## University Calendar

### First Semester

<table>
<thead>
<tr>
<th>Event</th>
<th>1984-85</th>
<th>1985-86</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration begins</td>
<td>August 27</td>
<td>August 25</td>
</tr>
<tr>
<td>Classes begin</td>
<td>August 29</td>
<td>August 28</td>
</tr>
<tr>
<td>University holiday</td>
<td>September 3</td>
<td>September 2</td>
</tr>
<tr>
<td>Homecoming</td>
<td>September 29</td>
<td>October 5</td>
</tr>
<tr>
<td>Thanksgiving recess</td>
<td>November 21</td>
<td>November 27</td>
</tr>
<tr>
<td>University holidays</td>
<td>November 22-23</td>
<td>November 28-29</td>
</tr>
<tr>
<td>Classes resume</td>
<td>November 26</td>
<td>December 2</td>
</tr>
<tr>
<td>Classes end</td>
<td>December 14</td>
<td>December 13</td>
</tr>
<tr>
<td>Examination Week</td>
<td>December 17-21</td>
<td>December 16-20</td>
</tr>
<tr>
<td>Commencement</td>
<td>December 22</td>
<td>December 21</td>
</tr>
<tr>
<td>University holidays</td>
<td>December 24-25</td>
<td>December 24-25</td>
</tr>
<tr>
<td>University holiday</td>
<td>January 1</td>
<td>January 1</td>
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### Second Semester

<table>
<thead>
<tr>
<th>Event</th>
<th>1984-85</th>
<th>1985-86</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration begins</td>
<td>January 17</td>
<td>January 16</td>
</tr>
<tr>
<td>Classes begin</td>
<td>January 21</td>
<td>January 20</td>
</tr>
<tr>
<td>Foundation Day</td>
<td>February 25</td>
<td>February 26</td>
</tr>
<tr>
<td>Spring vacation begins</td>
<td>March 25</td>
<td>March 22</td>
</tr>
<tr>
<td>Saturday classes only meet</td>
<td>March 22</td>
<td>March 22</td>
</tr>
<tr>
<td>Classes resume</td>
<td>April 1</td>
<td>March 31</td>
</tr>
<tr>
<td>Classes end</td>
<td>May 10</td>
<td>May 9</td>
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<tr>
<td>Examination week</td>
<td>May 13-17</td>
<td>May 12-16</td>
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<tr>
<td>Commencement</td>
<td>May 18</td>
<td>May 17</td>
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<tr>
<td>University holiday</td>
<td>May 27</td>
<td>May 26</td>
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### Summer Session

<table>
<thead>
<tr>
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<th>1985</th>
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<tbody>
<tr>
<td>Registration</td>
<td>June 10</td>
<td>June 9</td>
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<tr>
<td>Classes begin</td>
<td>June 11</td>
<td>June 10</td>
</tr>
<tr>
<td>University holiday</td>
<td>July 4</td>
<td>July 4</td>
</tr>
<tr>
<td>Commencement</td>
<td>August 2</td>
<td>August 1</td>
</tr>
<tr>
<td>Independent Study Unit opens</td>
<td>August 2</td>
<td>August 1</td>
</tr>
<tr>
<td>for law and graduate students</td>
<td>August 5</td>
<td>August 4</td>
</tr>
<tr>
<td>Close of Independent Study Unit</td>
<td>August 23</td>
<td>August 22</td>
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<td>Libraries</td>
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<td>College of Education</td>
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<td>College of Engineering</td>
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<td>College of Law</td>
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<td>College of Medicine</td>
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General Information

The University of Iowa is one of Iowa’s three state universities. The core of the University is the College of Liberal Arts. Within the college there are seven schools: Art and Art History, Journalism and Mass Communication, Letters, Library and Information Science, Music, Religion, and Social Work. The College of Liberal Arts is closely linked with the professional colleges of Business Administration, Dentistry, Education, Engineering, Law, Medicine, Nursing, and Pharmacy, and with the Graduate College, all located on a single campus in Iowa City. Some faculty members from the University’s professional colleges also teach undergraduate classes in the College of Liberal Arts, including a number of interdisciplinary courses. Total University enrollment during 1982-83 was about 29,099 students.

Founded on February 23, 1847, The University of Iowa is the state’s oldest institution of higher education. It established the first law school west of the Mississippi. It was the country’s first state university to admit women and men on an equal basis, which it did from its opening in 1852. It was the first state university to award creative work in the field of theatrical academic thesis for graduate degrees in the arts and pioneered the now-world-recognized UI writers workshops. It is recognized as the place where the science of speech pathology originated. It has earned recognition for the quality and creativity of its teaching and research programs in space physics, expository writing, and the teaching of the creative arts. Students are involved in graduate programs in speech, dramatic art, and communications, to cite just a few recent examples.

The UI faculty includes some 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. The University seeks to foster faculty vitality by maintaining a healthy balance between teaching and research, and between undergraduate and graduate or professional instruction.

The University’s undergraduate enrollment is about evenly divided between men and women students. Approximately three out of four undergraduates are Iowa residents. The rest are students from all over the 49 states and more than 90 foreign countries.

About 70 percent of the University’s entering freshmen had a 3.0 average or above in high school. Approximately 87 percent ranked in the upper half of their high school classes and about 24 percent ranked in the upper tenth.

The University of Iowa offers a comprehensive program of student financial aid. Half of the University’s students have some form of employment. One-third have education loans. One of ten undergraduates and one of five freshmen have scholarships. Most UI scholarships are awarded on the basis of demonstrated financial need and academic excellence, with a small number of grants awarded solely for scholarly achievement.

Reflecting a growing trend toward linking learning, the University in recent years has substantially expanded educational programs both on and off campus for individuals who cannot enroll as regular full-time students. These “nontraditional” learning opportunities range from internships, conferences, workshops, and continuing education programs for professionals, to Saturday and evening classes offered on campus and credit courses taught off campus. In 1977 the University, in cooperation with Iowa’s other two state universities, introduced a new Bachelor of Liberal Studies (B.L.S.) degree program geared specifically to 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 Catalog:

- Bachelor of Arts, Bachelor of Science, Bachelor of Music, Bachelor of Fine Arts, Bachelor of General Studies, Bachelor of Liberal Studies, Bachelor of Business Administration, Bachelor of Science in Engineering, Bachelor of Science in Pharmacy, Bachelor of Science in Nursing, Doctor of Dental Surgery, June Doctor, Master of Comparative Law, Doctor of Medicine, Master of Arts, Master of Science, Master of Business Administration, Master of Fine Arts, Master of Social Work, Master of Arts in Teaching, Education 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 Secondary Schools since the association’s organization in 1913. The University is a member of the Association of American Universities. It is associated with Northwestern, Indiana’s, Purdue, Ohio
State, and Michigan State universities, and the universities of Illinois, Minnesota, Wisconsin, and Michigan in the Western (Big Ten) Conference. It is associated with these universities and The University of Chicago in the Committee for Institutional Cooperation (CIC). Various colleges and schools of the University are members of accrediting associations in their respective fields, as follows:

**Colleges**
- Business Administration—American Association of Collegiate Schools of Business
- Dentistry—American Dental Association, Council on Dental Education
- Education—National Council for Accreditation of Teacher Education
- Engineering—The Accreditation Board for Engineering and Technology (ABET)
- Law—American Bar Association; Association of American Law Schools
- Medicine—Committee on 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—American Council on Education for Journalism
- Library and Information Science—American Library Association
- Music—National Association of Schools of Music
- Social Work—Council on Social Work Education

**Departments and Programs**
- Chemistry—American Chemical Society
- Dental Hygiene—American Dental Association Council on Dental Accreditation
- Dietetics—American Dietetic Association
- Home Economics—American Home Economics Association, Council for Professional Development
- Hospital and Health Administration—Accrediting Commission on Education for Health Service Administration
- Medical Technology—Committee for Allied Health Education and Accreditation of the American Medical Association

**Physician Assistant—Committee for Allied Health Education and Accreditation of the American Medical Association**
- Physical Therapy—Committee for Allied Health Education Accreditation of the American Physical Therapy Association
- Nuclear Medicine Technology—Committee for Allied Health Education and Accreditation of the American Medical Association
- Psychology—American Psychological Association
- Speech Pathology and Audiology—American Speech-Language-Hearing Association

**Sessions**

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

**Code of Student Life**

As members of the academic community students are encouraged to develop a capacity for critical judgment and to engage in a sustained and independent search for truth. Freedom to teach and freedom to learn are inseparable facets of academic freedom. The freedom to learn depends upon appropriate opportunities and conditions in the classrooms, on the campus, and in the larger community. Students are expected to exercise their freedom to learn with responsibility, and the University has developed a Code of Student Life to provide and safeguard the right of every individual student to exercise this freedom to learn without undue interference by others. This code varies only where a student’s misconduct has adversely affected some University process or function or some other distinct and clear interest of the University as an academic community. Students are expected to acquaint themselves with the code and to conduct themselves in accordance with the standards it sets forth.

**Human Rights**

The University is guided by the precept that in no aspect of its programs shall there be differences in the treatment of persons because of race, creed, color, national origin, age, sex, and any other classifications that deprive the person of consideration as an individual, and that equal opportunity and access to facilities shall be available to all. This principle is expected to be observed in the admission, housing, and education of students; in policies governing programs of extracurricular life and activities; and in the employment of faculty and staff personnel. The University shall work cooperatively with the community in furthering this principle.

**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 variation among colleges, these mechanisms generally involve the following steps:

1. The student should first attempt to resolve the issue with the faculty member involved. If lacking a satisfactory outcome, the student should turn to the departmental executive officer, if any. If no satisfactory outcome still is not obtained, the student may take the matter to the college dean. In addition, graduate students should consult with the associate dean for academic affairs in the Graduate College concerning mechanisms for resolving complaints. Some colleges (Business Administration, Dentistry, Education, Engineering, Law and Nursing) also have established an ombudsman system as an alternative mechanism for handling student complaints. Information concerning the informal mechanisms established in a specific college is available in the college dean’s office or College Associates Council (CAC) office.

If a student complaint concerning faculty actions cannot be resolved through the informal mechanisms available, the student may file a formal complaint which will be handled under the procedures established for dealing with alleged violations of the Statement of Ethics and Academic Responsibilities as specified in section 20:266 of the University Operations Manual. A description of these procedures can be obtained from each college dean’s office, college ombudsman, the Liberal Arts Advisory Office, the Undergraduate Advising Center, or the office of the CAC.

**Policy on Sexual Harassment**

Under the Regents Rules of Personal Conduct, the University of Iowa’s Human Rights Policy, faculty, staff, and students have no right to be subjected to sexual harassment by colleagues, supervisors, or students. The University does not condone actions and words which a reasonable person would regard as sexually harassing or coercive. Individuals who feel that they have been the objects of such harassment should...
advice their supervisor, dean, or The University of Iowa’s Affirmative Action Officer. In investigating such complaints, the following principles will be observed:

That the person bringing the complaint would suffer no retaliation.

That the complaint would not be discussed with anyone else without the complainant’s permission.

That if permission was given to pursue and investigate the complaint, that such an investigation would be conducted by the head of the major administrative unit in which the complaint was brought or by a designee of that administrator;

That in conducting such an investigation, the right to confidentiality, both of the complainant and of the accused, would be respected;

That the investigation would be conducted as quickly as possible and the results reported to the complainant;

That in the event the complaint is found to be valid, that the person that has been guilty of sexual harassment will receive appropriate counseling or disciplinary action, as would be the case in similar instances of violation of University policy.

University Marking System

Mark and Grade Points/ Semester Hour Definition

A (4) superior above average
B (3) average
C (2) below average but passing
F (0) failing
I* incomplete
NC* nonsatisfactory
O* no grade
P* passing
RP* audit
S* satisfactory (Graduate College only)
U* unsatisfactory (Graduate College only)
W* (not used in computing grade-point averages)

The College of Law uses a numeric grading system.

Recognition of High Scholastic Achievement

The University recognizes high scholastic achievement by awarding degrees "with distinction," "with high distinction," and "with highest distinction," based on these criteria:

All undergraduate colleges except Pharmacy
Highest distinction highest 2%
High distinction next highest 3%
Pharmacy
Highest distinction 3.75 — GPA
High distinction 3.50-3.74
Distinction 3.25-3.49

Records

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

Honorary and Professional Societies

Phi Beta Kappa, Sigma Xi, Mortar Board, and Omicron Delta Kappa are among 64 national honorary and professional societies in which The University of Iowa has active chapters.

Applying for Admission

Correspondence regarding admission to any college of The University of Iowa should be addressed to the Admissions Office, 108 Calvin Hall, The University of Iowa, Iowa City, Iowa 52242. The first letter should request an application for admission, briefly describe the prospective applicant’s high school or college background, and outline his or her plans for further study, including the department or general field in which he or she expects to major. All applicants for admission to all colleges of the University must submit forms and applications to the Admissions Office and must furnish official transcripts and other supporting materials as specified.

Application Fee

A $10 application fee must accompany applications submitted by prospective students not previously enrolled for full-time study at the University. A Graduate College applicant must pay the fee, unless he or she has earned a degree from The University of Iowa. Application fees are not refundable, except to Iowa residents who are censored admission.

Application Deadlines

Applicants for admission must submit the required application documents to the Office of Admissions by the deadline dates listed below. Foreign students usually have earlier application deadlines (see "Foreign Students" below).

College of Liberal Arts — Ten days before classes begin — all sessions.

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

College of Dentistry — November 30, fall semester only.

College of Engineering — Ten days before classes begin — all sessions.

Culver-Stockton College — The general Graduate College deadlines: May 1 for the summer session, July 15 for the fall semester, and December 1 for the spring semester. Some departments may have earlier deadlines. Early submission of materials is advised. To be considered for graduate awards, students must apply by February 1 for the fall semester.

College of Law — March 1, summer or fall semester.

Colleges of Medicine — December 1, fall semester only; Early Decision Plan, August 1 for the following year.

College of Nursing — January 15, fall semester, June 15 for spring semester.

College of Pharmacy — March 1, fall semester only.

Dental Hygiene Program — March 1, fall semester only.

Physical Therapy Certification Program — February 1, fall semester only.

Physician Assistant Program — January 15, summer session only.

Teacher Education Program — May 15 providing the academic year in which the student plans to enroll in professional education courses.

Foreign Students

The University of Iowa encourages foreign students to begin the process of applying for admission at least twelve months prior to matriculation. The applicant should have satisfied all the application procedures and submitted his or her complete application file to the Admissions Office by the dates given below.

Graduate College — Students applying to The University of Iowa for financial assistance (scholarships, fellowships, assistantships) February 1 for summer session or fall semester, October 1 for spring semester.

Students who will not require University financial support:

March 1 for summer session, April 15 for fall semester, October 1 for spring semester.

Please Note: The preceding deadlines are general guidelines. College deadlines, individual departments and programs may establish earlier deadlines which are indicated on their materials. Please carefully review all departmental materials for information about early deadlines.

Undergraduate Colleges

Business Administration
GENERAL INFORMATION

March 1 for summer session (June)
March 1 for fall semester (August)
September 1 for spring semester (January)

Engineering
March 1 for summer session (June)
March 1 for fall semester (August)
September 1 for spring semester (January)

Liberal Arts
March 1 for summer session (June)
April 15 for fall semester (August)
September 1 for spring semester (January)

Nursing
January 15 for fall semester (August)
June 15 for spring semester (January)

Pharmacy
March 1 for fall semester (August)

Applications to all other colleges and programs must meet the deadlines set forth above for all students.

Applicants whose native language is not English must complete and submit results from the Test of English as a Foreign Language (TOEFL) unless they have received a degree from an accredited college or university in the United States, United Kingdom, English-speaking Africa, Canada (except Quebec), Australia, or New Zealand.

A minimum TOEFL score of 480 is required for admission into the Graduate College. Newly admitted graduate students who score less than 550 on the TOEFL exam must complete an English proficiency evaluation prior to their first registration. Together with their academic advisors, graduate students determine whether or not they should enroll in English as a Foreign Language (EFL) course work.

Undergraduate applicants to all colleges, except the College of Engineering, must submit TOEFL scores of at least 480 prior to their initial registration. The College of Engineering requires TOEFL scores of at least 530 for admission.

All newly admitted undergraduates are required to complete EFL course work recommended by the Department of Linguistics as a result of the English proficiency evaluation. Students must complete the required EFL course work prior to enrolling in the institution’s course which appears on their admission statement.

ACT Test Scores

The University of Iowa requires all entering freshmen and undergraduate transfer students to complete the American College Testing (ACT) Assessment Program and have their test scores reported to the University before they register for classes.

The University of Iowa uses ACT scores for admission. As a criterion for admitting some students unconditionally or on probation; for requiring some students to attend a probationary summer session; and for denying admission to applicants who do not meet minimal standards.

Placement—As a basis for excuses some students from certain basic course requirements; for placing others in sections designed to meet individual needs; and for advising students concerning their programs of study and future educational plans.

Scholarship—As a criterion for awarding University-administered scholarships and loans.

Scholastic Aptitude Test (SAT) scores may be submitted with freshman or undergraduate transfer admission applications and will be used for admission evaluation. However, ACT scores must be submitted prior to registration.

 Anyone interested in applying for undergraduate admission at The University of Iowa should complete the ACT tests during the fall prior to his or her anticipated registration.

Applicants who have completed the tests but did not have their scores reported to the University should request this reporting from the College Board.

American College Testing Program, Box 451, Iowa City, Iowa 52243.

