentrate research on occupational health problems of the agricultural industry.
The Department of Urology of The University of Iowa College of Medicine offers courses in all three fields at undergraduate and graduate levels and in continuing education for the delivery of urologic care.

In the first year of the M.D. program, the department participates with several of the basic science departments in teaching how urology relates to the basic sciences. The department participates with the Department of Microbiology in teaching and research in immunology as it relates to transplantation and cancer.

The Department of Urology participates actively in 50.111 Introduction to Clinical Medicine, which describes the entire second semester of second-year medicine. The department offers an intensive four-week course in urology for preclinical students.

The department offers courses in diagnostic urology, urological oncology, and the entire field of urology. In the required third-year clerkship, the department offers the basics of this material, and in the fourth year it offers advanced elective courses of intensive study in these areas.

The department offers continuing education throughout the year for urologists and family practitioners. These activities are conducted by the section staff, whose interests include pediatric urology, reproductive physiology, urologic oncology, urological tract stone, and prosthetic diseases.

The department has earned international recognition for its studies of prosthetic diseases. The urological laboratories conduct research and offer instruction in experimental urology, cellular immunology, and renal transplant physiology.

Courses

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<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>79-104</td>
<td>Clinical Urology</td>
<td>2 s.h.</td>
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<tr>
<td>79-135</td>
<td>Advanced Clerkship in Urology</td>
<td>4 s.h.</td>
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<tr>
<td>79-138</td>
<td>Advanced Clerkship in Pediatric Urology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>79-139</td>
<td>Indirect Study and Research</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>79-150</td>
<td>Urology and Pediatrics</td>
<td>2 s.h.</td>
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<tr>
<td>79-151</td>
<td>Urology and Pediatrics</td>
<td>2 s.h.</td>
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<td>79-152</td>
<td>Urology and Pediatrics</td>
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<td>79-154</td>
<td>Urology and Pediatrics</td>
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*Indicates an optional course.*
The College of Nursing is an integral part of the University of Iowa Health Care, sharing in and contributing to teaching, research, and patient care resources that have earned international recognition. The University health center provides an unusual site for nursing preparation because the educational and clinical resources that are needed to educate nurses are available or on or near the campus. Faculty and students participate fully in University and national academic and patient care activities, and abilities to the many general and special activities of a major research university.

Both the baccalaureate and master's programs of the college are accredited by the Department of Baccalaureate and Higher Degree Programs of the National League for Nursing, the professional accrediting agency for college and university programs of nursing education. The baccalaureate program is approved by the Iowa Board of Health, and the master's program is considered by the program quality to be favorable. The licensure examination required for practice as a registered nurse.

Undergraduate Programs

The Baccalaureate of Science in Nursing (B.S.N.) at the University of Iowa is designed to provide preparation for careers in the hospital care of patients and in community agencies such as public health services, schools, homes, and industries. It also serves as the basis for graduate study in nursing.

In addition, the program of combining general education with specialized career preparation, a college or university program offers the advantages of full participation in the social, cultural, and recreational activities of a diverse campus community. In so doing, as in other pursuits, a college or university background provides people only to be prepared for a career but to be able to achieve a life of thought and action informed by knowledge, introspection, and contemplation. The program prepares professional nurses to be in the national health care providers who are able to engage in a broad range of health promotion and teaching activities used to coordinate care in any sector of the health care system.

The nursing major provides a basis for future roles in wellness and health promotion, in acute care, and in long-term care for chronic illness. The professional nurse provides care to individuals, families, groups, and communities along the continuum of health, illness, and disability.

In addition to providing care, the nurse serves as a coordinator of health care by respecting and facilitating the delivery of comprehensive, efficient, and appropriate service to individuals, families, groups, and communities. The nurse determines the methods of coordinating the total constituted health needs of the patient, including legal and ethical aspects of care. The University of Iowa's program is a goal to produce graduates who are competent, committed, creative, and compassionate.

The 128-semester hour course of study consists of 75 semester hours of General Education Requirement courses and supporting prerequisite courses, and 53 semester hours of course work in the nursing major. Students can expect to complete the program in four or five and one-half academic years. An R.N.-B.S.N. progression option is available for diploma and A.D.N. registered nurses who wish to complete the B.S.N. For these students, a one-year plan of study is available for the completion of required nursing courses upon satisfaction of all required prerequisite courses and general education courses and admittance to the College of Nursing. At the time of admission, all R.N.-B.S.N. students declare one of the four options available within the Iowa Articulation Plan for Nursing Education: R.N. to baccalaureate.

Nursing courses are based on the concepts of health, deviations from health, and nursing intervention and are presented at progressive levels of competency from the sophomore through the senior year. The curriculum reflects the current trends in health care delivery toward emphasis on nursing as a service provided both inside and outside hospitals. Students have clinical experiences that are selected from more than sixty agencies in the state. Basic baccalaureate graduates are eligible to take the licensure examination required for practice as a registered nurse.

Approaches to the College of Nursing

Students may complete their entire program at Iowa, enrolling during their first year and remaining until the completion of the College of Liberal Arts. Or they may transfer from an institution that offers a two-year sequence of specific courses approved by the University of Iowa College of Nursing.

Cooperative Education and Independent colleges that participate in the transfer plan include Iowa State University, the University of Northern Iowa, Upper Iowa University, Bener Cliff Monticello, Lewis, Luther, Central, and Waterloo and two degrees. Participating community colleges are located in Ankeny, Canton, Bondurant, Carroll, Owatonna, and Walnut.

Completion of the transfer sequence at a cooperating institution does not guarantee admission to the College of Nursing; admission standards for transfers are the same as for all other College of Nursing applicants. Prospective transfer students who need more information about this plan should contact the cooperating institution of their choice.

Cooperative Education Summer Clinical Internship

High-achieving undergraduates have the opportunity to develop clinical skills through placement in a summer employment setting. Internships are available in hospitals, community health settings, and occupational health services in Iowa and surrounding states. This program affords undergraduates the opportunity to work closely with a preceptor while being employed, and with a faculty member in pre- and post-internship seminars.

Honors

The University of Iowa College of Nursing Baccalaureate Honor Program provides the opportunity and experience for qualified students. To be eligible, students must complete the first clinical course of nursing and maintain a 3.5 cumulative grade point average, which is based on individual interests, needs, and goals. It provides distinct opportunities for self-initiative and personal development, and challenges students to grow and excel. Students who fulfill the requirements of the program graduate with honors in nursing.

Pregraduation Assessment Test

All students are encouraged to take a pregraduation assessment test during the final semester of their senior year. The test is designed to assess nursing students' critical thinking, knowledge, and application in various clinical situations; identify students' specific strengths and weaknesses, provide 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 License Examination for Registered Nurses.

The examination score is not computed in the course grade. Students receive a detailed printout of the results of their examination and are given recommendations for self-directed study.

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 18 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 main in courses approved by the program. For further information, see "Aging Studies Program" in the College of Liberal Arts section of the Catalog.
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 a College of Nursing faculty member for continued academic advising and curriculum planning.

The College of Nursing participates as a receiving institution in the Iowa Statewide Anticipation Plan for Nursing Education: R.N. to baccalaureate. A time of admission to the College of Nursing, students declare one of the five options available within the plan. Plans of study are developed and credit is awarded according to the option the student declares.

Students may transfer previous course work completed at another college or university to satisfy some prerequisites to the nursing major. They may complete the balance of prerequisites at The University of Iowa and at many other colleges and universities in Iowa. In addition, they may take specific course transfers with institutionization. Once prerequisites are met, students may complete the R.N.-B.S.N. nursing major sequence in one calendar year or two semesters in a sequence that includes three clinical and two nonclinical nursing courses. R.N.'s may study on campus or at designated satellite sites. Registered nurses planning to enter the baccalaureate program should obtain special information and advice from the College of Nursing Office.

Faculty Advisers

Advisers from the Undergraduate Academic Advising Center are assigned to nursing students. After admission to the College of Nursing, each student is assigned a College of Nursing faculty adviser.