Further information, including testing dates and location, may be obtained from high school or college counselors, or from the ACT Program.

Graduate and Professional College Examinations

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

Medical Information

The Student Health Service provides health care for the needs of registered students. A health history form must be completed by the student including all information about immunizations. Proof of immunity to measles and rubella is prerequisite to registration. Students will be sent the health history form shortly after their admission to the University. Completed health history forms should be returned to the Student Health Service. Should a registering student have any health problem, it is recommended that a report from the attending physician be sent to the Health Service so that continuing care can be provided when indicated.

Determining Residence

For admission, tuition, and fee purposes, the University registrar classifies all students enrolling in the University as residents or nonresidents of Iowa, according to criteria established by the Iowa Board of Regents and on the basis of information provided by the student and all other relevant information. The criteria may be found under Iowa Administrative Code: Board of Regents at the back of the Catalog.

Tuition and Fees

The following is the University’s schedule of tuition and fees, per semester, for full-time students, for the academic year 1984-85. Extension courses are $56 per semester hour. Correspondence courses are $23 per semester hour. All fees are subject to change by action of the State Board of Regents.

<table>
<thead>
<tr>
<th>Undergraduate</th>
<th>Resident</th>
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<tbody>
<tr>
<td>901</td>
<td>1725</td>
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<tr>
<td>Graduate</td>
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</tr>
<tr>
<td>756</td>
<td>1800</td>
</tr>
<tr>
<td>Dentistry</td>
<td>resident</td>
</tr>
<tr>
<td>1410</td>
<td>3330</td>
</tr>
<tr>
<td>Law and Doctor of Pharmacy</td>
<td>resident</td>
</tr>
<tr>
<td>800</td>
<td>2135</td>
</tr>
<tr>
<td>Medicine</td>
<td>nonresident</td>
</tr>
<tr>
<td>960</td>
<td>4260</td>
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</tbody>
</table>

General fees provide for the student’s use of the Memorial Union facilities, and of libraries, laboratories, and gymnasia; free admission to minor sports events and to student-faculty concerts and plays; reduced rates for admission to major sports events and to performances by visiting stage and concert artists; subscriptions to the student newspaper, the Daily Iowan, delivered to housing units; certain student hospital services; and other services and services as applicable. However, extension and correspondence fees do not provide for the above listed benefits.

Registration

All persons who attend University classes must have been admitted to the University, and are required to register and pay the established tuition and fees. Students in the Graduate College and the colleges of Engineering, Liberal Arts, Pharmacy, Dentistry, Law, Medicine, and
<table>
<thead>
<tr>
<th>Number</th>
<th>Course</th>
</tr>
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<tbody>
<tr>
<td>0</td>
<td>College of Law</td>
</tr>
<tr>
<td>0.1</td>
<td>College of Liberal Arts</td>
</tr>
<tr>
<td>0.1.1</td>
<td>Nondepartmental Courses</td>
</tr>
<tr>
<td>0.1.2</td>
<td>BGS Bachelor of General Studies Courses</td>
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<tr>
<td>0.1.2.1</td>
<td>L Lakeside Laboratory</td>
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<tr>
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<td>1A Fundamentals</td>
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<tr>
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<td>1B Elements of Art</td>
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<td>1E Art Education</td>
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<td>1F Drawing</td>
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<td>0.1.2.8</td>
<td>1G Metawielding and Jewelry</td>
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<tr>
<td>0.1.2.9</td>
<td>1H Art History</td>
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<td>0.1.2.10</td>
<td>1J Multimedia</td>
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<td>1K Parenting</td>
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<td>1L Photography</td>
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<td>1M Printing</td>
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<td>1N Sculpture</td>
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<td>1P Art Interdepartmental</td>
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<td>1Q Botany</td>
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<tr>
<td>0.1.2.17</td>
<td>1R Speech Pathology and Audiology</td>
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<td>1S Chemistry</td>
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<td>1U English General Education Courses</td>
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<tr>
<td>0.1.2.21</td>
<td>1V English Language</td>
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Services for Students

Academic Advising Offices
Faculty Advisors
Each student is assigned an academic advisor to assist with educational planning, academic counseling, and registration. Students with declared majors are assigned advisors in their major departments. Students with open or other preprofessional majors are assigned advisors in the Undergraduate Academic Advising Center. Students in professional colleges (Business, Education, Engineering, Nursing, Pharmacy, Dentistry, Law, and Medicine) are advised by the college deans or their designated representatives. Graduate students are advised by their department heads and the Graduate College dean.

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

Undergraduate Academic Advising Center
Professional advisors at the Undergraduate Academic Advising Center are trained to help students who wish to explore more than one field of study as they select career paths and make academic plans appropriate to their interests. Advisors are conveniently located in student residence halls.

Collegiate Advisory Offices
Each of the undergraduate colleges of the University also maintains an advisory office. These offices are available to all students to assist with questions concerning academic majors and course requirements, grading options, career and graduate plans, and other items of concern. They assist students who wish to change advisors and/or majors, and they also act on student complaints.

Admissions
Inquiries about admission to any college of the University, applications for admission to any college of the University, transcripts to support transfer applications, and requests for evaluation of transfer credit should be sent to the Office of Admissions.

Campus Information Center
Located in the south lobby of the Iowa Memorial Union, the center provides information about campus and community activities and University services and operations; refers businesses to appropriate campus and community resources; compiles the Master Calendar of campus events; maintains the Housing Clearinghouse which provides up-to-date listings of available rental units, city and campus maps, lists of rentals, hotels, motels, and apartment complexes, and coordinates a roommate matching service. The center is open seven days a week.

Campus Programs and Student Activities
The Office of Campus Programs and Student Activities (OCPSA) provides diverse and balanced programs and activities for the Iowa Memorial Union and the campus as a whole and for the Iowa Memorial Union, and assists students and student organizations.

Students are welcome to seek guidance from professional advisors in OCPSA about how they can become involved and find organizations suited to their interests. Students who wish to form new groups or organizations with special needs can request guidance from OCPSA staff. Workshops and a well-stocked resource center are available to student organizations.

Campus programming and planning special events are ongoing tasks for program advisors and students and include planning traditional events, such as Homecoming and Riverfest, as well as new campus programs.

OCPSA also sponsors the Art Resource Center, the Recreation Area, the Student Activities Center, the University Box Office, SCOPE, and Union Board, all in the Iowa Memorial Union.

University Careers Office
Placement
The University Careers Office provides job placement and related assistance for seniors and graduate students seeking employment in business, industry, government, and nonprofit agencies. Assistance includes individual consultations with advisers and
professional staff, seminars for developing resume preparation, job-hunting and interviewing skills; a resume typing service; information on employment and salary trends; on-campus interviews with prospective employers; and a subscription to the Job Bulletin, a compilation of current job openings for college graduates.

Information about various companies is available for student and alumna use in the Employer Literature Room. This material provides background information about organizations interviewing on-campus or listing positions in the Job Bulletin.

Career Planning
Advisors assist students in all stages of the career planning and decision-making process. Individual advising sessions help students define their interests, abilities, values, work and life-style preferences, and career goals. Advisers also help students explore occupational information, investigate career options, and develop appropriate strategies for achieving their immediate and long-term career objectives.

Career Resource Center
The Career Resource Center is a library housing extensive information on careers. It provides information on labor market trends, career options, academic requirements for specific careers, work environments, places of employment, salaries, opportunities, and geographical regions of the country. The Center also maintains information on developing strategies for finding jobs; tips on researching organizations and non-profit agencies; and techniques for defining job objectives, writing resumes and cover letters, and developing interviewing skills.

An adviser is on duty to help students use the material. No appointments are necessary.

Community College Affairs
The Office of Community College Affairs (OCCA) provides a variety of services to students transferring from community colleges. Students are encouraged to contact the office whenever questions arise concerning University services and procedures, the campus environment, or particular transfer policies.

Each semester, OCCA consults with student advisers (former community college transfer students) to workshop new assisted transfer students in making smooth, effective transitions to the University.

Programs are conducted both at The University of Iowa and at community college campuses at the request of the participating institutions. In addition, OCCA develops and distributes several publications useful to transfer students.

OCCA also coordinates a computerized system of information regarding course equivalency agreements. This system contains lists of community college courses that have been approved by academic departments as meeting the requirements of various baccalaureate majors.

Cooperative Education
The Cooperative Education staff works with students who want to gain internship experience relevant to their academic and professional plans. Cooperative Education internships encourage students to apply what they are studying in a supervised work environment. Students must meet the eligibility requirements of their specific departments or colleges and receive faculty approval to participate.

Opportunities are available year-round to undergraduate and graduate students in a wide variety of organizations throughout the nation.

Counseling Service
The University Counseling Service staff of professional psychologists and advanced doctoral students offers vocational, educational, and personal counseling and therapy in individual or group sessions. It also offers remedial workshops, and consultation advice. Counseling services are available to students without cost.

Dental Service
The dental clinics at The University of Iowa College of Dentistry are primarily for educational purposes. All employees of the University and all students who are registered in the University may receive dental treatment at the college and will be accorded the same opportunity for treatment as any other patient. However, the College of Dentistry is not affiliated with the University Student Health Service and does not render service under the student health hospitalization fund. Fees established for dental services rendered, and patients are to pay cash.

Evaluation and Examination Service
Evaluation and Examination Service duplicates, scores, and analyzes many course examinations. It helps faculty members develop and improve their classroom tests by providing analyses of the results of examinations, helps faculty or students work with particular project requests, such as teacher or course evaluation and development; conducts institutional research projects and provides counseling services on questionnaire design and survey design; and administers many of the University's required and optional tests for entering students and is a center for many national testing programs, including the American College Testing (ACT) Program, Medical College Admission Test (MCAT), Graduate Record Examination (GRE), Graduate Management Admissions Test (GMAT), Graduate School Foreign Language Test (GSFLT), Law School Admission Test (LSAT), Test of English as a Foreign Language (TOEFL), Miller Analogies Test (MAT), and College-Level Examination Program (CLEP).

Health Service
The Student Health Service is located in the Student Health Center. All registered students at the University, except those registered in off-campus courses, are eligible for outpatient care at the Student Health Clinic. There are charges for laboratory procedures. X-rays, accident examinations, minor surgery, and some special procedures. All students are advised to have health and accident insurance. A University-sponsored group insurance is available for students in individual or family plans.

High School-College Relations
Administered as a part of the Office of Admissions, the High School-College Relations office implements all scheduled relationships with secondary schools and institutions of higher education.

Intercollegiate Athletics for Men
The University is a member of the Western Intercollegiate Conference of Faculty Representatives (Big Ten), and has athletic programs in football, basketball, track and field, baseball, swimming, golf, wrestling, tennis, cross-country, and gymnastics. Operating policies are determined by the Board of Control of Athletics, which is composed of twelve members from the University's teaching and administrative staff, two University alumni, one representative of the University Staff Council, and two students.

Intercollegiate Athletics for Women
The University also sponsors nationally competitive intercollegiate athletic varsity teams for women in basketball, cross country, field hockey, golf, gymnastics, softball, swimming and diving, tennis, track and field, and volleyball. All ten varsity teams compete for championship sponsored by the Western Intercollegiate Conference of Faculty.
Intramural Sports and Recreational Activities

Through the University’s Division of Recreational Services, all interested students have opportunities to participate in more than 20 different intramural sports and recreational activities. (See “Recreational Services” in the “General Services” section of the Catalog.)

International Education and Services

The Office of International Education and Services (OIES) provides services and facilities and organizes extramural programs for both foreign and domestic students and faculty. The OIES maintains a library on opportunities for study, work, and travel in other countries, including information about foreign universities and study-abroad programs open to UI students. The OIES helps students to find study-abroad programs to complement their co-curricular education and to assure that students receive the correct credit. Students can also obtain information and applications for the Fulbright, Marshall, and Tugdalen awards at the OIES.

Foreign student advisers in the OIES provide information, counseling, and services in the areas of orientation, immigration regulations, financial aid, and liaison with foreign governments and sponsoring agencies. Advisers help with problems and questions in most areas essential to the lives of international students, including the planning and enrollment of support educational programs, such as the Host Family Program, the Conversational English Program, and lunch-time discussions to foster constructive interaction between international students and their domestic counterparts.

The OIES operates the Iowa International Center, on the second floor of the Jefferson Building, where students, staff, and community members hold meetings, seminars, and social activities with an international focus.

Iowa Memorial Union

The Iowa Memorial Union is the hub of student life. Its facilities include the Campus Information Center, the University Box Office and one-stop cashiering service, the Office of Campus Programs and Student Activities; a coffeehouse with live entertainment; the Bijou Film; a variety of food service; a recreation area with bowling, billiards, and electronic games; an arts and crafts resource center; a bookstore; rooms for lectures, concerts, meetings, and social events; art and sculpture display areas; and, in the adjoining Iowa House, 113 guest rooms for parents, family, conference participants, and other visitors to the campus. Also housed in the Union are the Student Activities Center and student organization offices, University Counseling Service, University Careers Office, the Office of Cooperative Education, the Center for Conferences and Inventions, a co-op center, and a barber shop.

Orientation Services

With the aid of representative student, faculty, and staff personnel, Orientation Services designs and conducts a wide variety of year-round programs to help new freshmen, transfer students, and graduate students with their transition to University life. Orientation is intended not only to assist new students with schedule building, academic advising, and registration procedures, but also to acquaint them with the educational facilities, student services, and other available sources of help. In addition, Orientation’s programming is designed to introduce new students to the social, cultural, and academic opportunities to familiarize them with the physical layout of the campus, and to make them feel at home in the University community.

Reading Lab

The Reading Lab of the Rhetoric Program provides a way to individualized and class instruction for any University student who wishes to improve their college-level reading performance. Students are helped to specify what reading problems they have; teachers adapt practical materials and methods to help remedy those problems. Students may work on improving study skills, including library use, note-taking abilities, command of vocabulary, critical reading, and speed and comprehension reading.

The Reading Lab offers one service course. Optional Reading Lab, which meets twice a week for 12 weeks. Students may attend more or less often if they wish, and may enroll at any time during that time if they feel they need reading help. The lab service course carries no credit and does not assign any grade. Ordinarily, there are no outside assignments. Developmental reading work is restricted to lab hours, and makes extensive use of lab materials and the students’ own texts in other courses. The lab also offers: 10:28 rhetoric, a one-semester, two-credit course for students who need exceptional help preparing for college-level reading and 8p-20 Advanced Reading Comprehension, 8p-30 Speed Reading, and 8p-40 Practical College Vocabulary independent five-week modular courses for one semester hour of credit each.

Registrar

The Office of the Registrar determines the residence status of each student, issues University identification cards, supervises registration procedures, assesses fees, and maintains all student academic records; issues official transcripts and verification; assists students in obtaining graduation requirements, processing applications for degrees, and interpreting college and University academic regulations; provides assistance to students concerning Selective Service and military service matters; and helps student veterans with University application and enrollment procedures, and receipt of Veterans Administration benefits.

Services for Handicapped

The University of Iowa is committed to making its facilities, services, and programs fully accessible to people with disabilities. The Office of Student Services for the Handicapped (OSH) provides services to students with both visible and non-visible disabilities. All programs and services that disabilities are accommodated, including hearing and speech impairments, learning disabilities, mobility restriction, visual impairments, and others. The goal of OSH is to help students with disabilities enjoy the same rights and assume the same responsibilities as all students. OSH works closely with University faculty and staff to ensure that students receive the maximum benefits from their experiences at The University of Iowa. Assistance is provided in the areas of admission, orientation, academic and career planning, academic support services, financial aid, housing, transportation and parking, and student affairs. OSH helps students on an individual basis to locate the type of assistance appropriate to their needs, whether security tutors or personal attendants or finding tape recorders or emergency toaster wheelchairs. OSH works closely with Recreational Services to provide activities ranging from picnics to bowling and basketball. Workshops on numerous topics such as career exploration and social skills are also offered by OSH.
Special Support Services

The Office of Special Support Services (SSS) was established to make it possible for more students from economically and educationally disadvantaged or culturally different backgrounds to receive a higher education at The University of Iowa. Special Support Services provides academic, financial, and personal assistance programs.

Special Support Services is made up of the following subprograms: The Upward Bound Project; the Undergraduate Educational Opportunities Program; New Dimensions in Learning; The Educational Opportunities Professional and Graduate Programs; the Afro-American Cultural Center; and the Chicano-Native American Cultural Center.

Speech and Hearing Clinic

The University of Iowa Speech and Hearing Clinic provides services for speech, language, and hearing problems. Any University student may receive most services without charge. Services include diagnostic examinations, consultations, individual clinic sessions, small group sessions, and referrals to other clinics as needed.

Sponsored Programs

The Division of Sponsored Programs maintains a resource center which contains information on federal and nonfederal sources of funding for study and research projects by faculty and graduate students. Graduate students may inquire about funds for advanced study, either in the United States or abroad.

The division also publishes Research and Graduate News, a section in a weekly newsletter called FYI which contains program and deadline information and carries a special section devoted to sources of funds for graduate study and research. The newsletter is available at departmental offices; further inquiries about graduate opportunities are welcome at the resource center.

Transcripts

Students who have completed work at The University of Iowa may obtain an official transcript of that work upon request to the Office of the Registrar. Fees are $3 for the first copy, $1 for each additional copy on the same order. An official transcript cannot be issued for a student who has a past due University account.