Student Organizations

College of Nursing undergraduate students have their own organization, the Association of Nursing Students (ANS) and also are eligible for membership in the national associations of nursing students. ANS provides opportunities for professional growth and development in nursing. Its representatives are members of the University of Iowa Student Association (USA), and there is an ANS representative on the Academic Council of the College of Nursing.

College of Nursing graduate students also have an organization, the Association of Graduate Nursing Students (AGNS). AGNS provides opportunities for professional growth and development in nursing. Its representatives are members of the University of Iowa Student Association (USA), and there is an AGNS representative on the Academic Council of the College of Nursing.

Expenses

Students pay the general University fee throughout the program. They also must purchase uniforms, white shoes, a stethoscope, a watch with a full sweep second hand, and supplies and materials for required nursing courses. Students arrange for their own health screening requirements, professional liability insurance, and transportation once they are enrolled in clinical nursing courses.

Professional Liability Insurance

All students in the College of Nursing are required to carry professional liability insurance throughout the duration of their program. Agencies in which students are involved in clinical 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 with a minimum coverage of $1 million per single occurrence.

Financial Aid

In addition to general assistance available to University students, there are assistance programs specifically for nursing students. Information about financial assistance is available from the University Office of Student Financial Aid.

Admission

High School Background

The College of Nursing strongly recommends four years of English, three years of social science, four years of mathematics, two years of one foreign language, one year each of biology, chemistry, and physics, plus other college preparatory courses suitable 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 acceptable to The University of Iowa and present:

- a minimum of 24 semester hours completed in an accredited college;
- successful completion of seven of the prerequisite courses to the first clinical nursing course, including successful completion of three of the following science courses: inorganic chemistry, organic chemistry, human physiology, anatomy, human anatomy, and histology, and a minimum grade-point average of 2.00 on 4.00 scale.

Predoctoral Background

Students must satisfy the following requirements, in addition to the biological science courses required for admission, in the college, before beginning clinical nursing course work.

- Students—8 semester hours (may be satisfied by testing for advanced standing), a student who has earned 6 semester hours of credit in English composition may complete the speech component after admission.
- Mathematics—three years of high school mathematics or equivalent. If this is completed at the college level, it may be included in the 24 semester hours required for admission.
- The following course work:
  - Psychology—1 semester hour of high school physics or equivalent; if physics is completed at the college level, it may be included in the 24 semester hours required for admission.
  - Additional course work:
    - Inorganic chemistry
    - Organic chemistry
    - Animal biology
    - Microbiology
    - Human anatomy
    - Human physiology
    - Nutrition
    - Psychology
    - Sociology
    - Anthropology
    - Human development and behavior

STANDARDS

To be considered for admission to the College of Nursing, the applicant must have satisfactorily completed all prerequisites.

American College Tests

All entering freshmen and undergraduate transfer students who present fewer than 24 semester hours when they apply for admission to The University of Iowa must complete the scoring of the College Test (ACT) or the Scholastic Aptitude Test (SAT). For information on the ACT, write to College Entrance Examination Board, P.O. Box 6298, Iowa City, Iowa 52240.

Selection Factors

Preference of admission requirements may vary from one admission year to another. The College of Nursing considers an applicant eligible for admission if he or she meets the minimum requirements established for that particular admission year. Applicants are processed as they are received. From applicants who meet minimum requirements, the college's admission committee recommends the final those that appear to be most qualified. The committee may require personal interview. A physical examination report and specific health screening requirements must be on file at Student Health Service prior to the opening of classes for the first clinical nursing course.

Application Deadlines

Applications are considered as they are received. They must be submitted by May 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
Advanced Nursing Core

The core consists of 17 semester hours of course work with prerequisites; it allows students to build a special area of knowledge and practice that extends beyond the advanced nursing core. Specialization may be in the broad areas of child health nursing, adult health nursing, pharmacology, medical-surgical nursing, or psychiatric-mental health. Subjects may plan their areas of specialization according to their choices of course work and fieldwork experiences. For example, students may select adult health nursing as an area of specialization if they choose to work in a long-term-care facility, a mental health center, or a cardiac care unit. Students with written career goals have the option of further modifying their plans of study under the direction of their academic advisors.

Role Development

Students may select administration, advanced clinical practice, research, or education as a role specialization area. The role preparation requires 6 semester hours of course work with prerequisites. Students who elect to prepare for careers in clinical practice, for example, may enroll in a 6-semester hour course in advanced clinical practice. In addition to course requirements for the nursing specialization component, fulfilling the clinical prerequisites of these courses, students may select other clerical settings and/or preceptors compatible with their own career goals.

Supporting Courses

Students must complete 6-8 semester hours; they may choose one supporting course. In addition to the 6-8 semester hour requirement, the student must complete either a thesis or a master's project. Students, with the guidance of their advisor, select the option that best maximizes their individual career objectives.

Thesis/Master's Project

All master's students at the University must take a final examination. Students in the Nursing program must fulfill these requirements by completing either a thesis or a master's project. Students, with the advice of their advisor, choose the option that best maximizes their individual career objectives.

The thesis is a systematic inquiry into a nursing problem. Methodologists may include historical research, case studies, statistical literature review, surveys, or experimental studies that meet the requirements of the Center for Graduate Students. Students earn a total of 5 semester hours of credit for the thesis. The master's project is an in-depth synthesis and analysis of a chosen topic in nursing. The 18 to 20-page paper available quantity may not replace a previous course requirement. Students earn 2 semester hours for the master's project and complete a 3 additional semester hours in supporting course work.
Nursing

9:00-9:45 Advanced Clinical Practice II 3 s.h.
One of these:
16:248 Master’s Project 2 s.h.
9:45-9:50 Thesis 3 s.h.
TOTAL 11 s.h.

Join 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 must be accepted for graduate study in both programs. The joint program requires a total of 45 semester hours. For more information, contact the Office of Student Services.

Admission

Students should seek admission to the master’s program in nursing through direct application to The University of Iowa College Graduate.

Minimum requirements for admission to the Graduate College include a completed application; official transcripts from other institutions attended; Graduate Record Examination (GRE) General Test scores; a minimum score 220 on the Test of English as a Foreign Language (TOEFL), when appropriate; and a 2.50 minimum grade-point average for regular admission or 2.00 for conditional admission.

In addition to the general requirements for admission to the Graduate College, the College of Nursing requires that the applicant:

possess a bachelor’s degree with a major in nursing from a program accredited by the National League for Nursing. Options are available for registered nurses applicants with a non-NUN-accredited B.S.N., a non-nursing B.A. or B.S., or a B.S.N. from a foreign country.

fulfill the legal requirements for the practice of nursing in Iowa;

have an undergraduate grade-point average of 3.75 or higher, or a demonstrated ability to do graduate level work in quantitative reasoning; or

have an undergraduate grade-point average of 2.50 or higher for conditional admission;

have current written recommendations from three persons familiar with the applicant’s competence in the practice of nursing and potential for leadership and scholarship; and

have successfully completed a graduate-level (or equivalent) statistics course prior to admission.

Applications for admission to the master’s degree program are reviewed on a continuing basis. For review, the applicant’s file must be complete with all relevant materials submitted. Deadline for summer and fall admission is May 1. The spring semester admission deadline is December 1. Initial course enrollment may begin any term.

All regulations of the Graduate College pertaining to academic standing, probation, and disqualification are applicable to graduate students in nursing. Transfer credits applicable to the master’s degree program are limited and must

be approved by the dean for the graduate program in nursing and by the student’s advisor.

Doctor of Philosophy

The Ph.D. in nursing program prepares students to conduct research in nursing, extends the knowledge base relevant to nursing, and contributes to the body of knowledge in the discipline of nursing. Study requires expertise in clinical nursing and competence in research that relates to the practice of nursing and the delivery of health care. The curricula has new focus areas from which students choose: nursing in aging and nursing administration. Graduate of the program prepare as researchers, college and university faculty members, consultants, and as leaders in the nursing profession, in health policy-making agencies, and in health care delivery systems.

Degree Requirements
All candidates must use the following courses:

- 60.545 Social Studies in Modern American Nursing
- 60.547 Nursing Theory
- 60.519 Nutrition and Health Information Systems
- 60.522 Economics of Health Care and Nursing
- 60.530 Nursing’s Role in Health Care Policy
- 60.496 Research: qualitative and quantitative methodology and statistics

In addition, candidates must take the appropriate seminars and practicums for their focus area (total of 12 semester hours).

Aging Focus

60.410 Nursing Research of Biological Phenomena and interventions for the Elderly

60.420 Geriatric Mental Health Research

60.430 Nursing Research in the Administration of Phenomena and interventions for the Elderly

60.440 Research Utilization in Care of the Elderly

Nursing Administration Focus

60.450 Research Seminar in Nursing Administration I: Organizational Systems Concepts

60.460 Research Seminar in Nursing Administration II: Health Care Systems Concepts

60.460 Research in Nursing Management

60.496 Internship in Nursing Service Administration

Comprehensive Exam, Dissertation

All students must complete a written comprehensive examination. Candidates earn 12 semester hours for work on their dissertation by completing 60.497 Dissertation Research Seminar: Research Application and Advanced Design, a dissertation prospectus, the dissertation, and an oral defense.

Admissions Requirements

Students applying to the Ph.D. program must fulfill the following requirements:

completeness of an NUN-accredited basic nursing program;
completeness of a master’s degree program;
current B.N. license to practice nursing;
GRE General Test, preferably within the past five years;
for foreign 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 interpretative statistics.

A 260-page dissertation describing educational objectives and identifying a focal area for doctoral study;
three recommendations from professionals in the field;
a current curriculum vitae.

One year of nursing experience is preferred.

Professional Improvement

Some registered nurses may wish to take course work at the University to fulfill the objectives of professional or personal improvement. Such individuals may request admission in the professional improvement (U.I.) category. This admission status allows students to take some graduate courses in the University without commitment to a degree objective.

Admission as a nursing professional improvement student requires a formal application, including submission of three current written recommendations and all academic transcripts. GRE General Test scores must be submitted to fulfill the University requirements before the end of first semester registration. Deadlines are July 15 for admission in the fall semester, December 1 for admission in the spring semester, and May 1 for admission in the summer semester.

Since acceptance as a professional improvement student has no direct bearing on acceptance as a master’s or doctoral candidate, students are required to follow the application procedure described in the previous section if they wish to seek admission as a master’s or doctoral candidate. Only 3 semester hours of the required nursing core can be taken under professional improvement status. This must be approved by the College, and students may not enroll in doctoral courses.

Continuing Education

Through its Office of Continuing Nursing Education, the college offers nonacademic, short-term programs for registered nurses. Programs are scheduled on campus and at community sites throughout Iowa. Self-study programs and leader-directed nursing continuing education modules also are available. Continuing education units (CEUs) are awarded for each program on the basis of one exit per 10 clock hours of instruction. The Office of Continuing Nursing Education is approved by
the Iowa Board of Nursing as an approved provider, number 1, and is accredited by the American Nurses' Association Board of Accreditation and the National Association of Pediatric Nurse Associates and Practitioners.

Facilities

The Nursing Building is centrally located on the University's main campus, in close proximity to the College of Medicine, Paterno, and the College of Health and Social Science building, and the Harris Library for the Health Sciences.

Completed in 1971, the building consists of five floors with varied and specialized facilities. Administrative offices are located on the first floor. Faculty offices are on every floor except the second, which is used entirely for classrooms, laboratories, and the Learning Resource Services, which include a technology laboratory. Additional classrooms and laboratories are located throughout the second, conference rooms, student lounges, and meeting rooms are conveniently located. Research and computer facilities in the building provide direct access to the Wrigg Computing Center and to college-owned microcomputers.

Courses

Primarily for Undergraduates

96.000 Cooperative Clinical Internship Seminar 6.0
Seminar for students on the clinical internship program.

96.030 Human Development and Behavior Seminar 3.0
Seminar on development of the human organism through sexuality, psychology, biological, and environmental influences. Prerequisites: Psychology 31-1 or 31-2.

96.050 Adult Development and Aging Seminar 4.0
Practical, ongoing, preparatory development of the adult stage realization of the individual's capabilities for living. Prerequisites: completion of the senior year or consent of instructor.

96.055 Professional Nursing: An Overview Seminar 3.0
Practices of nursing and the ideals, concepts, and principles of the profession. Prerequisites: completion of the senior year or consent of instructor.

96.060 Professional Nursing Seminar 4.0
Seminar on professional development and the interview process. Prerequisites: completion of the senior year or consent of instructor.

96.121 Foundations of Nursing Practice Seminar 4.7
Seminar on the practice of nurse, nurse practitioner, and nurse's role in the health care system. Prerequisites: completion of 12 credits in nursing science.

96.122 Foundations of Nursing Practice Seminar: Clinical 4.7
Seminar on the practice of nurse, nurse practitioner, and nurse's role in the health care system. Prerequisites: completion of 12 credits in nursing science.

96.123 Nursing Practice in Acute Illness Seminar 7.0
Seminar on the practice of nursing in acute illness. Prerequisites: completion of the senior year or consent of instructor. Prerequisites: 96.121 and 96.122.

96.124 Nursing Practice in Chronic Illness Seminar 7.0
Seminar on the practice of nursing in chronic illness. Prerequisites: completion of the senior year or consent of instructor. Prerequisites: 96.121 and 96.122.

96.125 Integrated Approach to Professional Nursing Practice Seminar 7.0
Seminar on the practice of nursing from the clinical perspective. Prerequisites: completion of 12 credits in nursing science. Prerequisites: 96.121 and 96.122.

96.126 Leadership in Nursing Practice Seminar 7.0
Seminar on the practice of nursing in the leadership role. Prerequisites: completion of the senior year or consent of instructor. Prerequisites: 96.121 and 96.122.

96.140 Social Foundations of Professional Nursing Seminar 7.0
Seminar on the practice of nursing in the social, political, and legal issues of the community. Prerequisites: 96.121 and 96.122.

96.145 Basic Concepts of Research Seminar 4.0
Seminar on the practice of nursing in research. Prerequisites: completion of 12 credits in nursing science.

96.160 Sensory: Visual, Psychomotor, and Social Development Seminar 7.0
Seminar on the practice of nursing in sensory, psychomotor, and social development. Prerequisites: completion of the senior year or consent of instructor. Prerequisites: 96.121 and 96.122.

96.165 Advanced Professional Nursing Seminar 7.0
Seminar on the practice of nursing in advanced professional nursing. Prerequisites: completion of the senior year or consent of instructor. Prerequisites: 96.121 and 96.122.

96.170 Nursing Research Seminar 7.0
Seminar on the practice of nursing in research. Prerequisites: completion of the senior year or consent of instructor. Prerequisites: 96.121 and 96.122.

96.171 Foundations of Research Seminar 7.0
Seminar on the practice of nursing in research. Prerequisites: completion of the senior year or consent of instructor. Prerequisites: 96.121 and 96.122.

96.172 Advanced Research Seminar 7.0
Seminar on the practice of nursing in research. Prerequisites: completion of the senior year or consent of instructor. Prerequisites: 96.121 and 96.122.

96.173 Research Seminar 7.0
Seminar on the practice of nursing in research. Prerequisites: completion of the senior year or consent of instructor. Prerequisites: 96.121 and 96.122.

96.174 Advanced Research Seminar 7.0
Seminar on the practice of nursing in research. Prerequisites: completion of the senior year or consent of instructor. Prerequisites: 96.121 and 96.122.

96.175 Research Seminar 7.0
Seminar on the practice of nursing in research. Prerequisites: completion of the senior year or consent of instructor. Prerequisites: 96.121 and 96.122.