Veterans Services

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

Women’s Resource and Action Center

The Women’s Resource and Action Center (WRAC) provides services to meet educational, cultural, social, and personal needs of university and community women. The WRAC provides a resource for many women’s organizations; sponsors a Brown Bag Luncheon program; offers evening and weekend workshops, lectures, films, and classes; provides a wide variety of support groups for women; offers women one-to-one problem solving sessions; and publishes a newsletter nine times a year. The WRAC houses the Sojourner Truth Women’s Resource Library of books and periodicals on a wide range of women’s topics, and maintains an extensive information and referral service. For those individuals dealing with sexual discrimination and sexual harassment, WRAC acts as an advocate and provides emotional and informational support. The WRAC’s Rape Victim Advocacy program provides a 24-hour crisis line for victims of rape, attempted rape, sexual assault, and incest. WRAC also maintains information and speakers bureau.

Writing Lab

The Writing Lab provides individualized writing experiences for any University student who feels inadequately prepared for college writing. Lab students discuss their work in personal conferences with teachers who offer comments and suggestions to help them become perceptive, critical readers of their own writing as they learn how to develop their ideas clearly and concisely. Students may enroll for no-credit work in the Lab throughout the semester; or register for the credit course (10:9 Rhetoric) before or after taking a required rhetoric course, or transfer to 10:3 Rhetoric from another rhetoric course after discussing their writing problems with their rhetoric teacher and the director of the Writing Lab.
Fair Housing Policy
The following is the University’s statement on fair housing practices: “It is
and shall be the firm policy of the University that householders shall rent to
all students on the basis of their individual merits as persons, without
discrimination on the basis of race, creed, color, or national origin.”
Iowa City has a fair housing ordinance providing for equal opportunity to secure
housing without distinction due to race, color, national origin, or ancestry, except in certain
instances involving owner-operator dwelling units. A Human Relations
Commission is responsible for the observance of this ordinance and for the
imposition of penalties for violations of it.

University Residence Halls
Residence hall programs, policies, procedures, and employment practices
are consistent with the University human rights policies, the State Board of
Regents nondiscrimination policy, and, where appropriate, with the State of
Iowa civil rights and federal regulations on equality of opportunity and affirmative
action.
University residence hall furnishings, facilities, and services are designed to
provide a pleasant atmosphere conducive to effective study.
Single, double, triple, and quadruple
rooms with full or semi-board are
available in the Central Avenue Residence Halls (west side of the campus), which
include Hillcrest, Quadrangle, Westfawn, South Quadrangle, Renow, and Slater
halls, and in the Clinton Street Residence Halls (east side of the campus), which
include Burge, Carver, Deum, Mayflower, and Stanley halls. There are lounges,
study areas, game rooms, coin laundry facilities, and small stores in or available
to each residence hall. Computer terminals, reference materials, browsing
libraries, and private rooms for group study sessions are available in three
monitored learning centers.
Each residence hall is divided into small
living units. Each hall has a student
resident assistant in each living unit. All
students are encouraged to participate in
campus housing government to plan
programs and discuss issues.
Student- and staff-sponsored programs and activities provide opportunities to pursue
social, recreational, cultural, and educational interests. Several courses are
taught in residence halls. Academic
advising centers and tutorial sessions are also available.
Students not living in residence halls may
purchase full or partial meal contracts.

Applications and Assignments
With their admission, application forms, prospective undergraduate
students receive separate forms on which to apply for residence hall accommodations. A
student applying for residence hall accommodations should read the terms
and conditions of the contract, provide all information requested on the application
form, sign the contract portion, and return the completed application/contract
with a check for $50 to the University Housing Assignment Office, Burge Hall.
Students who will not receive a room assignment until they have been admitted to
the University. However, students may apply for housing at the same time they
apply for University admission.
Roommate assignment is made without regard to race, color, national origin,
or religion.
The residence hall application/contract
and $50 advance payment constitute a
contract offer. An application may be withdrawn by notifying the University
Housing Assignment Office in writing before the application becomes a binding
contract. It becomes binding approximately ten days after the
University Housing Assignment Office
issues notice of the acceptance of the contract and assignment of
accommodations.
Upon written request, the $50 advance
payment will be refunded to applicants
who are not admitted to the University,
and to those who cancel their residence
hall contracts in accordance with the
terms and conditions set forth in the
contract.

Rates
Basic rates for University residence hall accommodations for the 1985-86
academic year are $1,976 for a double room and $1,114 for a triple, with full
board. Rates for the several serviced room and board options vary according
to the accommodations, but all rates are subject to change annually.
Family Housing

There are 799 University-operated apartments available to married students or legally defined family units in the HawkEye Drive, HawkEye Court, HawkEye Park, and Pilkshawn complexes. Rents for 1983-84 range from $132.25 to $135.75 per month for one-bedroom units and from $157.58 to $201.09 for two-bedroom units, not including gas, electricity, and telephone. All units are unfurnished. Rates are subject to change annually.

Family housing is assigned in the order applications are received. Assignments are contingent on the student's meeting all University admission requirements. Applications may be filed before completion of admission, but will not be accepted more than a year in advance.

Off-Campus Housing

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

Fraternities

Nineteen undergraduate and six professional fraternities operate chapter houses at Iowa. Houses accommodate 35 to 45 men.

Undergraduate fraternities are Arsacia, Alpha Epsilon Pi, Beta Theta Pi, Delta Chi, Delta Tau Delta, Delta Upsilon, Kappa Sigma, Lambda Chi Alpha, Phi Delta Theta, Phi Gamma Delta, Phi Kappa Psi, Phi Kappa Sigma, Pi Kappa Alpha, Sigma Alpha Epsilon, Sigma Chi, Sigma Nu, Sigma Sigma Epsilon, Sigma Pi, and Tau Kappa Epsilon.

Professional fraternities operating chapter houses are Alpha Chi Sigma (chemistry), Alpha Kappa Kappa (pharmacy), Phi Beta Pi (medicine), Pi Rho Sigma (medicine) and Psi Omega (dentistry).

Sororities

The 15 national sororities with active chapter houses at Iowa are Alpha Chi Omega, Alpha Delta Pi, Alpha Phi, Alpha Xi Delta, Chi Omega, Delta Delta Delta, Delta Gamma, Delta Zeta, Gamma Phi Beta, Kappa Alpha Theta, Kappa Kappa Gamma, Pi Phi, Sigma Delta Tau, Sigma Kappa, and Zeta Tau Alpha.
Financial Aid

All financial assistance available to University of Iowa students from general University sources is administered by the University's Office of Student Financial Aid. Students may receive aid in the form of scholarships, grants, loans, and/or part-time job placement. Students receiving financial aid must maintain satisfactory academic progress as determined by the Office of Student Financial Aid.

Except for merit awards based solely on achievement, all assistance administered by the Office of Student Financial Aid is awarded on the basis of demonstrated need.

Application Procedures

To be considered for aid, the student must complete all University admission application procedures, must be accepted for admission to the University, and must submit a family financial statement through the College Scholarship Service (Box 380, Berkeley, CA 94701) or ACT Financial Aid Services (Box 1000, Iowa City, IA 52243), requesting that a copy of the statement be sent to the University. When it receives a copy of the statement, the Office of Student Financial Aid supplies the applicant with instructions and forms for applying for aid at the University.

Except for a few designated aid programs requiring special applications, the student need submit only one application each year to be considered for all forms of assistance administered by the Office of Student Financial Aid.

The application priority deadline is March 1.

The Presidential Scholars' Program

The University annually awards $1,500 Presidential Scholarships, renewable for a maximum of four years of University enrollment, to 15 Iowa high school students in recognition of their outstanding academic achievements. Fifty Blair's Scholarships, also merit based, will be awarded. These will be $500 freshman-year non-renewable scholarships.

The Iowa Center for the Arts Scholarship

The Iowa Center for Arts Scholarship is awarded primarily on the basis of artistic performance. Each department (Art, Dance, Drama, and Music) awards one scholarship to an entering freshman. The Scholarship is the highest award that the Center offers to entering freshmen. A maximum of four $1,500 freshman-year non-renewable awards of $750 per semester will be awarded. Each department sets its own eligibility and selection criteria and there is no Iowa residency requirement.

The University of Iowa Minority Achievement Scholarship Program

The University of Iowa Minority Achievement Scholarship Program recognizes and encourages promising minority students who have demonstrated academic excellence in high school. Ten four-year scholarships for $1,500 per year are awarded.

National Merit Scholarships

The University sponsors a number of National Merit Scholarships for entering freshmen who have participated successfully in the National Merit Scholarship competition. Based on financial need, these awards range from $250 to $2,000 per year and are renewable for a four-year period.

Freshman Honor Scholarships

Entering freshmen who qualify for participation in the University's Honors Program by achieving a composite ACT score of 28 or above are recognized as Freshman Honor Scholars and receive $100 Freshman Honor Awards.

Transfer Honor Scholarships

Iowa community college students transferring to the University with a 3.0 grade-point average or above qualify for $100 Honor Scholarships.
General Scholarships
To qualify for general scholarship assistance, an entering freshman must apply for financial assistance, show a need for assistance, and either achieve an ACT composite score of 26 or above or rank in the upper 10 percent of his or her high school class. An undergraduate or transfer student must have at least a 3.0 cumulative grade-point average to qualify for an invite scholarship award, and must maintain at least a 3.0 average to continue the scholarship.

LaVerne Noyes Scholarships
Noyes Scholarships, covering basic fees in the colleges of Business Administration, Liberal Arts, Nursing and Pharmacy, are available to United States citizens directly descended from army or navy veterans of World War I. Awards are based on need and scholastic achievement. Special application forms are available from the Office of Student Financial Aid.

Pell Grants
Undergraduate students applying for University financial aid must also apply for entitlement to federal Pell Grant assistance. The United States Department of Education determines eligibility for a Pell Grant award. The maximum award is $1,500 per academic year, minus the amount of the applicant's completed family contribution. The student may use his or her CSS or ACT financial statements to apply for Pell Grant eligibility, or may obtain an application for Federal Student Aid from any high school or from any college or university financial aid office.

Supplemental Educational Opportunity Grants (SEOG)
The SEOG program provides federal aid to students with exceptional need. The maximum grant is $500 per academic year. There are no specific academic requirements for an SEOG award, but the applicant must show academic or creative promise and must be enrolled at least half-time. No special application is required.

National Direct Student Loans (NDSL)
The NDSL program is the University's largest source of long-term student loans. Undergraduates may borrow up to $800 a year and $6,000 overall. Graduate students may borrow up to $800 a year and $12,000 overall. NDSL assistance is available to students who are citizens or permanent residents of the United States and who are enrolled at least half-time. Six months after the recipient ceases to be at least a half-time student.

Guaranteed Student Loans
Under the Iowa Guaranteed Student Loan Program, undergraduate students may borrow up to $2,500 a year. Graduate students up to $5,000 a year. The student negotiates the loan directly with a commercial bank, credit union, savings and loan association or other eligible lending institution. The student repays, at 7.6 percent interest, when he or she ceases to be at least a half-time student.

Health Professions and Nursing Student Loans
These programs assist United States citizens and nationals studying full-time to be doctors of medicine or dentistry, or studying full-time toward degrees in pharmacy or nursing. Amounts available depend on federal funding. Loan recipients may re-pay any payments previously made to the University Student Loan Accounting Office when they graduate or terminate full-time registration. The interest rate is 9 percent on the Health Professions Loans and 5 percent on the Nursing Student Loans.

Part-Time Jobs
More than half the students attending the University have part-time jobs. Most of the students who have part-time jobs secure them through the Office of Student Financial Aid. The most numerous opportunities for part-time work are in University food service, hospitals, and libraries. Hours range from 10 to 20 per week. For beginning students, the recommended maximum is 12 hours per week.

College Work-Study
The federal College Work-Study Program provides part-time work through the Office of Student Financial Aid. The program provides opportunities for students with part-time jobs in University food service, hospitals, and libraries. Hours range from 10 to 20 per week. For beginning students, the recommended maximum is 12 hours per week.

Other Sources of Aid
For information about departmental financial aid, students should inquire at the offices of the academic programs in which they are interested.

The resource room of the University's Division of Sponsored Programs has information on special aid available from such non-university sources as foundations and professional associations. Most of this aid is available for graduate study, but some is available to undergraduate students.

Information about financial assistance for educationally, economically, and/or culturally disadvantaged students is available from the University's Department of Special Support Services.

Information about financial assistance for physically handicapped students is available from the University's Office of Services for the Handicapped.

Information about financial assistance for veterans of United States military service is available from the University's Office of Veterans Services.

Information about Social Security educational benefits for children of persons retired, disabled, or deceased is available at all Social Security offices.

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

An itemized list of the University's financial aid programs is available from the Office of Student Financial Aid.
The University of Iowa Health Center

The University of Iowa plays a major role in the preparation of health professionals for Iowa and the nation. In its Health Center, the University has concentrated academic programs, clinical facilities, and service programs on the health care needs of the community and the State. The University of Iowa Health Center is thus simultaneously a center of learning and service. It is one of the most advanced, comprehensive health science centers in the United States. It serves as the training ground for many of the nation's most distinguished medical professionals, many of whom come to the Iowa campus to complete their residence training. The University's comprehensive health services are described in this publication. All programs, faculties, and courses of the colleges of Dentistry, Medicine, Nursing, and Pharmacy are described elsewhere in this Catalog. Other academic units and related programs are described below.

The University of Iowa Hospitals and Clinics

Dean and associate dean to the president for statewide health service: John H. Collins
Deputy director: Gilmore H. Terzaghi
Special assistant to the director: Douglas H. Williamson

Senior administrative directors: David E. Wood, John H. Smith
Assistant directors: Mary A. Beck,, Cora E. Eidinow

Appointments to the director: William H. Harrell, Gary G. Levis, Ann M. Rogers

Clinical service head: John H. Tindall, Anesthesiology: Dr. Donald B. Olson, Dentistry: Dr. John B. Simms, Dermatology, Dr. Robert E. Evans, Family Practice, Dr. Frances Almeda, Internal Medicine, Dr. Maurice F. Van Allen, Neurology, Dr. Roy A. Pinsky, Obstetrics and Gynecology, Dr. Charles G. Phillips, Orthopaedics, Dr. Raymond Cooper, Orthopedics, Dr. Brian McCartney, Otolaryngology and Head and Neck Surgery, Dr. Richard G. Lynch, Ophthalmology, Dr. Fred Roth, Pediatrics, Dr. George Weiskopf, Psychiatry, Dr. Edward A. Fagan, Radiology, Dr. Robert Conn, Surgery, Dr. David A. Cup, Urology

Largest university-owned teaching hospital in the nation, The University of Iowa Hospitals and Clinics provide the clinical base of graduate and undergraduate studies for thousands of students in the health sciences, including medicine, dentistry, nursing, pharmacy, hospital administration, physical therapy, occupational therapy, pastoral studies, and social work. University Hospitals and Clinics sponsor residency programs in which 775 physicians, dentists, and pharmacists gain advanced clinical knowledge and skills in the health care specialties to which they have chosen to pursue.

There are 1,228 beds in the hospital complex, accommodating more than 4,000 admissions annually. In addition, 1,300 detail clinics accommodate another 350,000 ambulatory patients each year. Nearly 10,000 major surgical procedures are performed annually in the hospital's 20 major operating rooms. Approximately 5,000 infants are delivered every year.

Highly specialized health services—for example, the burn unit, heart catheterization facilities, nuclear magnetic resonance, neonatal intensive care unit—are easily accessible to lowans who reside in communities without such resources. The hospitals' transportation fleet of 15 vehicles travels nearly two million passenger-miles each year, transporting 10,600 lowans. The Air Care Emergency Helicopter Service carries specially trained medical and nursing teams to the most critically ill and injured, and to transport them to the hospital for treatment. Many lowans owe their lives to this service alone.

More than 8,600 hospital staff members are involved each day in providing professional and support services needed to care for approximately 2,700 patients. The hospital's clinical staff includes more than 425 faculty physicians and dentists. The hospital's house staff numbers over 500 resident and fellow physicians and dentists. The hospital's Department of Nursing is staffed by more than 1,200 professional nurses.

Other hospital staff members annually provide about 172,000 X-ray examinations and treatments, conduct more than 3.4 million laboratory tests, fill more than 1,5 million prescription orders, render more than 70,000 physical therapy treatments, and prepare nearly 38,600 blood and component transfusions.

Recent modernization provided new intensive care, cardiology, comatose care, and urology units. A seven-story, $15 million Boyd Tower addition went into service in 1978, providing expanded and replacement facilities for a variety of
inpatient and outpatient services. The $48 million Roy J. Carver Pavilion, named in honor of a $2 million gift from the late Muscatine oil-and-steel magnate, provides facilities for a multi-specialty training and emergency treatment center, physical therapy department, orthopaedics, urology, and neurology inpatient, clinic, and outpatient care. Following are the inpatient medical medicine inpatient units, cardiology and psychiatry clinics, and laboratories of the Department of Pathology.

The $35 million first phase of the John W. Colabro Pavilion, named for the hospital's current director—opened in 1961 to consolidate the services of the Department of Pediatrics Iowa Children's Health Care Center and provide facilities for the Department of Surgery. A second phase of the Colabro Pavilion, scheduled for completion in 1985, will house a new burn center, digestive diseases center, cardiac care center, and units for neurosurgery patients.

University Hospitals and Clinics collaborate in conducting accredited health professional education programs in dentistry, radiologic technology, medical technology, nuclear medicine technology, hospital pharmacy, physical therapy, physician assistant, and optometry technology, and provide supervised clinical settings for Kenyon College College programs in nursing education, orthopaedic physician's assistants, operating room technology, and respiratory therapy. Of the programs cited above, those concerned with education in the hospitals and the colleges of Medicine and Nursing are described in the appropriate college sections of the catalog.

Professional Programs

1. Radiology Technology Program

Two-year program. Exits in different paths including radiologic technology, technologist, medical technologist, technologist, clinic, nuclear medicine technologist, radiologic technologist, radiologic technologist, and respiratory technologist. Exits in different paths.

2. Speech Pathology and Audiology Program

Three-year program. Provides an education in speech and language pathology.

3. Health Sciences Library

The Health Sciences Library serves the combined information and research needs of the colleges of Dentistry, Medicine, Nursing, and Pharmacy, the graduate program in Hospital and Health Administration, and the Department of Speech Pathology and Audiology. The largest of the departments in the university library system, the Health Sciences Library contains more than 185,000 volumes and receives more than 2,850 periodicals. In addition to providing ample space for these collections, the interior allows for enough reading and study space to accommodate approximately 1,100 people. Special features of the library range from computerized access to the latest health sciences literature, via MEDLINE and other data bases, to the rare books (some dating back to the sixteenth century) in the John Martin Rare Book Room.
Regional Child Health Specialty Clinics

The Regional Child Health Specialty Clinics (CHSC) is an organization which administers several state-wide health services for children. Among these are the Genetic Consultation Service, Coronary Heart Disease Prevention Program, Cystic Fibrosis Program, Childhood Cancer Diagnostic and Treatment Program, Rural Cohortive Care Program for Hemiplegic Patients, Statewide Perinatal Care Program, Inker Newborn Screening Program, Community Child Health Center Program, and a program of Regional Mobile Health Clinics.

At Regional Mobile Health Clinics conducted in communities throughout the state, and at University of Iowa Clinics, Regional Child Health Specialty Clinics provides Iowa residents under age 18 with diagnosis and evaluation services in pediatrics, orthopediatrics, otolaryngology, speech pathology, audiology, and clinical and educational psychology. CHSC helps communities sponsor child health centers in which a number of new health programs are conducted. CHSC administers demonstration services on special health problems related to handicaps such as muscular dystrophy, mental retardation, phenylketonuria, and subsidies a University of Iowa graduate training program in audiology and speech pathology.

University Hospital School

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

The interdisciplinary team approach provides services involving the fields of medicine, dentistry, nursing, nutrition, speech and audiology, physical and occupational therapy, activity area, music therapy, psychology, social work, special education, prevocational and vocational activities.

Outpatient services provide comprehensive evaluations and follow-up of infants, children, and young adults who have problems and/or disabilities that affect their development. Programs of education and therapy are planned in conjunction with the patient, when appropriate, and with the parents, and community-based service providers. The outpatient services include a number of special clinics (Child Development Clinic, Meningomyelocele Clinic, Genetic and Metabolic Disorders Clinic, Infant and Young Child Clinic, Weight Management Clinic, Child and Young Adult Clinic) in which specially trained staff address specific problems.

Infants, children and young adults may be admitted to the inpatient unit as a result of recommendations from one of the outpatient services. Short term admissions are for relatively specific goals that can best be accomplished on an inpatient basis. The staff coordinates educational services with the school system in order to maintain continuity of services while the children are in this unit.

Training activities include pre- and in-service lectures, workshops, practitioners and seminars for a variety of care providers working in other facilities or community programs. These activities take place in the University and community settings.

Close cooperation exists with the state Developmental Disabilities Council and other state agencies in providing training and technical assistance to their programs.

The laboratories of the Division of Genetics and Biochemistry of the Department of Pediatrics are also housed in the University Hospital School and are utilized extensively in its research, training and service programs.

University Speech, Language, and Hearing Clinic

Located in the Wendell Johnson Speech and Hearing Center, the clinic provides out-clinic evaluation and consultation for individuals with speech, language, and/or hearing problems. Day-clinic rehabilitation and rehabilitation for patients who come to the clinic for such services, a summer residential program for children with speech, language-learning, hearing, and/or reading problems, and training for students in speech pathology and audiology.

Iowa City Veterans Administration Medical Center

Medical students and residents receive their clinical training in the 327-bed hospital. University of Iowa Health Center facilities there include laboratories for the transplantation program, highly specialized laboratories in nuclear medicine, and special units for the study of malnutrition and gastrointestinal diseases. The Veterans Administration Medical Center, which is closely affiliated with all four science colleges, offers unique training opportunities in clinical pharmacology, gastroenterology, cardiology, nephrology, and applied immunology.
Research Activities

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

The University holds that the term "research" applies to creativity in all fields: imaginative originality, whether in the fine arts or in the sciences, is a common characteristic and significance in the overall intellectual life of the institution.

The Office of the Vice-President for Educational Development and Research maintains an overview of the many individual research commitments of the institution and actively promotes, in a variety of ways, the research mission of the University and the educational development efforts of the faculty. This office has an intrinsically relationship with the Graduate College because of the all-University character of the College and the close connection between the graduate programs and research and creative activity.

The University Research Council assists the vice-president for educational development and research in a regular advisory capacity. The Council consists of ten faculty members with widely recognized personal involvements in basic research or creative activity, one representative of the University staff, and two students. 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 such matters as the establishment of general policies with respect to the University's research and creative efforts, the review of policies and procedures concerned with securing and allocating funds for support of research and creative activity, and additional matters related to the general research and creative functions of the University and the health of basic scholarship on the campus.

Programs

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

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 wish to do health-related research. To qualify, the faculty member must hold a full-time appointment as instructor or assistant professor. The funds may be used for any purpose which will assist the faculty member in carrying out an initial exploration of a hypothesis which he or she believes may lead to the development of a full-fledged program of research.

Incidental Grants

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

Services

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

Central Research Facilities

To maintain state-of-the-art resources for key research activities within the University, selected facilities are identified for centrally supported development. Such facilities are available to all interested graduate students and faculty, and currently include:

Electron Probe Microanalysis (EPMA) Facility

The EPMA Facility possesses instrumentation for the chemical microanalysis of solid specimens and/or bulk analysis of solid, liquid, or powdered specimens. Primary instrumentation includes an extensively updated Applied Research Laboratories EMX-SM electron probe X-ray analyzer with three crystal spectrometers, a SII(J) solid state
**RESEARCH ACTIVITIES**

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detection system, an automation system and a digital beam control system. The electron beam may be scanned by analog or digital control and image modes are available for backscattered electrons, secondary electrons, sample current, transmitted electrons and characterized X-rays. Automated image analysis is possible for the detection and chemical characterization of small objects (1-10 micrometers) in the scanned image, incorporated within this instrumentation is an energy dispersive X-ray fluorescence system which permits the rapid qualitative or quantitative analysis of bulk specimens to ppm levels.

Located in the Dental Science Building, the EMPA Facility is available to all faculty, staff, and students in their research programs. Experienced scientists frequently perform their own analyses, but arrangements may be made to have samples analyzed by the faculty staff. Training sessions are provided for inexperienced investigators and demonstrations of equipment capabilities are performed on request.

**Electron Microscopy (EM) Facility**

The Electron Microscopy Facility provides instrumentation and technical assistance to research programs involving the use of scanning and transmission electron microscopy as well as X-ray microanalysis. Equipment includes a JOEL JSM 5400 scanning electron microscope and a Jeol JEM 200 CXII transmission electron microscope, a Hitachi H-600 transmission electron microscope, a Zeiss SUPRA 55 scanning electron microscope and a Jeol JEM-2010 transmission electron microscope, a Balzers 3800 ESEM Quanta Charge-Free Etch apparatus, an automatic tissue processor, glass knife makers, diamond knives, ultramicrotomes (including a Reichert Ultracut E cryo-microtome), a Zeiss digital image analysis system, vacuum deposition systems, cryo-drying apparatus, light microscopes, electron microscopes, and a fully equipped photographic darkroom.

The facility also provides all solutions and reagents necessary for the various conditions involving ultramicrotomy including specialized staining and embedding techniques, negative staining, metal-coating, autoradiography, epoxy-embedding, cytochemistry, metachromasy, sample preparation for SEM and freeze fracture, the preparation of material science samples for both TEM and SEM, and other procedures. A modern library containing texts and reviews of various applications of TEM and SEM is also provided.

The facility is intended to serve both the experienced and novice investigator and to provide training for those who need it. Alternatively, all or parts of a project can be handled in a contract basis. All instrumentation is available on a first-come, first-served basis. The laboratory is located in the Lower Science Building of the College of Medicine.

**Flow Cytometry Facility**

The Flow Cytometry Facility provides facilities, technical personnel, and consultation services to investigators studying diverse problems in cell biology, immunology, endocrinology, pathology, and cell kinetics. It is equipped with an advanced fluorescence-activated cell sorter (Beckton-Dickinson FACAL) which is practiced to perform cell and peripheral blood and bone marrow analysis to follow cell growth populations. Up to four parameters can be concurrently evaluated per cell. A variety of cellular macromolecules can be thus quantified. Detectable parameters include two spectral regions of fluorescence, narrow and wide angle light scattering, and fluorescence polarization analysis. Cell sorter and the FACAL System are used for precise and rapid analysis of the cell population to yield viable cells for subsequent experimental use. The facility provides all needed support equipment for staining cells with fluorochromes, tissue culture, and fluorescence and phase microscopy. It is housed in the Medical Laboratories of the College of Medicine. Educational tours are conducted on request.

**Laser Facility**

The Laser Facility consists of a wide variety of modern laser instrumentation. In particular, state-of-the-art CW Argon ion and Krypton ion microscopes, tunable dye lasers, and a Tunable YAG Laser System throughout the visible and near infrared portion of the spectrum. Each CW Laser is routinely operating under mode with a bandwidth over one thousandth of a nanometer. This instrument can potentially be used as a spectroscopic laboratory which occupies the entire first floor of the southern wing of the Chemistry-Botany Building. It includes a mechanically and thermally stable 40-foot-long table designed for bench work with a variety of work stations for users.

**High Field Nuclear Magnetic Resonance (NMR) Facility**

A recently acquired spectrometer Bruker WM-360 spectrometer forms the basis for the High Field NMR Facility. The persistent magnet operates at 8.4 tesla, and a frequency of 360 MHz is utilized for proton operation. Very high spectral resolution and sensitivity can be achieved for study of complex nucleic acid solution. Multinuclear, variable temperature, and selective pulse experiments are possible. Both high disc ana filmy disc provides for data storage. Either digital or standard X-Y plotting is available. Motion NMR spectra are recorded in 5-mm sample tubes, carbon-13 spectra are obtained from 5 mm or 10 mm tubes, and heteronuclear spectra are observed from 10 mm tubes. Simultaneous proton and thioether-19 decoupling of carbon-13 spectra is possible. The facility and instrumentation data are recorded by a computer, whereas access and maintenance are automated by a computer program monitoring the frequent user after an appropriate training period. The facility is located in the northwest ground floor area of the Chemistry-Botany Building.

**Computing Center**

The Gerard P. Weeg Computing Center provides research and service facilities, computing facilities to all students, faculty, and staff of the University. Located in the Lindquist Center, the Weeg Center facilities are accessible through the many terminals, both batch and interactive, conveniently distributed around the campus. The Center maintains systems capable of an extremely wide variety of applications, and provides network connections with on-campus facilities. Supported applications software covers such diverse areas as statistical and numerical analysis, financial modeling, text editing and formatting, graphics, and data base management. In addition to terminals and general-purpose computing systems, the Weeg Center has facilities for producing manuscript-quality printed and graphic output. The Center provides users with non-colt educational services and computer programs. Specialized consultation is available on a fee-for-service basis. The Center supports, data base, and interactive computing facilities and a detailed information on computing facilities and services. The Center is located in the Lindquist Center.

**Video Center**

The University Video Center provides research and service facilities, including those necessary to sustain and produce video equipment. The Center provides a wide variety of production and educational needs both for the University and other local organizations, and coordinates video equipment purchases and support. The Center provides reasonably priced video services for the University and other organizations. The Center provides a wide variety of services for video equipment standardization.

**Sponsored Programs**

The Division of Sponsored Programs is a source of information on public and private agencies that provide funds for research and study, including pre- and post-doctoral fellowships. Staff members are available to locate potential funding agencies and assist in the preparation of budget and cover material, and give
RESEARCH ACTIVITIES

editorial assistance to achieve effective organization and technical correctness in an application. The staff also assists in processing an application through the University and in Liu, making immediate contact in the prospective donor's office. After an award is made, it provides monitoring and advisory services for maintenance other than expenditure accounting.

University House

University House began in 1977 as a program dedicated to three separate but related impacts. These were: to provide editorial assistance to achieve effective organization and technical correctness in an application. The staff also assists in processing an application through the University and in making immediate contact in the prospective donor's office. After an award is made, it provides monitoring and advisory services for maintenance other than expenditure accounting.

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Center for Educational Experiments, Development, and Evaluation

See "College of Education" section of the Catalog.

Center for Materials Research

Contact the Department of Biomedical Engineering in the College of Engineering for information.

Center for Rehabilitation Engineering

Contact the Department of Biomedical Engineering in the College of Engineering for information.

Center for the Study of Recent History of the United States

Contact the Department of History in the College of Liberal Arts for information.

Clinical Research Center

See "College of Medicine" section of the Catalog.

Comparative Legislative Research Center

See "Political Science" in the "College of Liberal Arts" section of the Catalog.

Copper Center: Diabetes and Endocrinology

See the "College of Medicine" section of the Catalog.

Iowa Center for Communication Study

See "Journalism" in the "College of Liberal Arts" section of the Catalog.

Iowa Urban Community Research Center

See "Sociology" in the "College of Liberal Arts" section of the Catalog.

Statistical Consulting Center

See "Statistics" in the "College of Liberal Arts" section of the Catalog.

Toxicology Center

See "College of Medicine" section of the Catalog.

Laboratories

See "College of Medicine" section of the Catalog.

Lake County Laboratory

See "Iowa Lakeside Laboratory" in the "College of Liberal Arts" and "Continuing Education" sections of the Catalog.

Laboratory for Political Research

See "Political Science" in the "College of Liberal Arts" section of the Catalog.

Radiation Research Laboratory

See "Radiation Research Laboratory" in the "College of Medicine" section of the Catalog.

Social Science Data Archive

See "Political Science" in the "College of Liberal Arts" section of the Catalog.
Clinics
Child Development Clinic
Contact the Department of Pediatrics in the College of Medicine for information.

Others
Collaborative Studies of Affective Disorders
Contact the Department of Psychiatry in the College of Medicine for information.

Iowa Pesticide Hazard Assessment Program
See the "College of Medicine" section of the Catalog.

Iowa Psychiatric Epidemiology Research Unit
Contact the Department of Psychiatry in the College of Medicine for information.

Social Science Data Archive
See "Political Science" in the "College of Liberal Arts" section of the Catalog.
The Iowa Center for the Arts

Located along the west bank of the Iowa River on the University of Iowa campus, the Iowa Center for the Arts is a major cultural resource not only for the University community, but for the people of the state and region. The center houses a University dream of many generations: to bring the arts together in a single-campus setting, near the geographical heart of the University.

The physical center comprises many of the academic units in the Division of Fine Arts in the College of Liberal Arts, together with the Museum of Art, H.C. Mabee Theatre, and Capp Recital Hall, Harper Hall, The Opera Studio, and Voxman Hall in the School of Music; and Hancher Auditorium, the center's largest showcase.

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

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

School of Art and Art History

The University of Iowa School of Art and Art History has been a pioneering force in art in America for more than half a century. The original art building dates from 1936. Major additions were made in 1968-69, greatly extending classroom and studio spaces and providing a new wing for sculpture.

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

The school's Corborose Gallery, located in South Hall (the old Music Building), features exhibitions of new and experimental work, and also serves as the University of Iowa by major visiting artists. The gallery presents lectures and performances which emphasize new concepts and directions in contemporary art.

Museum of Art

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

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

In response to this challenge, more than 2,000 individuals and business firms contributed toward the museum's construction cost. The museum opened in 1969 and quickly earned recognition as one of the nation's finest university museums.

A gift from industrialist Roy Carver of Muscatine made possible the construction of a major addition opened in 1978. With the Carver wing, the museum has 48,000 square feet of exhibition space in 16 galleries, plus the behind-the-scenes work areas essential to support the activities of a major museum.

Each year thousands of visitors, including schoolchildren of all ages, visit the museum to see displays of the permanent collections and traveling exhibitions. The permanent collection of more than 5,000 works of art include the Elliott Collection, nineteenth- and twentieth-century sculpture, drawings, photography, contemporary ceramics, and pre-Columbian art.

One of the most prized collections is the Stankey Collection of African Sculpture, a gift of Max and Betty Stankey of Muscatine. The addition of this collection gives the museum one of the leading university-based African art collections in the country.

The Print Study Room houses more than 2,000 prints representing major artists. The Lasansky Room houses a collection of prints and drawings created by printmaker Mauricio Lasansky,longtime professor of art at the University. Many Lasansky prints are gifts of Webster and Gloria Geiman of Iowa City.

Museum special events include slide lectures by visiting artists, scholars, and collectors. Musi in the Museum, a Sunday afternoon concert series; and art study trips to other cities and countries. Museum docents lead groups on guided tours of the museum's exhibitions.

Catalogs of many exhibitions are
available for purchase. Friends of the Museum of Art, a private support group, sponsors receptions, open houses, and an active Print and Drawing Study Club.