96.176 Advanced Research Seminar 7.0
Seminar on the practice of nursing in research. Prerequisites: completion of the senior year or consent of instructor. Prerequisites: 96.121 and 96.122.

96.177 Research Seminar 7.0
Seminar on the practice of nursing in research. Prerequisites: completion of the senior year or consent of instructor. Prerequisites: 96.121 and 96.122.

96.178 Advanced Research Seminar 7.0
Seminar on the practice of nursing in research. Prerequisites: completion of the senior year or consent of instructor. Prerequisites: 96.121 and 96.122.

96.179 Research Seminar 7.0
Seminar on the practice of nursing in research. Prerequisites: completion of the senior year or consent of instructor. Prerequisites: 96.121 and 96.122.

96.180 Advanced Research Seminar 7.0
Seminar on the practice of nursing in research. Prerequisites: completion of the senior year or consent of instructor. Prerequisites: 96.121 and 96.122.

96.181 Research Seminar 7.0
Seminar on the practice of nursing in research. Prerequisites: completion of the senior year or consent of instructor. Prerequisites: 96.121 and 96.122.

96.182 Advanced Research Seminar 7.0
Seminar on the practice of nursing in research. Prerequisites: completion of the senior year or consent of instructor. Prerequisites: 96.121 and 96.122.

96.183 Research Seminar 7.0
Seminar on the practice of nursing in research. Prerequisites: completion of the senior year or consent of instructor. Prerequisites: 96.121 and 96.122.

96.184 Advanced Research Seminar 7.0
Seminar on the practice of nursing in research. Prerequisites: completion of the senior year or consent of instructor. Prerequisites: 96.121 and 96.122.

96.185 Research Seminar 7.0
Seminar on the practice of nursing in research. Prerequisites: completion of the senior year or consent of instructor. Prerequisites: 96.121 and 96.122.

96.186 Advanced Research Seminar 7.0
Seminar on the practice of nursing in research. Prerequisites: completion of the senior year or consent of instructor. Prerequisites: 96.121 and 96.122.

96.187 Research Seminar 7.0
Seminar on the practice of nursing in research. Prerequisites: completion of the senior year or consent of instructor. Prerequisites: 96.121 and 96.122.

96.188 Advanced Research Seminar 7.0
Seminar on the practice of nursing in research. Prerequisites: completion of the senior year or consent of instructor. Prerequisites: 96.121 and 96.122.

96.189 Research Seminar 7.0
Seminar on the practice of nursing in research. Prerequisites: completion of the senior year or consent of instructor. Prerequisites: 96.121 and 96.122.

96.190 Advanced Research Seminar 7.0
Seminar on the practice of nursing in research. Prerequisites: completion of the senior year or consent of instructor. Prerequisites: 96.121 and 96.122.
Pharmacists are specialists in the science of drugs. They must understand drug composition, biochemistry, biologic, chemical, physical properties, microbiology, and uses and activity in normal individuals as well as ill patients. They must be familiar with uses for strength, purity, and efficacy of drug products. Pharmacists compound and dispense prescription written by health practitioners, who rely on pharmacists for information about the availability, active, and adverse, and contraindications of various drugs. Pharmacists also communicate knowledge of drugs to patients and to other health professionals and, in general, serve the community as a prime source of information on health topics.

Nearly everyone is familiar with the community pharmacist and the pharmacy in which he or she practices. The size and type of practice may vary—community pharmacies may be large or small, operated by individuals or by corporations. The pharmacists who staff these pharmacies make up the majority of practitioners. More than 125,000 men and women practice in community pharmacy.

Approximately 45,000 pharmacists are employed in hospital pharmacy practice. In this setting, they work closely with other members of the health care professions. Some work in government agencies such as the U.S. Public Health Service, Veterans Affairs, Food and Drug Administration, and armed forces. Pharmacists serve as commissioned officers in the military services as well as the U.S. Public Health Service.

Most pharmacists require administrative positions in industry, pharmaceutical research and development, government, health care, advertising, and advertising. Many are employed in pharmaceutical sales as medical representatives. A pharmaceutical sales representative is essentially a salesperson to the medical profession who is essentially valuable to these men and women, who are responsible for acquiring physicians, dentists, veterinarians, and other pharmacists with drug products. The education background of pharmacists provides an opportunity for employment in many fields not commonly associated with pharmacy.

In the United States, more people are in need of health care than ever before, and the demand for pharmacists continues to expand. Young pharmacists will face new challenges, expanded responsibilities, and an ever-increasing growth in opportunities.

Undergraduate Program

Undergraduate students in pharmacy enroll in the School of Science program. They receive professional education in a number of areas, including pharmaceutical technology, pharmacology, medicinal chemistry and natural products, pharmaceutical microbiology, and clinical and hospital pharmacy. Aspects of biotechnology are a cornerstone of pharmacy education.

The Libraries of Liberal Arts, Business Administration, Dentistry, and Medicine contribute to the education of pharmacy students by providing instruction in the physical science, basic medical sciences, business, the humanities, and social sciences.

The twelve-month program in pharmacy consists of two years of pharmacy study, two years at the University of Iowa or at an accredited community college, and four years of pharmacy studies in the College of Pharmacy. It is possible to transfer into the College of Pharmacy with advanced standing after two years of college-level work at an approved institution. Students entering the college after two years of professional study can complete the professional program in three years if the professional study includes, in addition to the basic prepharmaceutical requirements, at least 6 semester hours of organic chemistry, 5 hours of biology or zoology, 3.4 hours of quantitative analysis, and at least 15 semester hours of general education electives. Only a limited number of students are admitted with advanced standing.

The University of Iowa College of Pharmacy is accredited by the American Council on Pharmaceutical Education. The College of Pharmacy is admitted to the licensure examination given by the Iowa Board of Pharmacy Examiners.

Graduates from the baccalaureate program in pharmacy require satisfactory completion of the required courses, 24 semester hours of general education electives, and a pharmacy grade-point average and a total cumulative grade-point average of at least 2.00.

Rules and regulations concerning academic probation, permanent academic dismissal, academic suspension, maximum enrollment, second-grade-only option, waiver or substitution of courses, conditions of registration, drop date, and correspondence programs are governed by the policies of the College of Pharmacy in the current Catalog of Courses and the Handbook for Undergraduate Pharmacy Students.

H浓ors

The Honors Program gives students an opportunity to interact as part of a small group with leading professionals and students from all areas of the University. In order for a student to qualify, he or she must enroll in the Honors Seminar, a weekly discussion on topics from the humanities, the sciences, law, and the social sciences.

Honors students may elect to prepare a major paper or carry out a research project of limited scope during the summer program. Satisfactory completion of the project certifies them as having completed the College of Pharmacy Honors Program.

Admission

The college-wide course work outlined below is the minimum academic requirements for admission to the College of Pharmacy.

Enrollment of these requirements does not ensure admission to the college. The college admission secretary can help the better-qualified applicant. Questions concerning satisfaction of degree requirements should be directed to the assistant dean for undergraduate affairs.

Professional Course Work

Rhythmic: 8 semester hours, of 6 semester hours of transfer credit in English composition, and rhetoric, and 2 semester hours in speech.

General chemistry: 8 semester hours.

Mathematics: 3.4 semester hours of a satisfactory differential and integral calculus sequence.

Physics: may be satisfied with one year of high school physics.

General education electives: 6 semester hours. Each student must complete 24 semester hours of general education courses to meet graduation requirements. The course sequence should be as 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 eligible to complete the pharmacy program in three years if they have satisfactorily completed courses in organic chemistry, biology or zoology, quantitative analysis, and have satisfied general education electives. Students who plan to remain in a community college for two years before transferring to Iowa should consult the assistant dean for undergraduate affairs.

According to University policy, students who have earned more than one-half the total semester hours required for the B.S. in pharmacy cannot receive further credit for courses transferred from a community college that student who want to satisfy required or elective credit at other institutions must have permission of the assistant dean for undergraduate affairs before enrolling in such courses.

A minimum grade of C is required for work applied for transfer toward the pharmacy degree.

Professional Curriculum

Students must be enrolled in the College of Pharmacy by the time they may take College of Pharmacy courses.

FIRST YEAR

Fall Semester

412/113 Pharmacy Math... 3 s.h.
412/121 Organic Chemistry I... 3 s.h.
412/112 Principles of Animal Biology... 3 s.h.
412/141 Elementary Quantitative Analysis... 4 s.h.
412/142 Introductory Microscopy... 4 s.h.
Total... 15 s.h.

Second Semester

412/114 Pharmaceutical Orientation... 2 s.h.
412/122 Organic Chemistry II... 3 s.h.
412/143 Organic Chemistry Laboratory... 3 s.h.
*601 Principles of Human Anatomy... 4 s.h.
**General education electives... 4 s.h.
Total... 15-17 s.h.
46:157 Clinical Nuclear Pharmacy Certificate
Advanced clinical instruction in the use of radiopharmaceuticals, radioactive materials, and their role in oncology, pediatrics, cardiology, and nuclear medicine.

46:158 Dental College Certificate
Advanced clinical experience involving general and local anesthesia, preventive dentistry, and patient care in a multidisciplinary setting.

46:159 Phlebotomist Certificate
Advanced clinical experience in a nonclinical setting.
The Division of Continuing Education was established by special legislation of the General Assembly of Iowa to "render a larger service to the Commonwealth and in the people of the State, by carrying on in every part of the State the knowledge, the thought, the ideals, and the spirit of several departments and colleges of the University and by bringing the University nearer into direct contact with the citizens."

The division's organization and services include the following:

**Audiovisual Center**

**Director:** William Ogletree

The Audiovisual Center provides consultation, planning, design, production, and marketing of instructional audiovisual materials. Its media production units are the University's major manufacturers of a broad range of graphic, photographic, and audio materials.

- **Graphical Unit:** graphics, charts, maps, titles, layouts, purposes, infomercials, models, exhibits, and overhead presentations
- **Photographic Service:** black-and-white and color photographs, negatives, two-inch slides, films, engravings, macrophotography, many types of specialized photography, and still photographs laboratory services
- **Audio Unit:** original audiocassette recording (studio and location), tape duplication (open reel and cassette), sound editing, equalizing, mixing, and transfer
- **Multimedia Unit:** design and production of slide and multiple-screen slide programs, one to twelve projectors, manual and programmed control, overhead projection, and color projection on push-down track

The Audiovisual Center also markets and distributes audiovisual products originated at the University. National and international markets are being developed to sponsor University departments and classes.

The center charges most University departments for materials only. For requests funded by grants, charges are made for materials and labor.

**Media Services**

**Director:** James Zak

The University Library promotes and sponsors a major collection of 16-mm instructional films and videotapes for on-campus production and continuing-education-related activities; there is a rental fee for off-campus use. Smaller collections of audiotapes, filmstrips, and slides plus facilities for student or faculty use are also available. Catalog of these collections is available on request. The library also maintains a reference collection of materials from other sources.

Equipment Services provides the following, for instructional use at no charge: projectors for films, slides, filmstrips, and video; opaque and overhead projectors; portable projection screens; audiotape recorders/players; video audiotape recorders/players; notable public address systems; and display devices (pittels, panels, boards). Repair service is available for audiovisual equipment.

**Center for Conferences and Institutes**

**Acting Director:** Cyril L. Reep

The Center for Conferences and Institutes is the University's principal agency for developing, coordinating, and conducting noncredit continuing education programs for nonstudent adults and for administering the Continuing Education Unit (CEU) program. The center's primary goal is to enhance the University as a center of learning and to provide educational opportunities for people who are not full-time students but who wish to acquire knowledge related to their work or special interests.

Each year more than 30,000 adults participate in the center's varied programs; these include academic seminars, colloquia, seminars, workshops, and special events. The University Operations Manual directs faculty and staff who plan University conferences and group functions held on campus or in Iowa City and Cedar Rapids to schedule these activities through the conference center office. The center can accommodate conference halls, dining services, and high-quality accommodations in the Iowa Memorial Union when these facilities are available and appropriate.

The center also manages national and international programs for faculty and department.

**Center for Credit Programs**

**Director:** Virgil V. Fitts

The Center for Credit Programs is responsible for delivering University of Iowa credit courses to part-time students in Iowa City and throughout the state. In cooperation with the University's colleges and academic departments, the center offers courses through several formats and delivery systems.

**Correspondence Courses**

More than 180 Correspondence Study courses are available in the College of Liberal Arts, Business Administration, Education, Engineering, Medicine, and Nursing. These courses represent 42 University departments.

Students may enroll at any time, and they have nine months in which to complete a course. A catalog of course listings, procedures, and enrollment forms is available from the Guided Correspondence Study unit.

**Off-Campus Classes**

The Center for Credit Programs offers University courses off-campus. Classes are scheduled where they best serve off-campus students, at the request of public school officials, and/or where professional, industrial, or other qualified groups express a need for instruction. The center also offers courses through audioconferencing and interactive television. In addition, it provides a variety of telecourses in cooperation with Iowa Public Television.

Enrollment in each course must be sufficient to meet the cost of offering the course. Information is available from the Center for Credit Programs.

**Saturday and Evening Classes**

The Saturday and Evening Class Program offers University courses at times convenient for nontraditional students. All classes meet on The University of Iowa campus. Enrollment in each course must be sufficient to meet the cost of offering the course. The Saturday and Evening Class Program bulletin is available from the Center for Credit Programs.

**Bachelor of Liberal Studies Degree**

The Bachelor of Liberal Studies (B.L.S.) degree is offered by each of the three State Board of Regents universities (The University of Iowa, Iowa State University, and the University of Northern Iowa). It serves adults whose job, family, geographic location, or other personal circumstances prevent them from attending college as full-time, on-campus students. The program has no residence requirement.

Credit applicable toward the degree may be earned through Saturday and evening classes, correspondence and independent study courses, off-campus courses at sites throughout Iowa, recorded courses, and day classes on-campus courses.

At The University of Iowa, the B.L.S. is awarded by the College of Liberal Arts and administered by the Division of Continuing Education. For a detailed program description, see "Liberal Studies" in the College of Liberal Arts section of the Catalog.
Labor Center

Director: Robert T. Heme

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 F. Shields

The Institute is the primary research and continuing education link between the University and state, city, and county governments in Iowa. Its services are available to state and local government agencies, to citizen groups interested in civic affairs, and to organizations of public officials, such as the League of Iowa Municipalities and the Iowa State Association of Counties.

The Institute provides:
- in-service training and continuing education services to public officials, primarily policymakers and key administrators, with a wide variety of information sources and educational programs aimed at meeting organizational and leadership development needs;
- research services, informational resources, and publications ranging from Iowa public policy studies to handbooks for elected officials in Iowa governments; and
- organizational assistance ranging from advising on city council goals to helping develop management systems, and quality circles to serving on statewide government committees that deal with major concerns of state and local governments.

Video Center

Director: David C. Laut

The University Video Center provides high-quality video services and facilities, including those necessary to sustain and promote research activities. It also coordinates video equipment purchase and inventory and promotes efficient University support of campus video. Toward this end, the center has the personnel and facility resources to help units purchase equipment and supplies as well as produce and program educational activities. The center also provides video-system design and maintains guidelines for equipment standardization.
Schafer-Nitecki, Tari, J.A. Iowa 1892, M.W.S. 1912, Assistant Professor, University of Iowa,
1912-13.

Schoenberg, Charles W., B.S. Iowa State 1921, M.S. 1928, Ph.D. 1939, Assistant Professor of
Chemistry, Massachusetts Institute of Technology, 1940-1943.