University Theatres

The University Theatre Building houses the division of the Visual Arts in the Department of Communication and Theatrical Arts, as it is the home of E.C. Malhe Theatre, the traditional setting for many major University productions each year. Malhe Theatre seats 477. A major addition to The University Theatre Building completion date, 1985) will consolidate at production facilities in one location.

The addition is completed, thereby additional theatre spaces in other parts of the campus will greatly extend the range of University Theatre productions.

Old Armour Theatre in a flexible space that seats an audience of 200.

MacLean 301 Theatre is used for original works by students in The Iowa Playwrights Workshop. 

Studio II in the Old Armour is used for student-produced works, often as an extension of course requirements.

The Playwrights Workshop, one of the three distinguished writing workshops in the Department of English, is a joint venture with the Department of Communication and Theatre Arts.

School of Music

Opened in 1971-72, the new unit of the School of Music was designed specifically for the Iowa State University's broad curricular lead from remedial rooms to two rows of pianos on stage to the stage of the University Auditorium.

In a given year, faculty artists and the many stringed ensembles of the school present about 105 major concerts, plus an additional 210 to 230 student vocal and instrumental recitals.

Clapp Recital Hall, with its hand-crafted Casavant tracker organ, seats 720 for public concerts. The 200-seat Harper Hall is open to the university and public for recitals and lectures. The school's largest ensemble, the University Chorale, comprises the Iowa State Choral Society and the Iowa State Concert Choir. The Opera Studio, operated in 1983, is the scene for smaller productions of the Opera Theater.

The school has produced opera since '58. Like other major theater presentations, opera is interdepartmental in its opportunities for educational and performance excellence, utilizing the latest in the production sources of the Iowa Center for the Arts, particularly dance.

The School of Music is in the vanguard of innovation in the arts, creating and performing works in new forms. Its Center for New Music, funded originally by the Rockefeller Foundation, is a laboratory and extension of the composition studio. Faculty and student members of the Center for New Music are a repertoire ensemble for the performance of new music.

Electronic music studios provide a wide range of technical capacity for creative audio-musical forms. In Video/ Laser III, the school has the most advanced laser shadow system of any university, utilizing laser beams in brilliant colors to produce visual analogues to sound. Outstanding recording facilities link the various professional spaces of the School of Music/hanncher Auditorium with the recording studio, in the School of Music.

Hancher Auditorium

Hancher Auditorium, which opened in 1972, is a regional cultural resource of the first magnitude. It seats an audience of 2,684. In its first season alone, the auditorium hosted audiences totaling nearly 2 million people. The auditorium is fully accessible to the handicapped and provides wheelchair seating. Hancher also has installed a hearing augmentation system wherein it is available free of charge to patrons with hearing impairment.

In addition to performances by the various units of the Iowa Center for the Arts, each year leading artists from throughout the world appear on the Hancher stage—moments, performing, artists in the chamber music, ensembles, theater and dance companies, major symphony orchestras, and ethnic companies from other nations and cultures. Students of the University have priority in the purchase of tickets at reduced prices. Non-student patrons regularly attend auditorium events from all over the world in and western Illinois.

The auditorium has become a Midwest showcase, a home for January, ribs of e, r, r, h, and, in the Midwest concert scene, the only one of its kind in the area. It is much more than a showcase, however. It also houses a splendid educational program, designed as an extension of the classroom and laboratory facilities of the University Center of the Arts.

For students of the various theater arts, the auditorium has spacious scene construction and costume shops, a costume collection of nearly 500 sets of costumes, early scene construction and costume shops, nearly 50 sets of scenery for stage shows, and a sophisticated lighting and control system. For music students, Hancher is an on-the-premises concert hall.

The stage itself is an in-town on rehaubratic reed. Its proscenium is 70 feet wide, 30 feet deep, with an extended stage, the stage area is 10 feet long, 50 feet deep, and eight stories high. Mobile units of a concert shall be quickly installed on stage for various concert requirements.

Theater Auditorium reflects another dimension in the University's educational and cultural services to its students and to the people of the region. The theater is an active advocate of arts in the region. For example, Hancher is the primary sponsor of the annual Iowa Dance Residencies Program, which brings important dance companies for extended residency performances, including workshops and performances in communities throughout the region.

Arts Center Outreach

Cultural projects and programs which utilize the talents of faculty or student artists and other resources of the Iowa Center for the Arts are available to Iowa communities through the Arts Outreach Program. Designed to reach new audiences and to serve special community needs, centers, or communities through the arts, the Outreach Program is intended to share the University's cultural resources as widely as possible throughout the state.

Consistent with the University's resources, arts outreach projects are tailored to local needs and interests, In addition to programming throughout the state, the Arts Center Outreach office schedules in-school Conferences, workshops, and educational projects.

Dance

The University of Iowa Dance Program is devoted to the dance division of the Department of Communication and Theatre Arts. Dance faculty and students appear in their own productions during the year and participate with other units of the Iowa Center for the Arts in interdepartmental projects and programs. The Dance Program is assisted by the frequent campus visits of professional dancers, choreographers, and leading dance companies of this and other countries. The professional visiting choreographer series includes dance performances and lecture demonstrations and classes. The Dance Program is the home of the U.S.- China Dance Exchange Program, which brings Chinese dance companies to the U.S. and sends American dancers to China to share cultural resources.

Broadcasting and Film

The Television Center and the studios of radio station KXIL-KXII are key classrooms and laboratories for students in the broadcasting and film division of the Department of Communication and Theatre Arts. The entire community serves as the "on-location" laboratory for students in this division.
The Writing Programs

A longtime program of special distinction in the Department of English, the writers workshops encompass fiction, poetry, translation, and playwriting. The workshops provide opportunities for talented writers to work and learn with established poets, novelists, and playwrights.

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

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

Windhover Press

The skills of making books by hand—utilizing handmade paper, hand-wrought illustrations, hand-set type, hand-operated presses, and hand-binding—may be learned in the workshop of the Windhover Press in the School of Letters.

The Windhover Press is one of the nation’s small company of distinguished hand presses. Its limited editions are frequently cited for their excellence by the American Institute of Graphic Arts, whose prestigious competitions include all of the major publishers in the country.
General Services

Children's Reading Clinic

The Children's Reading Clinic in The University of Iowa College of Education trains classroom teachers, supervisors and consultants, school psychologists and counselors to assess the reading abilities of school-age children and to recommend and use instructional materials which are suited to their needs and interests.

During the academic year the clinic teaching program includes practicums in Iowa City schools and on-campus diagnosis and treatment activities conducted within the James B. Street Educational Services Center. During the summer the Clinic is in the Wendell Johnson Speech and Hearing Clinic, where the staff provides reading instruction for children who attend the Summer Residential Program for therapy in speech, hearing, and reading. Student clinicians do all Children's Reading Clinic teaching under the close supervision of clinic staff members.

International Education and Services

The Office of International Education and Services (OIES) is the focal point for University international education activities. It provides administrative support in the areas of international studies, international educational exchange, and technical assistance.

The OIES seeks to promote development of and cooperation among the various aspects of international studies—foreign language and area studies, comparative and topical studies, and foreign language programs. It also assists faculty and students seeking grants or fellowships for study or research that has an international perspective.

The OIES seeks to encourage the development of formal links between University of Iowa departments and programs and their counterparts in foreign institutions by means of technical cooperation and faculty exchange programs.

The liaison officer for the Midwest Universities Consortium for International Activities (MUCIA) is located in the OIES and serves to involve University of Iowa faculty in MUCIA activities.

Foreign student advisors in the OIES provide assistance to foreign students, faculty members, and professionals on immigration and other matters relating to international educational exchange. They also encourage the development of educational and cultural activities.

The OIES maintains a library of areas for study, work, and travel in other countries, including some information about foreign universities and organized study-abroad programs open to UI students. The office assists students in selecting study-abroad programs to complement their on-campus academic programs. It also provides information and applications for the Fulbright, Marshall, and Toymouth award.

The Iowa International Center, a facility operated by the OIES, is open to all University and Iowa City community members who have international interests. Facilities and programs are designed to encourage interaction between people of all cultures. Additional OIES activities involving students are described in the section on "Student Services" in the Catalog.

Museum of Natural History

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

To meet the needs of the general public and the various natural science departments of the University, the Museum of Natural History provides a repository and the proper care for specimens which come to the University either by gift or through the efforts of its own collectors. These collections are representative of the disciplines of biology, geology, and anthropology, now total in excess of one million specimens and are actively used for research and teaching by University faculty and students as well as for public exhibition.

The Museum of Natural History, a department in the College of Liberal Arts, also supports the oldest museum studies program in the U.S. With courses offered continuously since 1910, instruction is provided in the history, philosophy, and management of museums as well as exhibition design and techniques.

Museum habitats exhibit habitats of North American mammals include the bison, antelope, mountain lion, moose, and beaver.

The Layden Island ecosystem is a large and well-known bird habitat.
Compromising a complete representation of a tiny island of the Hawaiian group. Other natural exhibits include the Bering Sea, Louisiana Swamp, Fall Migration, and Cranes on the South Dakota Prairie. The crane exhibit includes both the sandhill crane and the whooping crane as they appear on the prairie during migration.

The major invertebrate phyla are represented in several exhibits and include such familiar groups as insects and crustaceans, snails and clams, sea stars, and others. Ethnological exhibits in the museum present artifacts from many parts of the world, including such materials as beadwork and carved ivory received in the late nineteenth century, are exhibited. The ancestry of humans through 12 million years of time is portrayed in a display featuring replicas of fossil remains from Africa, Asia, and Europe.

Scheduled for completion in early 1985, the museum's new 5,000-square-foot Hawaii Hall gallery illustrates the natural heritage of Hawaii—its geology, native culture, and ecology—in a series of 60 exhibits linked by color, theme, and time. Exhibit highlights of Hawaii Hall include the Marquette-Diirich diorama, Devonian reef, Maesquache ledge, and a life-sized reconstruction of an Ice Age gound-swell slush.

Old Capitol
Old Capitol is the on-campus landmark of the University, the Department of the Territory of Iowa from 1842 until 1849 and the capital of the State of Iowa from 1846 until 1857, when the government moved to Des Moines and gave the "old" capitol to the University as its first permanent building.

Various University offices and departments have been located in Old Capitol through the years, and it housed the office of the University president continuously from 1860 to 1970, when the president's office was relocated to make way for the restoration of Old Capitol as a historic site.

Most of the rooms were restored to the 1940s and 1950s. Those restored to the 1920s, to represent the University years, Old Capitol was reopened in 1976 as a "living museum." Guided tours are conducted daily without charge.

Public Information and University Relations

The Office of Public Information and University Relations is charged to promote understanding of, participation in, and support of the University's mission and activities both within the University and in the community.

The University of Iowa Press

The University of Iowa Press was established in 1926 to publish significant results of original scholarly research and significant creative work in the arts. The imprint is controlled by the University Editorial Advisory Board, composed of faculty members and students appointed by the vice-president for educational development and research.

Recreational Services

The Division of Recreational Services administers a program of more than 20 intramural sports and recreational activities for all registered University students. Offers a wide range of intramural and special programs in such activities as martial arts, tennis, golf, volleyball, racquetball, and gymnastics, and provides informal activities for students, faculty and staff members, and their spouses and families. Activities include basketball, badminton, volleyball, tennis, swimming, handball, paddleball, racquetball, squash, racquetball, golf, archery, weight training, frisbees, tennis, frisbee, and jogging. The Division's Touch the Earth Outdoor Program includes such activities as rafting, sailboarding, jumping, bicycle trips, backpacking, fishing, cross-country skiing, wildlife research, winter camping, kayaking, canoeing, and horseback riding. Bicycles, camping equipment, and backpacks, and cross-country ski equipment are also available for a minimal rental fee.

The University of Iowa Alumni Association

The principal agency through which the University of Iowa Alumni joins its identity with the University, the University of Iowa Alumni Association. The association was established in 1908 and its current membership includes University graduates and all current and former student and the University, to implement programs of service to alumni, to strengthen public recognition of the University as an institution vital to the stability and growth of the state and the nation, and, through organized alumni efforts, to serve the University in strengthening its programs in teaching, research, and public service. The Association publishes the Iowa Alumni Magazine for association members.

The University of Iowa Foundation

The University of Iowa was organized in 1908 to help the University obtain the greatest possible educational benefit from private giving. It raises funds for this objective through three major programs: annual giving, capital campaigns, and planned or deferred giving.
The foundation is a private, nonprofit corporation empowered to solicit and receive gifts and bequests to accept trusts subject to the conditions imposed on them; to hold, administer, manage, use, or dispose of gifts, bequests, and trusts; all for the benefit of The University of Iowa. The foundation is constantly at work to provide more funds for student financial aid, faculty development, research, library acquisitions, and programs and projects throughout the University.

University Personnel Service

The University Personnel Service is responsible for meeting the employment needs of individuals and departments for the entire University complex. The office functions in the areas of recruitment, interviewing, screening, testing, placement, and salary and fringe benefit administration for full-time and part-time, permanent and temporary, nonreaching and nonstudent employees of the University. The University Personnel Office is responsible for the administration of the Board of Regents Merit System and faculty and staff benefits programs. It also participates in certain aspects of the academic personnel program, and in payroll record keeping and collecting personnel record cards for both faculty and staff employees.
The University's Main Library and its 12 departmental libraries, plus the Law Library, contain approximately 2,500,000 volumes. About two-thirds of this collection is in the Main Library.

The Art Library contains approximately 63,000 volumes; Botany-Chemistry, 69,000; Business Administration, 22,000; Engineering, 81,000; Geology, 35,000; Health Sciences, 185,000; Library Science, 11,000; Mathematics, 34,000; Music, 62,000; Physics, 36,000; Psychology, 41,000; and Zoology, 39,000.

The Law Library, which is administered by the College of Law, contains 370,000 volumes.

Special Resources

Main Library facilities include microform reading rooms, listening rooms for collections of recorded drama, poetry, and speeches; seminar and conference rooms; a map center; carrels for graduate students; and individual study rooms for faculty members engaged in research.

The Human Relations Area Files consist of full data on a sample of societies throughout the world, and are designed to facilitate comparative studies of social and cultural behavior.

The Leigh Hunt Collection, brought together by Luther and Lillian Brower of Center Rapids, Iowa, is considered one of the most complete in existence. It contains nearly 2,000 manuscripts and manuscript letters written by Hunt or to him by many of his famous literary friends, 150 association volumes, and 600 editions of Hunt's writings.

The Mark Reilly Memorial Collection of approximately 3,700 volumes is particularly rich in deluxe editions, including many superb bindings made especially for Mrs. Reilly.

The French Revolution Collection includes more than 8,000 political pamphlets, chiefly from the years 1788-1795, supplemented by numerous French newspapers and government publications of the time.

The John Springer Collection on typography, given to the University by a long-time lowe City printer, includes 1,850 volumes of type specimens books important in printing history, and volumes illustrating the art and progress of printing through the centuries.

The "Ding" Darling Collection comprises originals of nearly six-thousand cartoons in which, for more than 45 years, Ding recorded and commented on the economic, political, and social affairs of the United States. His cartoons are virtually a pictorial history of this country during the first half of the twentieth century. An exhibit based on the collection enhances its usefulness for research and reference.

The Newinger-Lincoln Collection, gathered by Judge James W. Newinger of Davenport, is one of the best libraries of Lincolniana in the United States. A number of items in it concern John Wilkes Booth and the trial of his fellow conspirators. Another large group contains reminiscences of people who knew Lincoln. Broadside relating to Iowa and the Civil War period have been added.

The "X" Collection is a gathering of early rare, or special works on diverse subjects, including books of the fifteenth and sixteenth centuries, early American, Roxburghe Club Publications, private press books, and selected modern first editions.

The Manuscript Collection includes more than 10,000 individually cataloged sets or manuscript items of English and American authors or historical figures, principally of the nineteenth and twentieth centuries, in addition to more than 430 incunabular collections of scripts, manuscrits, and correspondence files relating to midwestern economic, political, and agricultural history.

Other special collections include the Harveyingham Collection of books about American Indians; the Levi C. Leonard Collection of manuscripts and documents dealing with building the Union Pacific Railroad; the Edwin Ford Piper Collection of ballads and folk songs; the Chauteauc Collection, which contains several thousand letters and business documents descriptive of the Chauteauc movement; the Buxton Collection of poetry, prose, biographical sketch books, manuscripts, and letters relating to the contemporary British poets Edmund Blundell; the Iowa Authors Collection; the Map Collection, containing more than 190,000 maps and indexed detailed maps and nearly 3,000 atlases, gazetteers, and related reference items; and the University Archives.

The John Martin Rare Book Room in the Health Sciences Library houses a collection of approximately 2,000 books on the history of medicine, including a number of incunabula. The nucleus of the collection, which is especially strong in the areas of anatomy and surgery, was
donated to the University Libraries by Dr. John Martin, a neurosurgeon from Clarinda, Iowa.
People have many reasons for going to college. Some have specific careers in mind, while others are looking for guidance in seeking careers. Most expect that college will help prepare them for a wide variety of employment, social, and personal developments in their lives.

A liberal arts education is intended to ready students for effective performance in many situations over the course of their lives after graduation. It includes both preparation in specialties and a broad exposure to other areas of learning. Through the wide study of literature and language, mathematics, the physicist, biological, and social sciences, and the arts, students may gain a general understanding of the many types of situations and people they will meet after leaving college. Although this education often includes sound preparation for specific jobs, it also nourishes career flexibility by giving students broad bases for responding to changing employment opportunities. As a result, the danger that a graduate may become "locked" into a single, unsatisfactory job is reduced.