Schmitt, Harold F., B.S. Iowa State 1942, M.S. 1944, Ph.D. 1946, Assistant Professor, University of
Iowa, 1946-1966, Assistant Dean, College of Agriculture, 1957-1966, Dean, College of Agri-

Schwartz, Robert L., B.S. Iowa State 1962, M.S. 1964, Ph.D. 1967, Assistant Professor, University of

Schwall, A., I.A. Iowa 1902, M.S. 1903, Assistant Professor, University of Iowa, 1903-1908.

Schwedler, Robert E., B.S. Iowa State 1963, M.S. 1964, Ph.D. 1967, Assistant Professor, University

Schwartz, Robert L., B.S. Iowa State 1977, M.S. 1978, Ph.D. 1983, Assistant Professor, University

Schwarz, Julius, B.S. Iowa 1931, Assistant Professor, University of Iowa, 1931-1935.

Schultz, Richard L., B.S. Ohio State 1965, M.S. 1969, Ph.D. 1970, Assistant Professor of Agronomy,
Iowa State University, 1970-1972.

Schultheis, Emil, B.S. Iowa State 1908, M.S. 1909, Ph.D. 1911, Assistant Professor, University of
Iowa, 1911-1922.

Seager, Durrah L., B.S. Pennsylvania State 1976, Ph.D. 1980, Assistant Professor, University of

Selden, Melville T., B.S. Cornell 1951, Ph.D. 1953, Assistant Professor, University of Iowa,
1953-1956.

Senge, Robert E., B.S. Iowa 1954, M.S. 1958, Ph.D. 1962, Assistant Professor, University of

Sencott, Charles R., B.S. Iowa 1900, M.S. 1902, Ph.D. 1905, Assistant Professor, University of
Iowa, 1905-1908.

Seyffer, Melvin R., B.S. Iowa 1929, Ph.D. 1933, Assistant Professor, University of Iowa,
1933-1935.

Shearer, Raymond E., B.S. Chemical Engineering 1931, Ph.D. 1935, Assistant Professor, Univer-
sity of Iowa, 1935-1939.

Shelton, J. Audio, B.S. Iowa 1975, M.S. 1978, Assistant Professor, University of Iowa,

Sherrill, Robert J., B.S. Chemical Engineering 1931, Ph.D. 1935, Assistant Professor, University of
Iowa, 1935-1939.

Shewmaker, Larry, B.A. Iowa 1973, M.B.A. 1974, Ph.D. 1981, Assistant Professor, University of

Shropshire, Chester, B.S. Iowa State 1933, M.S. 1934, Ph.D. 1937, Assistant Professor, University of
Iowa, 1937-1940.

Sibley, Harry B., B.A. Carleton 1937, M.A. 1938, Ph.D. 1945, Assistant Professor, University of
Iowa, 1945-1947.

Simpson, Larry C., B.A. Florida 1963, M.A. 1968, Ph.D. 1973, Assistant Professor, University of

Sims, William A., B.A. Iowa 1978, M.P. 1978, Ph.D. 1982, Assistant Professor, University of

Simpson, Paul M., B.A. Clarion 1958, M.S. 1958, Ph.D. 1962, Assistant Professor, University of

Simpson, John D., B.S. Pennsylvania State 1976, Ph.D. 1980, Assistant Professor, University of

Simpson, John D., B.S. Pennsylvania State 1976, Ph.D. 1980, Assistant Professor, University of

Simpson, John D., B.S. Pennsylvania State 1976, Ph.D. 1980, Assistant Professor, University of

Simpson, John D., B.S. Pennsylvania State 1976, Ph.D. 1980, Assistant Professor, University of
Speare, William M., M.D.C.M., Ovens (Canada) 1952, professor, internal Medicine, 1957 (1964)
Stacy, John R., B.A. California 1960, M.D., 1963, assistant professor, internal Medicine, 1964 (1965)
Staylor, Rosemary B., M.D. Stanford 1964, B.S. 1960, assistant professor, obstetrics. 1964 (1965)


Xin, H. B., B. S., University of Wisconsin 1969, assistant professor, Pharmacology.

Xu, Q. B., B.S., University of Wisconsin 1970, assistant professor, Pharmacology.

Yamada, M., M. D., University of Kentucky 1965, assistant professor, Pharmacology.

Yates, W. E., B. S., University of California 1948, assistant professor, Pharmacology.

Ye, T. J., B. S., University of Wisconsin 1970, assistant professor, Pharmacology.

Zimpelmann, J. P., B. S., Southwestern University 1959, assistant professor, Pharmacology.


Zubler, R. H., M. D., University of Washington 1961, assistant professor, Pharmacology.

Zweifel, R. C., B. S., University of California 1961, assistant professor, Pharmacology.

Zweifel, S. E., M. D., University of Wisconsin 1960, assistant professor, Pharmacology.

Zweidler, M., B. S., University of Iowa 1960, assistant professor, Pharmacology.

Zubler, R. H., M. D., University of Washington 1961, assistant professor, Pharmacology.

Zweifel, R. C., B. S., University of California 1961, assistant professor, Pharmacology.

Zweifel, S. E., M. D., University of Wisconsin 1960, assistant professor, Pharmacology.

Zweidler, M., B. S., University of Iowa 1960, assistant professor, Pharmacology.
The following is extracted from the Board of Regents service of the Iowa Administrative Code as of April 15, 1992.

**Admission Rules Common to the Three State Universities**

681 - 1.2(262) Admission of undergraduate students directly from high school

Students desiring admission must meet the requirements in this section and also any special requirements for the curriculum, school, or college of their choice.

Applicants must submit a formal application for admission, together with a $10 application fee, and have their secondary schools provide a transcript of their academic record, including credits and grades, rank in class, and certification of graduation. Applicants must also submit scores from the American College Test (ACT) or the Scholastic Aptitude Test (SAT), or the equivalent, as determined by each university. The Test of English as a Foreign Language (TOEFL) is required of foreign students whose first language is not English. Applicants may be required to submit additional information or data to support their applications.

1.1(1) Graduates of accredited Iowa high schools who have the required state background as recommended by each university and who rank in the upper one-half of their graduating class will be admitted. Applicants who are not in the upper one-half of their graduating class may, after reviewing their academic and test records, and in the discretion of the admissions officers:
   a. Be admitted conditionally,
   b. Be required to enroll for a trial period during a preceding summer session, or
   c. Be denied admission.

1.1(2) Graduates of accredited high schools in other states may be admitted to the state university provided that they meet the requirements as graduates of Iowa high schools. The options for conditional admission or separation from classes may not necessarily be offered to these students.

1.1(3) Applicants who are graduates of nonaccredited high schools will be considered for admission in a manner similar to applicants from approved high schools, but additional restrictions will be made to ensure compliance with standardized examinations.

1.1(4) Applicants who are not high school graduates, but whose classes have graduated, may be considered for admission. That will be required to submit all academic data to the extent that it exists and is necessary or 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 summer prior to high school graduation.

In rare situations, exceptional students may be admitted as full-time students to a Regents university before completing high school. Early admission to a university is provided to serve persons whose academic achievements and personal and intellectual maturity clearly suggest readiness for collegiate level study. Each university will specify requirements and conditions for early admission.

681 - 1.2(262) Admission of undergraduate students by transfer from other colleges

Students desiring admission must meet the requirements in this section and also any special requirements for the curriculum, school, or college of their choice.

Applicants must submit a formal application for admission, together with a $10 application fee, and request that each college they have attended send an official transcript to the admissions office. High school academic records and standardized test results may also be required. The Test of English as a Foreign Language (TOEFL) is required of foreign students whose first language is not English.

1.2(1) Transfer applicants with a maximum of 24 semester hours of graded credit from regionally accredited colleges or universities, who have achieved for all colleges previously attended the grade point required by each university for specific programs, will be admitted. Higher academic standards may be required of students who are not residents of Iowa.

Applicants who do not maintain the grade point required by each university for academic programs or who are under academic suspension from the last college attended may, after reviewing their academic and test records, and in the discretion of the admissions officers:
   a. Be admitted conditionally,
   b. Be required to enroll for a trial period during a preceding summer session, or
   c. Be denied admission.

1.2(2) Admission of students with fewer than 24 semester hours of college credit will be based on high school academic and standardized test records and an official transcript of the college record.

1.2(3) Transfer applicants under disciplinary suspension will not be considered for admission until information concerning the reasons for the suspension has been received from the college suspending the suspension. Applicants granted readmission under these circumstances will be admitted on probation.

1.2(4) Transfer applicants from colleges and universities which have not been accredited by the Iowa Board of Regents may also be considered for admission on an individual basis taking into account all available academic information.

681 - 1.2(263) Transfer credit policies

The Regents universities endorses the Joint Statement on Transfer and Award of Academic Credit approved in 1978 by the American Council on Education (ACE), the American Association of Collegiate Registrars and Admissions Officers (AACRAO), and the Council on Postsecondary Accreditation (COAPA). The current issue of Transfer Credit Practices of Selected Educational Institutions, published by the American Association of Collegiate Registrars and Admissions Officers (AACRAO), and publication of the Council on Postsecondary Accreditation (COAPA) are examples of references used by the universities in determining transfer credit. The acceptance and use of transfer credit is subject to limitations in accordance with the educational policies operative at each university.

1.3(1) Students from regionally accredited colleges and universities

Credit earned at regionally accredited colleges and universities is acceptable for transfer except that credit earned at a community college, as determined by the receiving university to be of a remedial, vocational, or technical nature, or credit in courses or programs in which the institution granting the credit is not accredited by the regional accrediting association, 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 number of credit hours accumulated by the student at all institutions attended exceeds one-half the number of credit hours required for the degree.

1.3(2) Students from colleges and universities which have candidate status

Credit earned at colleges and universities which have been candidates for accreditation by a regional association is acceptable for transfer in a manner similar to that from regionally accredited colleges and universities if the credit is applicable to the bachelor's degree at the receiving university.

Credit earned at the junior and senior colleges of a regional association which have received approval by a regional accrediting association for change to a four-year college which has received approval by a regional accrediting association for change to a four-year college may be accepted by a baccalaureate university.
1.2(3) Students from colleges and universities not regularly accredited When students are admitted to colleges and universities not regularly accredited, they may receive credit for courses taken at such institutions. The term "credit" shall mean the amount of credit granted by a college or university for courses taken at another college or university.

1.2(4) Residence

1.2(4)1 General a. A student enrolling at one of the three state universities shall be classified as a resident or nonresident for admission, tuition, and fee purposes by the resident or nonresident designated by the registrar. The decision shall be based upon information furnished by the student and other relevant information.

b. In determining resident or nonresident classification, the issue is essentially one of why the person is in the state of Iowa. If the person is in the state primarily for educational purposes, that person will be considered a nonresident. For example, it may be possible that an individual could qualify as a resident of Iowa for purposes of voting, or holding an Iowa driver's license, and not meet the residency requirement established by the board of regents for admission, tuition, and fee purposes.

c. The resident, or designated person, is authorized to request written documents, affidavits, statements, 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.

1.2(4)2 Methods of determining domicile

a. A statement from the student describing the student's residential history will be considered a substitute for the statement from the student's employer. A statement from the student's employer verifying the student's employment and the fact that the student is entitled to income tax refunds for the past year and will not be so entitled in future years. b. Supporting statements from persons who might be familiar with the student's family situation. c. The student's income tax return.

d. Change of classification from nonresident to resident will not be made retroactive on the date in which application for resident classification is made.

1.2(4)3 A student who has resided in Iowa for less than 12 months shall be considered a nonresident for admission, tuition, and fee purposes. a. The student is considered to have resided in Iowa for at least 12 months if the student

1.2(4)5 General a. A student enrolling at one of the three state universities shall be classified as a resident or nonresident for admission, tuition, and fee purposes by the resident or nonresident designated by the registrar. The decision shall be based upon information furnished by the student and other relevant information.

b. In determining resident or nonresident classification, the issue is essentially one of why the person is in the state of Iowa. If the person is in the state primarily for educational purposes, that person will be considered a nonresident. For example, it may be possible that an individual could qualify as a resident of Iowa for purposes of voting, or holding an Iowa driver's license, and not meet the residency requirement established by the board of regents for admission, tuition, and fee purposes.

c. The resident, or designated person, is authorized to request written documents, affidavits, statements, 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.

1.2(4)5 Methods of determining domicile

a. A statement from the student describing the student's residential history will be considered a substitute for the statement from the student's employer. A statement from the student's employer verifying the student's employment and the fact that the student is entitled to income tax refunds for the past year and will not be so entitled in future years.

b. Supporting statements from persons who might be familiar with the student's family situation.

c. The student's income tax return.

d. Change of classification from nonresident to resident will not be made retroactive on the date in which application for resident classification is made.

1.2(4)6 A student who has resided in Iowa for less than 12 months shall be considered a nonresident for admission, tuition, and fee purposes. a. The student is considered to have resided in Iowa for at least 12 months if the student

1.2(4)7 General a. A student enrolling at one of the three state universities shall be classified as a resident or nonresident for admission, tuition, and fee purposes by the resident or nonresident designated by the registrar. The decision shall be based upon information furnished by the student and other relevant information.

b. In determining resident or nonresident classification, the issue is essentially one of why the person is in the state of Iowa. If the person is in the state primarily for educational purposes, that person will be considered a nonresident. For example, it may be possible that an individual could qualify as a resident of Iowa for purposes of voting, or holding an Iowa driver's license, and not meet the residency requirement established by the board of regents for admission, tuition, and fee purposes.

c. The resident, or designated person, is authorized to request written documents, affidavits, statements, 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.

1.2(4)7 Methods of determining domicile

a. A statement from the student describing the student's residential history will be considered a substitute for the statement from the student's employer. A statement from the student's employer verifying the student's employment and the fact that the student is entitled to income tax refunds for the past year and will not be so entitled in future years.

b. Supporting statements from persons who might be familiar with the student's family situation.

c. The student's income tax return.

d. Change of classification from nonresident to resident will not be made retroactive on the date in which application for resident classification is made.

1.2(4)8 A student who has resided in Iowa for less than 12 months shall be considered a nonresident for admission, tuition, and fee purposes. a. The student is considered to have resided in Iowa for at least 12 months if the student
Supplemental Specific Rules for The University of Iowa

681-1.2(242) 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 by the director of admissions.

681-2.3(242) College of Business Administration

2.3(1) Application for admission

Applications for admission to the college of business administration should be submitted to the director of admissions.

Applicants are urged to apply as early as possible, since this will give the admisions committee more time to devote to each application. Closing dates for receiving applications will be announced well in advance of the opening date of each session.

3.2(2) Requirements for admission

For admission to the college of business administration an applicant must have—

a. Completed specific course work as prescribed for the faculty of the college.

b. Attached satisfactory scores on the university’s required examination examinations.

c. Maintained a satisfactory grade-point average on all courses undertaken, and on all courses undertaken at the University of Iowa, on all courses undertaken in business and economics.

Applications from students who have minor deficiencies in meeting grade-point requirements specified above will be reviewed by the admissions committee of the college, and upon favorable recommendation of the committee, such students may be granted conditional or probationary admissions.

Fulfillment of the minimal requirements listed above, however, does not assure admission to the college of business administration. From those applicants who meet the minimum requirements, the admissions committee will select the applicants who, in their judgment, appear to be best qualified.

681-1.2(242) College of Dentistry

2.4(1) Application for admission

Address all inquiries regarding admission to the Director of Admissions, University of Iowa.

Applicants are urged to apply as early as possible, since this will give the admission committee more time to devote to each application. Closing dates for receiving applications will be announced well in advance of the opening date of each session.

Applicants for admission to dentistry are encouraged to complete a program leading to a baccalaureate degree before entering dentistry. Applicants should consider a combined program in liberal arts and dentistry that would qualify them for a baccalaureate degree upon the completion of the freshman year in dentistry. Preference will be given to students who have the baccalaureate degree or who have completed the requirements for the degree in a combined program.