The kinds of flexibility and adaptability mentioned here are built upon an understanding of other cultures and languages, the social and political institutions in American society, communication behavior, and the philosophical and biological world about us. A liberal arts education includes something called a "general education" because students receive sound preparation for the opportunities and problems they will encounter throughout their lives. This approach to education ensures that, because we cannot now foresee all of these opportunities and problems, students are better prepared for the future if they have learned and developed abilities, awareness, sensibilities, and knowledge which will help them generate responses to unexpected events.

The College of Liberal Arts attempts to provide this versatility by its combination of major and, where appropriate, minor and general educational requirements.

College Organization

The internal organization of the College of Liberal Arts reflects its multifaceted character. The college is composed of units of various ranks: divisions, schools, departments, programs, and nond部artmental units. There are two divisions in the college. The Division of Fine Arts embraces the School of Art and Art History, the School of Music, and the Department of Communication and Theatre Arts. The Division of Mathematical Sciences includes the Departments of Computer Science, Mathematics, and Statistics and Actuarial Science. Within the college there are seven schools. In addition to the School of Art and Art History and the School of Music, there are schools of Journalism and Mass Communication, Lifetiles, Library and Information Science, Religion, and Social Work. Over forty formally organized departmental and programs provide instruction in the college arts offer minors leading to one or more degrees, minors, or certification in a particular field.

The College of Liberal Arts is closely linked with the professional colleges of the University. Some departments in other colleges offer degrees and minors in Liberal Arts; similarly, other colleges may award minors for work done in Liberal Arts. For example, students admitted to the Teacher Education Program of the College of Education are degree candidates in the College of Liberal Arts. The College of Liberal Arts also provides instruction for undergraduates enrolled in the Colleges of Business Administration, Engineering, Nursing, and Pharmacy.

Degrees, minors, and certificates awarded by the college, as well as available programs, are described in full under separate entries in the Catalog.

Liberal Arts Advisory Office

The Liberal Arts Advisory Office, located in 116 Schaeffer Hall, functions as an integral part of the Office of the Dean of the College of Liberal Arts.

Every undergraduate student enrolled in the college has an academic advisor to help the student with registration and the progressive development of the educational program that will best prepare the student to pursue his or her life goals. Academic advisors are assigned by the Liberal Arts Advisory Office. Students who have declared majors are assigned advisors from their major departments. Students who have not declared majors are assigned advisors from the Undergraduate Academic Advising Center. Students in preprofessional programs may be assigned to special advisors from the appropriate professional areas.

Students should go to the Liberal Arts Advisory Office to change academic advisors, to declare or change majors, and to obtain information and advice about graduation requirements, the
Degrees Offered and Areas of Concentration

Students graduating from the College of Liberal Arts may earn Bachelor of Arts (B.A.), Bachelor of Science (B.S.), Bachelor of Fine Arts (B.F.A.), Bachelor of Music (B.M.), Bachelor of General Studies (B.G.S.), and Bachelor of Liberal Studies (B.L.S.) degrees.

**Major Fields**

The college confers degrees in the following major fields:

- American Studies—B.A.
- Ancient Civilization—B.A.
- Anthropology—B.A.
- Art—B.A., B.F.A.
- Asian Languages and Literature—B.A.
- Asian Studies—B.A.
- Astronomy—B.A., B.S.
- Biochemistry—B.A., B.S.
- Biology—B.A., B.S.
- Botany—B.A., B.S.
- Chemistry—B.A., B.S.
- Classics—B.A.
- Communication and Theatre Arts—B.A.
- Comparative Literature—B.A.
- Computer Science—B.A., B.S.
- Dance—B.A.
- Dental Hygiene—B.S.
- Early Childhood Education—B.A., B.S.
- Economics—B.A., B.S.
- Elementary Education—B.A., B.S.
- English—B.A.
- French—B.A.
- Geography—B.A., B.S.
- Geology—B.A., B.S.
- German—B.A.
- Greek—B.A.
- Health Occupations Education—B.S.
- History—B.A.
- Home Economics—B.A., B.S.
- Italian—B.A.
- Journalism and Mass Communication—B.A., B.S.
- Latin—B.A.
- Linguistics—B.A.
- Literature, Science, and the Arts—B.A.
- Mathematical Sciences—B.A., B.S.
- Microbiology—B.S.
- Music—B.A., B.M.
- Philosophy—B.A.
- Physical Education—B.A., B.S.
- Physics—B.A., B.S.
- Political Science—B.A., B.S.
- Portuguese—B.A.
- Psychology—B.A., B.S.
- Recreation Education—B.S.
- Religion—B.A.
- Russian—B.A.
- Science Education—B.A., B.S.
- Social Studies—B.A.
- Social Work—B.A.
- Sociology—B.A., B.S.
- Spanish—B.A.
- Special Education—B.A., B.S.
- Speech and Hearing Science—B.A., B.S.
- Statistics and Actuarial Science—B.A., B.S.
- Zoology—B.S.

The B.G.S. and B.L.S. degrees are awarded with no major designations.

**Majors in Education and the Teacher Education Programs**

Students may declare a major in one of the fields of education at the time of admission or change their majors to one of these fields at any time after enrolling. In order to be allowed to enroll in the baccalaureate (major) courses in education, the student must be admitted to the Teacher Education Program (TEP). To be accepted into the TEP, a student must have attained second-year standing (28 semester hours) and must have earned a total cumulative grade-point average of at least 2.3. Transfer students may be admitted to the TEP upon admission to the University. In order to remain in the TEP, a student must maintain a 2.3 total cumulative grade-point average. Application forms for admission to the TEP must be obtained from the Liberal Arts Advisory Office. Students admitted will be notified in writing. For more information, see the College of Education section in the Catalog.

**Double Majors**

Students may meet the major requirements in more than one department, and, if the departments award the same degree, the student may earn a single bachelor's degree with two or more concentrations. For example, a B.A. in history and English or a B.S. in psychology and sociology. Double majors cannot be earned unless both departments or programs are in the College of Liberal Arts. For further information, see "Areas of Concentration or Major" under Requirements for Graduation.

**Honors Interdisciplinary Major**

Honors students may pursue an individually planned major in an area of study which draws upon courses from two or more departments, as approved by the honors' advisor. Honors in the departments concerned and the director of honors. The major must consist of at least 36 semester hours of credit, including six or more semester hours of departmental honors registration, and lead to the degree "with interdepartmental honors." The program of studies must be submitted for approval not later than the junior year.

**Minors**

Students graduating from the College of Liberal Arts 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. The minor may relate directly to the student's major, or, in other cases, may allow a student to follow an entirely different and separate interest from the major. Students should seek help from their major advisors in planning minor programs.

**Requirements**

A minimum of 15 semester hours must be taken in the minor area. At least 12 of the 15 semester hours must be taken in upper-level courses acceptable to the academic unit granting the minor. Students should check with the minor department to identify acceptable courses. No course accepted toward the minor may be taken pass/nonpass.

A student must have at least a 2.0 grade-point average in all work attempted in the minor department.

Students must inform the Office of the Registrar of their desire to have a minor listed on their transcript at the time of enrolling for a degree. The application-for-degree form reads the signature of the major advisor. Students who have already earned a bachelor's degree from The University of Iowa and have not entered a graduate or professional program may complete the requirements for a minor and apply to the registrar to
have a notation regarding the minor placed on the permanent record.

Restrictions
The degree-granting programs in early childhood education, elementary education, health occupations education, industrial education, and dental hygiene do not offer minors. Students in the Baccalaureate General Studies program who are Bachelor of Liberal Studies program are not eligible to earn minors, since these are Programs without majors. Students who earn bachelor's degrees in interdisciplinary programs—such as ancient civilization, biology, or literature, science, and the arts—may not earn minors in areas falling within the major degree field.

Additional Comments
Some programs in the college that do not offer undergraduate degrees have been permitted by the Educational Policy Committee to offer minors. Information about program approval is available in departmental offices. For further information about the minor program in the College of Liberal Arts, contact the Liberal Arts Advisory Office.

Minor in Business Administration
Students in the College of Liberal Arts may seek a minor in business administration. Requirements include pre-business as well as business courses. The courses listed below satisfy all requirements. Interested students should complete or register for the first seven of these courses before applying for admission to the business minor program.

Computer programming course 3 s.h.
Course in mathematics 3 s.h. (numbered 227 or higher)
Core courses (two courses of 3 s.h. each) 6 s.h.
Core courses (two courses of 225 or 225H) 6 s.h.

Business Administration

Minor in Business Administration

The following interdisciplinary programs and their requirements are fully described among the academic programs presented later in the Catalog.

Interdisciplinary Programs

The following interdisciplinary programs and their requirements are fully described among the academic programs presented later in the Catalog.

Afro-American Studies
The Afro-American Studies Program focuses on the study of people of African ancestry in the North American colonies and the United States of America from the seventeenth century to the present. To provide a comprehensive view of that subject, the program also offers courses examining the African heritage and the present relationships of African-Americans to African in other lands. Because a thorough understanding of Afro-American culture cannot be achieved through a study restricted to the perspective of a single discipline, all students in the program are required to pursue courses in both the humanities and social sciences.

The program was founded in 1989 in courses intended to foster awareness of the role Afro-Americans have taken in the development of the United States, and to promote understanding of the present concerns and concerns of Black Americans. Since then, these courses have been organized around a curriculum that includes a program leading to an undergraduate minor in Afro-American studies, a Master of Arts degree in Afro-American studies, and concentrations in Afro-American studies in programs leading to a B.A., M.A., or Ph.D. in American Studies.

Aging Studies
Aging Studies is a multidisciplinary program administered by the College of Liberal Arts in cooperation with other colleges of The University of Iowa. The program is designed to complement an undergraduate degree program. It consists of courses in aging studies which have been coordinated and sequenced to provide a planned program of study for students with academic, professional, research, or service career interests in aging. The program offers a unique opportunity for students of varying disciplines to gain more background and develop some expertise in the field. The completion of the program leads to an undergraduate minor in Aging Studies.

Global Studies
The Global Studies Program is a cross-disciplinary study of issues of major world problems. The purpose of the program is to give students an opportunity to examine the interactions of problems and their interrelationships, and to focus on one set of problems for more detailed analysis. The four problem areas are war, peace, and security; development; environmental concerns and global resources; and cross-cultural understanding. Students completing the requirements of the program will receive a Certificate of Global Studies. The program provides a Certificate of Global Studies at the time it receive their bachelor's degree.
institutionalizing that knowledge within the university community. The term "women's studies" does not connote segregated education for women but emphasizes teaching and research about women which is of intrinsic interest to all students. This new academic dimension in education forms a cumulative pattern of learning about women and their roles. The new course options and course supplementary areas of study in the existing curriculum, raises provocative intellectual questions, and widens the quest for truth about the human condition. The program offers an undergraduate minor in Women's Studies.

Foreign Studies Certificate

The college's Foreign Studies Certificate program is designed for undergraduate students who seek to broaden their knowledge of societies other than their own. The program is a supplement to and not a substitute for a major. The chairs of the various language department serve as advisors to students in planning the certificate. After selecting an area or country of interest, students wishing to earn the certificate will be guided by the appropriate chair(s) in choosing a group of courses designed to provide a basic understanding of the area or country. Courses may include work in geography, history, anthropology, art, literature, political science, or other fields offering international studies.

Proof of language proficiency will include at least 15 semester hours in courses at the University of Iowa or in the area or country. In addition, students will fulfill the foreign language requirement for the B.A. in a language appropriate to the chosen area or country. A student who successfully completes a Foreign Studies Certificate program designed by the appropriate department and receives the Foreign Studies Certificate with his or her degree.

Interested students should consult the chair of the appropriate department:

Asian Languages and Literature (India, China, Japan, Korea, Vietnam)

Classics (Ancient Greece or Rome)

French and Italian (France or Italy)

German (Germany and Austria)

Russian (Russia or Eastern Europe)

Swedish and Portuguese (Spain, Portugal, or Latin America)

Specializations within Degree Programs

Almost every degree-granting unit in the college offers internal specializations. Some of these are formal divisions or options within departments. For example, broadcasting is offered in the Department of Communication and Theatre Arts, actuarial science is offered in the Division of Mathematical Sciences, and fashion merchandising and dietetics are offered in the Department of Home Economics. The School of Art and Art History and the School of Music have many different tracks leading to a bachelor's degree. Some have studio emphasis, art history emphasis, feel art education, music education, music therapy, composition/theory, major, and applied music.

Other specializations can be developed with combinations of courses taken from several areas—for example, a specialization in public relations and advertising with courses taken in the Department of Communication and Theatre Arts, the Program in Communication Oliviers, and the School of Journalism and Mass Communication; photography and graphic design, with courses taken in the School of Art and Art History and the School of Journalism and Mass Communication; or a specialization in management with courses taken in the various social science departments.

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

Preprofessional (Joint) Programs

Joint programs leading toward graduation from the College of Liberal Arts may be used by students who wish to enter an accredited medical or dental college in the United States that offers advanced degrees. To be eligible to use a joint program with the above colleges toward a bachelor's degree from The University of Iowa, students must meet certain requirements. Prior to attending the pre-professional college, a student must have at least 94 semester hours; fulfilled all general education requirements; met the requirements for the major; and satisfied the residence requirement of the college. After the student successfully completes the first year of medical or dental school, the College of Liberal Arts will, upon presentation of a transcript, award a student 30 semester hours of ungraded elective credit that may be applied toward a degree; however, no more than 30 semester hours earned in the professional college after the student transfers from the College of Liberal Arts may be counted as electives toward a degree in the College of Liberal Arts.

To use a joint program with an accredited U.S. medical or dental college other than the University of Iowa, a student, during his or her last semester in residence at the University, should apply to the appropriate medical or dental college for permission to use this joint degree program. If the student meets the requirements listed above and will be attending an accredited medical or dental school, the registrar will instruct the student how to proceed toward applying for a bachelor's degree from The University of Iowa.

Combined Degree Program Between The College of Liberal Arts and the College of Engineering

Students may earn two University of Iowa baccalaureate degrees in a combined curriculum program in the Colleges of Engineering and Liberal Arts. To enter the program, a student must be eligible for admission to the College for Engineering but may begin the program in either the College of Liberal Arts or the College of Engineering. Students who enter this program will be advised by the assistant to the dean of the College of Engineering and an associate dean of the College of Liberal Arts. Students interested in the combined degree program should declare their interest by contacting a representative of the Office of the Dean in either the College of Engineering or the College of Liberal Arts. A plan of study must be developed and approved by the advisors from both colleges. It is critical to enroll in the proper mathematics and engineering courses during the freshman and sophomore year to minimize the time required to complete the combined degree program. The student in the combined program can normally meet the baccalaureate degree requirements of both colleges in about five academic years. However, the exact length of time to complete the combined degree program will be determined by the major areas of study selected in Liberal Arts and Engineering.

Students selecting this program will be required to complete the general education requirements, the requirements for the major, and the residence requirements required by both the College of Liberal Arts. The specific engineering courses taken by the student will vary according to the engineering specialty selected. Since the courses in science, mathematics, and the humanities are regularly accepted for credit by both colleges, most students need to complete only the courses that will satisfy the requirements for two colleges in the taking of a particular course.

Two or More Bachelor's Degrees

Students seeking an additional different bachelor's degree must complete at least 30 additional consecutive hours of study in residence in the college beyond the first degree. Numbers of the B.A. and B.S. degrees will be considered to have satisfied all college requirements for graduation except the foreign language
requirement. Holders of other degrees must meet college course requirements. Students with B.A. or B.S. degrees from other colleges must also satisfy the residence requirement for a bachelor's degree at Iowa.


Total Earned Hours

Students who enter as beginning freshmen must work a total of 124 semester hours, of which a number required of a transfer student is indicated on the student's admission statement.

Residence

Students must meet a minimum residency requirement. This may be met by:

- The final 30 consecutive semester hours in residence, or
- 45 of the last 60 semester hours in residence, or
- An overall total of 90 semester hours in residence.

Nonresident Instruction includes course work at other colleges and universities, correspondence courses at The University of Iowa, and all work by correspondence, including University of Iowa correspondence courses.

Scholarship

The general requirements for graduation include the element of quality as well as quantity of work completed.

1. A student satisfies the college qualitative requirements for graduation by earning a minimum grade-point average of 2.0 (C) in (a) all college work attempted, (b) all work undertaken at The University of Iowa, and (c) all work attempted in the major field (including 2.0 in all University of Iowa major work).

2. A student who does not meet the requirements above but who does have (a) a cumulative grade-point average of at least 1.50 in all college work attempted and in all work undertaken at The University of Iowa, and (b) a 2.0 in the major may satisfy the requirement by earning sufficient grade-point average equal or exceed a figure obtained by multiplying by two the number of semester hours required for graduation at the time of entrance. This rule (the 1.50 rule for graduation) does not apply to students who enroll at Iowa for the first time after May 1982 or who have not graduated by May 1988. Those students must have a 2.0 grade-point average—see (1) above—in order to graduate and be in good standing as a senior.

General Education Requirements

All students who registered for the first time at Iowa for any session after May 1982 must complete the following general education requirements for the degrees of B.A., B.S., B.F.A., and B.M. as described below.

Rhetoric

Mathematics

Quantitative or formal reasoning

Foreign language

Physical education

Natural sciences

Social sciences

Humanities

Historical perspectives

Foreign civilization and culture

Rhetoric

All students must register for their assigned rhetoric course at their first registration and continue to enroll in rhetoric courses until the requirement is completed. Once enrolled in a rhetoric course a student may not drop the course. No more than eight semester hours of credit earned in rhetoric courses may be counted toward a bachelor's degree.