Fulfillment of the specific requirements for admission listed does not ensure admission to the college of dentistry. From the applicants meeting the minimum requirements, the admissions committee will select the applicants who in their judgment appear to be best qualified for the study and practice of dentistry.

Each applicant must place on file in the office of the director of admissions the completed application form and one official transcript from each college attended.

The college work outlined below will suffice to meet the minimal academic requirements for admission to the college of dentistry.

The college curriculum must include at least three academic years of accredited work comprising no less than 90 semester hours and including specific required science courses as prescribed by the faculty of the college.

Electives should be chosen so as to give the applicant a well-rounded educational background.

In order to meet minimum scholarship requirements, the applicant should attain a cumulative grade-point average of 2.5 in. Since the quality of course work in professional school is basic to success in dentistry, special consideration in each college work is given by the admissions committee. The grade-point average is based upon the University of Iowa’s grading system in which a grade of A is equivalent to four points. Other grade point systems will be evaluated by the office of admissions and the committee on admissions of the college of dentistry.

Applicants who have completed the requirements for admission to any four or more years prior to seeking admission to this college of dentistry will be considered by the admissions committee only under exceptional conditions.

Preference will be given to applicants who are residents of Iowa, but consideration will also be given to outstanding nonresidents.

Personal interviews will be required of applicants for admission to the college of dentistry. Applicants will be notified when they are invited to be notified of the interviews with members of the admissions committee.

All applicants must complete the dental aptitude tests sponsored by the council on dental education of the American Dental Association. These tests are given three times annually. The University of Iowa is a testing center.

To facilitate early selection, applicants for admission to the college of dentistry are urged to submit the application no later than October to enable the admissions committee to begin its selection in December.

Accepted applicants are required to make the required deposit within two weeks after receipt of the acceptance letter. The deposit is not refundable but is credited toward tuition payments. The applicant who fails to make the deposit within the time specified forfeits a place in the entering class.

Applicants accepted for admission are required to submit a satisfactory dental examination report to the university student health service within two weeks following notification of acceptance.

All applicants must also complete, through student health service, an X-ray film of the chest and a successful vaccination against smallpox prior to registration.

2.4(2) Advanced standing

Applications for admission with advanced standing are handled as individual cases.

681-1.2(242) 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 advertised well in advance of the opening date of any session.

2.5(1) Admission of freshman students
The applicant must submit a formal application for admission and must have the secondary school provided a certificate of high school credits, including a complete statement of the applicant's high school record, rank in class, scores on standardized tests, and certification of high school graduation. The applicant must submit any other evidence such as a certificate of health that may be required by this university.

Each applicant must have attained satisfactory scores on the university's required admissions examinations, maintained a satisfactory cumulative grade-point average, achieved satisfactory standing in graduating class, and successfully completed all prerequisite courses. The university with the approval of the college board of regents shall establish this prerequisite review specific minimum requirements for admission to the college of engineering. Among the items to be so determined are test scores, grade-point average, class rank and prerequisite courses. These specific determinations will be published in the university catalog.

From applicants who do not meet minimum admission requirements, the director of admissions may call a review of the applicant’s record. (a) Admit conditionally. (b) Admit on probation. (c) Require enrollment for a credit period during a preceding summer session, or (d) No admission.

2.5(2) Admission of undergraduate students by transfer
The applicant must submit a formal application and the transcript of college work. Each student should have:
(a) Maintained satisfactory progress in mathematics.
(b) Attained satisfactory scores on the university's required admissions examinations.
(c) Maintained a satisfactory cumulative grade-point average in all college work undertaken.

From applications who do not meet recommended requirements, the director of admissions will review individual records and may offer provisional admission.

681-5.46(202) Graduates of any college or university accredited by regional accrediting associations may, if the academic record is satisfactory, be admitted to the graduate college. Admission to the graduate college is not the equivalent of acceptance as a candidate for an advanced degree. Each acceptance is given usually after the completion in residence of work at the university and upon recommendation of the major department and approval by the dean of the college.

681-2.8(202) College of Medicine
2.8(1) Application for admission
Address all inquiries concerning admission to the Director of Admissions, University of Iowa, Iowa City, Iowa. Beginning students may enter the college of law only to the summer session or the fall semester. Closing dates for receiving applications will be announced well in advance of the opening date of any session.

For fulfillment of the specific requirements for admission below does not ensure admission to the college of law. From the applicant's meeting the specific requirements, the admission committee of the college of law will select those applicants who, in their judgment, appear to be best qualified for the study and practice of law. The law admissions committee may require personal interviews of applicants.

2.7(1) Admission with advanced standing
A transfer student may be eligible for admission if the student (a) has attended a school approved by the Association of American Law Schools, (b) is in good standing at the time of withdrawal, (c) is a graduate of the college from which transfers, (d) meets the admission requirements for beginning students, and (d) has done outstandingly above average work in the last school the student attended. Where an applicant has completed more than one year of law study, advanced standing will be permitted only in exceptional cases. Applicants for admission with advanced standing should follow the procedures required for admission to the first-year class.
681—2.9(262) College of Nursing

Applications for admission to the college of nursing should be submitted to the Director of Admissions, The University of Iowa, Iowa City, Iowa. Applicants for admission to the baccalaureate program in nursing must present a minimum of 30 earned credits completed in an accredited college, for admission to the college of nursing an applicant must have:
1. Completed specific course work as prescribed by the faculty of the college. The director of admissions will provide a list of the course work required.
2. Completed the American College Test.
3. Presented satisfactory on all courses undertaken.
Applications from students who have minor deficiencies in meeting grade-point requirements specified above will be reviewed by the admission committee of the college, and, upon favorable recommendation of the committee, such students may be granted conditional or provisional admission.

681—3.10(262) College of Pharmacy

2.10(1) General basis for admission

Eligibility of the general requirements for admission does not ensure admission to the college of pharmacy. From the applicants meeting the specific requirements, the admissions committee will select the applicants who, in their judgment appear to be best qualified.

2.10(2) College work

The college work as outlined below will meet the minimum academic requirements for admission to the college of pharmacy. The minimum should include 36 semester hours of college level work exclusive of credit in military and air science and physical education. The 32-semester hours must include:

Communication skills. Applicants must have demonstrated satisfactory achievement in communication skills according to the requirements of the college of liberal arts at the University of Iowa. Applicants from other institutions may meet this requirement by presenting six semester hours credit in English composition and rhetoric and two semester hours of credit in speech or an eight-semester-hour year course in communication skills.

Inorganic chemistry and qualitative analysis, eight semester hours.

College mathematics, eight semester hours. Physics or zoology, eight semester hours.

Students from other institutions may substitute a comparable eight semester-hour course in biology in lieu of zoology.

Military or air science (if available), zero to two semester hours.

Students who present minor deficiencies in meeting the above requirements may be admitted to the college of pharmacy upon the recommendation of the dean of admissions and the college of pharmacy.

2.10(3) Scholarship and application deadlines

To be considered for admission to the college of pharmacy, students must have earned a 2.00 or C average on all college work undertaken. The minimum grade-point average of 2.00 is based on the same University of Iowa’s marking system in which the grade of A is equivalent to four points. Applications for admission and the required official transcripts must be filed before March 1 for the class to enter pharmacy in September.

2.10(4) Required tests

Applicants for admission are required to take the American College Testing Program test.

2.10(5) Current requirements

Applicants who have completed work in a college of pharmacy accredited by the American Council on Pharmaceutical Education may if their college academic average is acceptable be admitted and granted advanced standing toward the degree of bachelor of science in pharmacy.

681—3.21(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(252), 1.2(352), and 3.1(352).

681—3.23(262) College of Education

Students at the university seeking professional work in education are registered in the college of liberal arts or the graduate college. Requirements for permission to take under-credit courses are listed in the university catalog.
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