All transfer students regardless of the number of hours brought in must satisfy the rhetoric requirement.

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

- By passing 10:1 and 10:2 Rhetoric for eight semester hours.
- By passing 10:3 Rhetoric for four semester hours.
- By passing the speech test and 10:4 Rhetoric for two semester hours.
- By passing the writing test and 36C:25 Principles of Speech Communication for two semester hours, or
- By passing both the speech and writing tests.

Proficiency tests in writing and speaking are given during the first week of classes for students who register for 10:3 Rhetoric. Exemption from part or all of the requirement may be awarded on the basis of these tests. (Academic credit will not be given.)

Mathematics

The college requirement in mathematics may be met in any of the following ways:

- By scoring 26 or above on the mathematics subscore of the ACT general test battery.
- By completing two years of high school algebra and one year of high school geometry or their equivalent.
- By successfully passing the Mathematics Proficiency Test. (The passing score will be equivalent to a score of 26 or above on the mathematics subscore of the ACT general test battery or the mathematical proficiency expected of those who have two years of high school algebra and one year of high school geometry.) Scores from this test may also be used to recommend placement of students in elementary college mathematics courses. (Academic credit will not be given for passing the proficiency test.)
- By passing 22M:1 Basic Mathematical Techniques, a three-semester hour course.
- By completing any college-level mathematics course comparable to or more advanced than 22M:1 in the Division of Mathematical Sciences; or
- By transfer students will be considered as having met the requirement if they have passed any college-level course in mathematical sciences at other schools which is comparable to the courses used for this purpose at Iowa. (Acceptance of the course will be based on an evaluation of its content and level of difficulty.)

This requirement should be met by the end of the student's first year in residence. It may be completed in semester hours at The University of Iowa.

Quantitative or Formal Reasoning

The requirement may be satisfied:

By completing any one of the courses listed below,

- By passing a more advanced course which has one of the listed courses as a prerequisite.

7P:25 Elementary Statistics and

7P:26 Quantitative Methods I

22M:10 Fundamentals of College Mathematics I

22M:11 Fundamentals of College Mathematics II

22M:15 Mathematics for the Biological Sciences

22M:16 Mathematics for the Biological Sciences

22M:20 Elementary Functions

22M:25 Calculus I

22M:30 Elementary Calculus I

22S:2 Statistics and Society

22S:8 Quantitative Methods III

22S:25 Elementary Statistics and

Interpretation

26:36 Principles of Reasoning

35C:40 The Theory and Practice of Argument

103:12 Language and Formal Reasoning or during the first 30 semester hours at The University of Iowa.

This requirement should be met by the end of the student's second year in...
resides or during the first 60 semester hours of study at The University of Iowa. Students should not count courses needed to satisfy the mathematics requirement before beginning to meet this one.

Foreign Language
Four semesters of a foreign language are required for the B.A. degree and two semesters for the B.S. degree. The requirement may be satisfied by the methods described below. Foreign languages offered at The University of Iowa are listed in the Course Catalog. Successful completion require include Chinese, Dutch, French, German, Greek, Italian, Japanese, Latin, Portuguese, Russian, Sanskrit, and Spanish.

High School Courses
Successful completion of four sequential years of study of the same language in high school meets the B.A. degree requirement. Two sequential years in high school meets the B.S., B.F.A., and B.M. degree requirement. Individuals must complete the fourth year of high school language for the B.A. degree and the second year for the B.S., B.F.A., and B.M. degrees.

College Courses
Successful completion of four sequential semesters of the same language in college, or their equivalent, meets the B.A. degree requirement. The completion of two sequential semesters in college, or their equivalent, meets the B.S., B.F.A., and B.M. degree requirement. Students must complete the fourth semester of college language for the B.A. degree and the second semester for the B.S., B.F.A., and B.M. degrees.

Combinations of High School and College Courses in Taking Language
One year of high school study in a foreign language is equivalent of one semester of college study. Successful completion of sequential years of one language in high school followed by sequential semesters of the same language in college will meet the requirement. Individuals must complete the fourth semester of college language in sequence for the B.A. degree and the second semester in sequence for the B.S., B.F.A., and B.M. degrees.

Proficiency Examinations
Satisfactory performance on an achievement examination meeting proficiency equivalent to that usually attained after four semesters of college study meets the B.A. degree requirement. Proficiency examinations that usually are obtained after two semesters of college study meet the B.S., B.F.A., and B.M. degree requirement. (Academic credit will not be given.)

Additional Comments
A course in a foreign language may not be taken pass-nondeem if it is part of a sequence of courses used to satisfy the foreign language requirement.

Proficiency Examinations
The physical education skills requirement may be satisfied by a score of 90 or better in at least four of the six sports competencies. The six sports competencies are: (1) comptetiveness, (2) endurance, (3) strength, (4) power, (5) coordination, and (6) total body fitness. Students may participate in the competencies using the following activities: (1) track and field, (2) swimming, (3) tennis, (4) basketball, (5) volleyball, and (6) golf. Students must choose at least four of the six competencies and must pass the subtest(s) in those four competencies. The subtests in the competencies are: (1) comptetiveness, (2) endurance, (3) strength, (4) power, (5) coordination, and (6) total body fitness.

Transfer Students
Transfer students may satisfy this requirement by:

1. Taking four semesters of college physical education course work (skills, sports, and activities), and by achieving junior standing (56 semester hours) prior to admission to The University of Iowa, or
2. By transferring fewer than four semester hours of college physical education and by earning enough credits in physical education at Iowa to meet a total of four semester hours from all colleges.

Senior Students
Students who have passed their twentieth birthday prior to their first enrollment at the University, as well as those who have passed their twentieth birthday prior to their graduation, are excused from the physical education requirement.

Veterans
Veterans may be exempted from this requirement by presenting to the registrar official evidence of having completed a basic training program in some of the armed forces.

Natural Sciences
Students must complete at least twelve semester hours from the courses listed below. At least one course taken to fulfill this requirement must include a laboratory component. (Courses with laboratory components are indicated by "Lab.").

1. 21 Introduction to Botany (Lab) 4 s.h.
2. 2100 Plant Diversity (Lab) 4 s.h.
3. 4.5 Technology and Society 3 s.h.
4. 47 General Chemistry I 3 s.h.
5. 48 General Chemistry II 3 s.h.
6. 48 Principles of Chemistry I 3 s.h.
7. 414 Principles of Chemistry II 3 s.h.
8. 418 Principles of Chemistry Lab I 2 s.h.
9. 1121 Human Biology 3 s.h.
10. 1121 Human Biology (Lab) 4 s.h.
11. 1122 Ecology and Evolution 3 s.h.
12. 125 Introduction to Geology (Lab) 4 s.h.
13. 12 Evolutions of the Earth (Lab) 4 s.h.
14. 1223 Earth History and Resources (Lab) 4 s.h.
15. 124 Introduction to Environmental Geology (Lab) 4 s.h.
Foreign Civilization and Culture

Students must complete one three- or four-semester-hour course from the list below. Courses used to satisfy this requirement may also be approved to satisfy, in part, the social sciences, historical perspectives, or humanities requirement.

H 5 Western Art and Culture Before 1400
H 6 Western Art and Culture After 1400
H 7 Islamic Art and Civilization
H 8 Introduction to Asian Art
I 1 Education, Politics, and Culture of Mainland Southeast Asia
I 12 Introduction to Africa
B 14-18 Literatures of the African Peoples
I 17 German Heroic and Erotic Literature of the Middle Ages
I 18 Introduction to Modern German Literature I
I 19 Introduction to Modern German Literature II
I 105 German Cultural History
I 115 Contemporary German Civilization
I 118 The Third Reich and Its Literature
I 143 The Classical Views
I 16 Western Civilization to 1792
I 16 Western Civilization since 1792
I 16 Civilizations of Asia
I 16 Civilizations of Latin America
I 16 Introduction to Colonial Latin America
I 16 Introduction to Modern Latin America
I 16 Survey of Ancient Near East and Greece
I 16 The Helvetic World and Rome
I 16 Medieval Civilization
I 16 History of the Medieval Church
I 16 Early France and the Age of Chivalry
I 16 Society and Culture in Europe 1050-1668
I 16 The Age of the Renaissance
I 16 France from Renaissance to Revolution
I 1495-1499 The Italian Renaissance
I 1490s The Italian Renaissance
I 1441 Germany 1789-1914: Consumption of Power
I 1442 Germany since 1914: Society and Revolution
I 1551 History of East Central Europe 1385-1795
I 1552 East Central Europe: The Revolutionary Era
I 1554 Kievan Rus' and Early Russia to 1682
I 1555 Imperial Russia 1682-1917

18-165 Soviet Union 1917-1953
18-166 Society and Gender in Europe 1450-1750
18-159 Society and Gender in Europe 1750-1900
18-192 The Mexican Revolution
18-193 History of Ancient and Traditional India
18-194 Imperialism and Modern India
18-195 Traditional China
18-196 China: Colonial War to Mao
18-197 Premodern Japan
18-198 Modern Japan
18-199 Third World Development
25-103 World Music I
30-141 Introduction to Soviet Government and Politics
30-143 Government and Politics of the Far East
30-144 Latin American Government
30-145 Major States of Latin America
30-146 African Development
30-148 The Politics of Southern Africa
32-4 Living Religions of the East
35-6 Contemporary Latin American Narrative
36-147 French Cinema and Culture
38-148 National Cinema
39-16 Introduction to Asian Art
39-19 Asian Humanities
39-20 Asian Humanities
39-25 Civilizations of Asia
39-26 Civilizations of Asia
39-29 Living Religions of the East
39-39 Ethnology of Southeast Asia
39-133 History of Ancient and Traditional India
39-134 Imperialism and Modern India
39-135 Traditional China
39-136 China: Opium War to Mao
39-179 Government and Politics of the Far East
39-125 Japanese Society
39-123 Premodern Japan
39-124 Modern Japan
44-157 Third World Development
44-161 African Development
45-8 Literatures of the African Peoples

113-105 Ethnology of Mesoamerica
113-104 Social Anthropology of the Caribbean
113-105 Japanese Society
113-127 Ethnology of Oceania
113-126 Ethnology of Southeast Asia
113-131 Latin American Economy and Society

Pass-Nopass

No course used to satisfy any of the general education requirements may be taken pass-nopass. Physical Education skills courses will be graded on a satisfactory-fail basis.

Course Limits and Waivers

No course from a student's major department may be applied to satisfy general education requirements, except (a) BIS, (b) The Interpretation of Literature, (c) 2294:1 Basic Mathematics for Teachers, or (d) those courses used to satisfy, in part, the foreign language requirement, (e) the physical education requirement, or (f) the foreign civilization and culture requirement. Each department, however, may waive four semester hours of general education requirements for its B.A. students and seven semester hours for its B.S. students, B.F.A., and B.M. students in the area closest to or most relevant to its program. Each department will be asked to submit a statement to the dean of the college designating the area in which it requests to waive these hours. Statements must receive the approval of the dean and the Educational Policy Committee.

Three Or More Courses From One Department

A student may take no more than three courses offered by any one department to satisfy the historical perspectives and the humanities requirements together.

General Education Requirements and Transfer Students

Transfer Students Without Degrees

Transfer students who have had courses elsewhere that are similar to those approved for a general education of Iowa may count these courses toward the general education requirements accordingly. This list will be shown on the student's admission statement. If a transfer student brings to Iowa fewer than enough hours to meet a general education requirement, he or she may use only approved courses to complete the remainder of the requirement.

Transfer Students with A.A. Degrees

Students who have earned A.A. degrees from Iowa community colleges with which the University has a special agreement will be considered to have met all the college general education requirements except the foreign language requirement. The student's program of study for which the A.A. degree was awarded must include the following: a minimum of 60 semester hours of credit acceptable for transfer, the completion of an agreement upon group of courses at the community college, and at least a 2.0 grade-point average. A yearly review is conducted to assess whether students are meeting the stipulations of this agreement.

The Unified Program

The Unified Program (UP) is a four-semester series of integrated general education courses for a small group of students who choose the program when they are freshmen. UP satisfies all of the
College of Liberal Arts general education requirements except the foreign language and physical education requirements, and each UP course is interchangeable with an equivalent approved course. All students in UP take the same courses in a given semester. Students may leave the program at any time and satisfy the general education requirements in other ways, but only freshmen may enter.

Area of Concentration or Major
The executive officer of the department or area in which a student wishes to concentrate his or her studies specifies the requirements in this area. The requirements for major areas of concentration and majors are listed in the appropriate section of the Catalog. A student should consult with his or her adviser in outlining plans for a major. No more than 50 semester hours of credit may be earned in one department of study and applied toward a B.A. or B.S. degree from the College of Liberal Arts.

Exceptions to the rule that students may not count more than 50 semester hours of credit in one area or department are as follows:

1. When a department offers a degree in more than one subject area, students may earn a double major, a major and a minor, or a major and a minor and a cognate in these degree programs. All such students must take a minimum of 56 semester hours in courses taken outside the division.

2. For these purposes, the degree program in computer science is considered a cognate which is acceptable for granting unit distinct from the other units in the Division of Mathematical Sciences. Students using these provisions must earn a minimum of 56 semester hours in courses taken outside the division.

3. For purposes of double majors in the areas of early childhood, elementary, health occupations, and special education, all such students must earn a minimum of 56 semester hours in courses taken outside the College of Education.

Work in the major department is not available on a pass–no-pass basis except by departmental action toward the major departmental major. Courses required for the major in cognate or related areas may be taken on a pass–no-pass basis, if available, at the discretion of the major department. S (Satisfactory) grades may be earned in the major.

Electives
The 124 semester hours required for graduation include hours for general education courses, hours for courses in the major, and hours for courses taken as electives. Electives are the non-required courses that students choose or select to take and may be taken at any time.

Elective Credit from Other Colleges
The College of Liberal Arts will accept toward the bachelor’s degree up to a maximum of 20 semester hours of credit that the student earns from courses taken in all other colleges of the University while enrolled in the College of Liberal Arts.

Ungraded Elective Credit in Preprofessional (Joint) Programs
This provision makes it possible for the student who enters a medical or dental college to obtain a bachelor’s degree from the College of Liberal Arts upon the successful completion of one academic year of professional college work. For further information, see the section on Preprofessional (Joint) Programs.

Other Requirements for Graduation
A maximum of 16 semester hours of credit with a grade of P (pass) and 16 with a grade of S (Satisfactory) may be permitted in addition to credit earned by examination.

Semester hours for courses completed with a grade of N (nonpass) do not count toward the total number required for graduation. Credit in such courses may be counted in the computation of the grade-point average. Maximum credit that may be earned by correspondence is 30 semester hours. Correspondence courses do not earn resident credit.

After a student has earned 62 semester hours of college credit from all sources, no more credit may be accepted by transfer from a two-year college toward meeting the 124 semester hours needed for graduation from the College of Liberal Arts. It is recommended that a student earn 62 semester hours of credit from a two-year college, that credit and grade be used in computing the grade-point average and may be used to fulfill course requirements, but the credit will not count toward the total hours needed for graduation.

Application for Degree
Each student who wishes to be considered for graduation must file an application for a degree with the Office of the Registrar on or before the deadline date during the session in which the degree is to be conferred.

If a student does not graduate on the date indicated in the application, he or she must file another application for a degree for the next applicable session. Students who are not eligible to register are not permitted to apply for a degree.

Graduation Analysis
Students may obtain a written graduation analysis upon presentation at the Office of the Registrar. The analysis may be requested at any time after the completion of the senior year. Each student is limited to only one analysis.

Bachelor of General Studies
The Bachelor of General Studies degree is designed to provide students with maximum flexibility in planning their educational programs. Candidates for this degree should have clear educational goals with specific courses and areas of study already in mind. To earn this degree, a student does not have to satisfy the general education requirements of the college, but must complete the minor requirement for the B.G.S.

No major or concentration is specified with this degree, and B.G.S. students are not eligible to earn minors.

Within the freedom of the B.G.S. degree, students select courses from a number of disciplines. Individuals may put together one or more groups of courses to provide the background they desire.

All B.G.S. students should follow the requirements for the B.A. or B.S. degree in planning their programs, and should determine their major or minor only when it seems in their best interests to do so. Students who indicate an individualized "area of concentration," the student should examine the requirements in the major most closely related to his or her field of interest.

If a student who has been pursuing a B.G.S. degree decides to earn a B.A., B.S., B.F.A., or B.M. degree instead, he or she must then satisfy the general education requirements for that degree.

Requirements
Specific requirements for the B.G.S. degree are as follows:

Completion at The University of Iowa of at least 45 semester hours of courses numbered 100 and above, including no more than 20 semester hours in one department.

Completion of at least 124 semester hours of college-level course work, including no more than 40 semester hours in any one department and no more than 30 semester hours in any of the other colleges of the University.
Bachelor of Liberal Studies

Offered by each of the three Iowa Regents universities ('The University of Iowa, Iowa State University, and the University of Northern Iowa'), the B.L.S. program is designed to serve adults who cannot attend college full-time, on-campus students. The program has no residence requirement. Work done in community and private colleges in Iowa and in accredited off-campus colleges and schools may be applied toward the degree, as a student wishes. This graduate degree is available from the Iowa Regents universities. Types of courses available from the Iowa Regents universities include correspondence and independent study courses, radio, television, and newsworthy courses; Saturday and evening classes; extension courses, enrolling those with new distance-learning formats; and regular on-campus courses. Students may also take proficiency examinations.

While the B.L.S. is awarded by the College of Liberal Arts, the program is administered by the Division of Continuing Education.

Admission Requirements

To be eligible for admission to the program, the student must have earned either:

- An A.A. degree from an accredited two-year college, with a 2.0 grade point average, or
- At least 60 semester hours of college work acceptable for credit toward graduation, with a 2.0 grade point average.

Graduation Requirements

Of the 124 semester hours of credit required for the degree, at least 45 must be earned in four-year colleges, as courses defined as upper-level where the credits were earned (in the College of Liberal Arts, courses numbered 100 and above). 45 must be completed in courses offered by the Iowa Regents universities, and 30 must be earned after admission to the B.L.S. program in the specific Regents university which will grant the degree.

The B.L.S. candidate must meet the general education requirements of the Regents university from which the candidate expects to receive the degree. Students who have a valid A.A. degree from an accredited two-year college in Iowa may already have met these requirements.

Since there are no traditional majors available through the B.L.S. program, candidates must earn at least 12 semester hours (or 18 quarter hours) of credit in each of three of these distribution areas:

- Humanities
- Communications and arts
- Social sciences: Professional fields, as approved by the degree-granting institution

Of these 36 semester hours, 24 must be in upper-level courses, with at least six semester hours of upper-level credit in each of the three areas chosen. Credits applied to the general education requirement may not be used to meet the distribution area requirements.

Graduation requires a minimum grade-point average of 2.0 in all courses applied toward the degree, in all courses completed after admission to the program, and in all upper-level course work.

Registration Procedures

Adding and Dropping of 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 the approval of the advisor and instructor.

Courses may be dropped at any time during the first ten weeks of the semester or last five weeks of the summer session with the approval of the advisor and instructor.

Special courses that meet on a different schedule or 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 at any time during the first one-third of the duration of the course and dropped at any time during the first one-third of the duration of the course. Similar proportional deadlines will operate during the usual eight-week summer session and for other special session courses.

A dean's approval, Liberal Arts Advisory Office will be needed for all adds after the third week of the semester (first one and one-half weeks of the summer session, and for all drops that occur after the tenth week fifth week of the summer session).

Undergraduate students in the College of Liberal Arts will be assigned a mark of W (Withdrawn) for any course in any college dropped after the third week.

Undergraduates in other colleges will receive a W for dropping any course in the College of Liberal Arts after the third week, including courses numbered with the College of Education prefixes 77 and General Science Program prefix 97.

A mark of W will be assigned for all courses dropped after the first one and one-half weeks of the summer session.

Teaching Certification with the B.G.S. Degree

A B.G.S. student may earn teaching certification in early childhood, elementary, special, or secondary education in the following manner:

By meeting at B.G.S. upper-level course requirements and course distribution.

By meeting the requirements of the major department (this usually involves meeting major requirements in some field, such as elementary education, English, social studies education, etc.), and

By meeting certification requirements in the selected certification program (this involves methods courses and practice teaching).

A B.G.S. student seeking certification to teach in the early childhood, elementary, or secondary education and psychology courses to avoid exceeding the B.G.S. maximum allowance of 40 semester hours in one department.

Additional Comments

Since many 100-level courses have prerequisites, B.G.S. students should plan ahead to complete during the freshman and sophomore years the prerequisites they will need for the upper-level courses they wish to take.

B.G.S. students who intend to apply for admission to a particular graduate or professional school should find out what courses they will need to complete to meet admission requirements.
For courses that begin or end at times other than the beginning and end of the semester, students may drop these courses any time within the first one-fifth of the duration of the course without being assigned a mark of W.

Students may not drop the same course with a mark of W more than twice. Special courses which may be repeated are exempt from this rule.

Dropping for Nonattendance
In order to provide vacancies in crowded classes, instructors are permitted to drop any students from their classes who have not attended any class session during the first eight calendar days of the semester (four calendar days of the summer session) unless the students have offered reasons acceptable to the instructor prior to the eighth calendar day of the course for beginning the course late. Late drop actions will be made without the assignment of a mark of W.

Other Changes in Original Registration
Changes involving pass-fail or nonpass registration or registration for zero credit (audit) may be made only during the first three weeks of the semester (or first one and one-half weeks of the summer session) and only with the approval of the adviser and instructor.

Students' Responsibility
It is the responsibility of the student to seek out the change-in-registration form is approved by the adviser, instructor, or dean (as needed) and is delivered to the Registration Center.

Changes in registration become effective on the day the completed form is submitted to the Registration Center.

Late Registration
Students will not be permitted to register after the third week of classes during regular semesters and after the first one and one-half weeks of the summer session.

Cancellation of Registration
Students may cancel their registrations at any time prior to the end of the twelfth week of the semester or sixth week of the summer session. Cancellation after the above deadline will result in the automatic assignment of an F in each course.

Students who self-cancel may not be reimbursed for tuition or for fees for cancellation in the session in which they canceled.

Students whose registrations have been canceled by the registrar for nonpayment of accounts may not register again without paying their debts in full and being reinstated for at classes.

Courses Listed in More Than One Department
For identical courses listed in more than one department the student may register under whichever course number he or she prefers.

Courses Open to Freshmen
Departments are required to list courses open to freshmen. Consult the Schedule of Courses for current listings.

Maximum Schedule
The normal or typical schedule is 15-16 semester hours in a regular semester, 8-9 semester hours in a summer session. The maximum permitted registration is 23 semester hours in a regular semester, 10 semester hours in a summer session. Students may obtain permission in the Liberal Arts Advisory Office to register for more hours than the maximum allowed.

Grading Procedures
The following grading system is used in the college:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
<th>GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>Outstanding</td>
<td>4</td>
</tr>
<tr>
<td>A</td>
<td>Superior</td>
<td>3.5</td>
</tr>
<tr>
<td>A-</td>
<td>Above Average</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>Average</td>
<td>2.0</td>
</tr>
<tr>
<td>D</td>
<td>Below Average</td>
<td>1.0</td>
</tr>
<tr>
<td>F</td>
<td>Fail</td>
<td>0</td>
</tr>
<tr>
<td>W</td>
<td>Withdrawn</td>
<td>0</td>
</tr>
<tr>
<td>P</td>
<td>Pass</td>
<td>Not computed</td>
</tr>
<tr>
<td>N</td>
<td>Nonpass</td>
<td>Not computed</td>
</tr>
<tr>
<td>I</td>
<td>Incomplete</td>
<td>Not computed</td>
</tr>
</tbody>
</table>

Grading policies vary for non-course work (such as research or independent study) by agreement with the instructor.

Incomplete (I)
A grade of I may be reported only if (a) the student has completed at least 75 percent of the work (other than in research, thesis, or independent study) as small; (b) the work is unfinished for reasons acceptable to the instructor; and (c) the student's standing in the course is satisfactory. Incompletes may be reported for independent study, research, and projects. Incompletes must be removed by completing the unfinished part of the work. Failure to remove the incomplete during the next session for which the student is registered (except that students with incompletes from spring semester are exempt from the need to complete the work during the succeeding summer session) will result in an F being assigned to replace the I. All special reports to the Registrar should reach the registrar or on before the closing day of registration for the next session in which the student is registered. No extensions to the Registrar to whom the report is sent for approval of the registrar or the dean of the college since the registrar or the dean of the college in the case of nonpassing grades. Incomplete students must be compliant and satisfactory before the Registrar before the deadlines.

Withdrawn (W)
Undergraduates will receive the mark of W for any course in the college dropped after the third week of the semester or first one and one-half weeks of the summer session. For further information, see "Adding and Dropping of Courses."

Pass-Nonpass (P-N)
The mark of P may be used in lieu of grades of A, B, C, and D and for audited courses in the College of Liberal Arts. Students registered in a P-N basis who receive grades of D or F will have N entered on their record. The grades of A and B will not be used in computing grade-point averages nor will the grade of N count as earned hours for the purpose of determining the student's status. Students taking courses in other colleges of the University will be responsible for computing grade-point averages and the grade of N count as earned hours for the purpose of determining the student's status. Students from other colleges who take courses in the College of Liberal Arts will be subject to Liberal Arts grading policies.

P-N grading may be used in elective courses only. Courses used to satisfy general education requirements or requirements in the major or minor may not be recorded in the P-N grade.

A maximum of two P-N courses may be taken in any session.

Not more than 16 semester hours of P grades from all colleges will be accepted toward the bachelor's degree. Transfer students admitted to the University with
Grade-Point Average
The cumulative grade-point average is computed by (a) multiplying the semester hours in each course by the appropriate grade points; (b) totaling the grade points earned to date; and (c) dividing the sum in (b) by the number of hours undertaken, excluding courses in which grades of P or N have been given. Grades of F are included in hours attempted and are used in computing the grade-point average.

Official Transcripts
Official transcripts of a student's record may be obtained in the Office of the Registrar.

Midsemester Reports
At midsemester instructors report grades for all students whose work is below C. These reports are distributed to advisors and to individual students. Delinquent grades are not recorded on the student's permanent record.

Classification of Students
Class
- Freshmen, less than 29 semester hours earned
- Sophomores, 29-55 semester hours
- Juniors, 56-89 semester hours
- Seniors, 90 or more semester hours

Diploma
Diploma is awarded when a student takes the same course more than once. Whether duplication has occurred is determined by the registrar at the time of graduation, and, if it has occurred, the student must earn extra hours to replace those earned by duplication. Grades for both courses will be included in computing the student's grade-point average.

Regression
Regression occurs if a student takes a lower-level course which is a prerequisite after having satisfactorily completed a more advanced course in the same subject. Whether regression has occurred is determined by the registrar at the time of graduation, and, if it has occurred, the student must earn extra hours to replace those earned by regression.

Second-Grade-Only Option
A student may repeat a course taken at The University of Iowa, unless obvious regression is involved, and have only the grade and credit of the second registration used in calculating total hours earned and the University of Iowa cumulative and total cumulative grade-point averages. This provision may be applied to a maximum of 16 semester hours of work and may be used only once per course. A student who wishes to utilize the provisions of this new rule should register in the usual manner for the course he or she decides to repeat or add it during the regular period for adding courses (the first three weeks of the semester or the first one and one-half weeks of the summer session). Apply to the Liberal Arts Advisory Office to check if he or her eligibility and complete the proper form. Current procedures of counting both grades in the informal situation of the student repeating a course will be continued unless the student completes the form.

Under the provisions of this option, the Office of the Registrar will mark the permanent record to show that a particular course has been repeated. Both grades will remain on the permanent record, but only the second one will be used in calculating the grade-point average and hours earned. The use of the second-grade-only option does not guarantee the opportunity to repeat a specific course. For example, the course may not be offered within the period of time the student has available, or the course may no longer be offered. The second-grade-only option may not be used if the first grade was assigned as a result of disiplinary action.

If the student takes the course for a grade the first time, he or she must take the course for a grade the second time. If the student took the course pass-fail the first time, he or she may take the course for a grade or for a pass-fail for the second time.

Deficiency in English
Any instructor who finds the written work of a student seriously defective in the use of English is expected to report the case to the writing supervisor of that department, who will then assign a program, who shall have the authority to require additional work in composition without credit. Instructors are authorized to assign reduced grades to written work that does not demonstrate an accurate, effective use of the English language.

Scholastic Probation and Dismissal
Students who do not attain the following minimum cumulative grade-point averages (GPA) and overall for those courses attempted (or completed) are subject to scholastic probation:
- Freshmen: 1.60
- Sophomores: 1.75
- Juniors: 1.90
- Seniors: 2.0

Students who enrolled at Iowa for the first time prior to May 1982 and who will graduate prior to May 1986 must meet the following minimum grade-point average in order to be in good academic standing.
Recognition for Academic Achievement

Dean's List

Liberal arts students who achieve grade-point averages of 3.5 or above during a given semester or 12 or more semester hours of graded work and who have no hour of I or O are recognized by inclusion on the Dean's List for that semester.

Honor Program

The Honor Program offers special curricular and extracurricular opportunities to outstanding students. Freshmen may take specially designed courses taught by faculty, and many general education courses include honors discussion sections. Most departments offer honors seminars, independent research, and the opportunity to write a senior thesis under a faculty member's guidance. Successful completion of such work may lead to a baccalaureate degree "with honors" in the major (see below).

The Shambaugh House Honors Center is a place where honors students socialize and study. The Association of Iowa Honors Students plans a variety of social, cultural, and career or postgraduate advising activities each year. Entering students with strong academic records are invited to join the Honors Program, but any student whose grade-point average meets the required minimum may join at any time. For information contact the Honors Program, Shambaugh House Honors Center.

Graduation Honors

High scholastic achievement is recognized upon graduation in two ways: (a) graduation with distinction based upon grades only, and (b) graduation with honors in a particular field. Graduation with both grades and the completion of special work as outlined by the college and the major department.

To be eligible for either form of recognition, the student must complete the final 60 semester hours in residence in the College of Liberal Arts at The University of Iowa, of which at least 45 semester hours must have been completed prior to the student's final registration.

Graduation with Distinction

The Office of the Registrar certifies to the dean of the college the names of students eligible for graduation 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.

Graduation with Honors

The director of Honors certifies to the dean of the college the names of graduating students eligible to graduate "with honors." To be eligible, the student must be recommended by his or her major department and be approved by the Honors Council and the dean of the college.

Placement and Exemption Examinations

Rhetoric

Proficiency tests in writing and speaking are given during the first week of classes for students who register for 10:3 Exemption. Exemption from part or all of the requirement may be awarded on the basis of these tests. Academic credit will not be given.

Mathematics

Students may meet the mathematics requirement by passing the Mathematics Proficiency Test. The passing score is equivalent to a score of 25 or above on the mathematics subscore of the ACT general test battery or the mathematical proficiency expected of those who have taken two years of high school algebra and one year of high school geometry. Academic credit will not be given.

Physical Education

This requirement may be satisfied in whole or in part by passing comprehensive tests in specific physical education activities or sports. Up to four semester hours of ungraded credit or exemption may be awarded for successful completion of these tests. Credit from these tests may not be used as elective credit towards a degree. A maximum of four semester hours of credit by examination in physical education units will be counted towards a bachelor's degree.

Foreign Languages

Students who believe that they have had the equivalent of the college's graduation requirement in any foreign language taught at the University may take a proficiency examination in that language. Students who pass this proficiency examination may be excused in whole or in part from taking a foreign language in the college. Academic credit will not be given.
Other General Education Courses

A college-approved program of examinations used by the College-Level Examination Program (CLEP) is administered by the Liberal Arts Advisory Office. Eligible students may earn credit toward meeting the general education requirements.

Advanced Placement and Credit in Nonmajor Areas

Students who have pursued college-level courses in high school or otherwise attained equivalent competence may be awarded advanced placement and credit on the basis of their performance in appropriate examinations. The examinations that be those prepared by the Advanced Placement Program (AP) of the College Entrance Examination Board or by a recognized test construction agency or group as approved by the Educational Policy Committee. In addition to AP, these include the College-Level Examination Program (CLEP).

Information about the CLEP tests may be obtained in the Liberal Arts Advisory Office. For information about the AP tests write to the College Entrance Examination Board, 475 Riverside Drive, New York, N.Y. 10027.

Examination Credit in the Major

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. In the case of foreign languages, credit toward graduation may be awarded only for passing the intermediate or the third and fourth semester-level (or above) course and level.

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 require the validation of the credit. The Liberal Arts Advisory Office and the department concerned should be consulted for approval to take the appropriate examinations.

Regulations Governing Attendance, Final Examinations, and Student Conduct

Class Attendance

The individual faculty member or course supervisor determines the policy regarding class attendance in his or her own course, except that students are to be permitted to "make up" examinations or other required work missed due to illness or participation in University-sponsored academic absence from class. Students are required to observe the regulations as announced for the course. The individual instructor may assign extra work, lower grades, or recommend to the dean that the student's registration for the course be dropped if absences are excessive. Students are expected to attend classes regularly. It is suggested that instructors keep reasonably adequate attendance records, especially in courses in which threethirds are enrolled. When an instructor considers that a student has been excessively absent, it is important that the absence endanger satisfactory academic progress, the instructor may call or send a written request to the Liberal Arts Advisory Office for investigation and action.

For permission to be absent from class to participate in any regularly scheduled University event, members of athletic teams, the marching band, and other recognized University groups are expected to present to each instructor prior to each absence a written statement signed by a responsible official specifying exactly the dates and times it is necessary to miss class. Students who have been absent because of illness are expected to present evidence that their illness was serious and not regular excuse forms for this purpose are available in each departmental office and the Liberal Arts Advisory Office. Students should not be asked to obtain excuses from the Student Health Service.

Commencement Attendance

Attendence at University commencements is optional. Candidates for degrees should inform the Office of the Registrar which commencement they wish to be present when they are scheduled to receive their degrees.

Final Examinations

A suitable period for the administration of examinations is set aside at the end of each semester, during which time no classes are held. With the exception of any changes authorized by the dean, all final examinations must be given according to the schedule as announced in the schedule of courses. During the summer session there is no designated final examination period. All 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.

Student Conduct

Any offense against good order committed by a student in a classroom or a laboratory may be dealt with summarily by the instructor or referred to the Office of the Dean. The instructor should report in writing any disciplinary action undertaken against a student to the Office of the Dean. If the student is evicted in another college, the report should be made to the dean of that college.

Student Dishonesty

Reporting of Plagiarism and Cheating

All cases of plagiarism and cheating in the College of Liberal Arts should be reported for action to the Office of the Dean through the departments. Students charged with a violation of the regulations concerning plagiarism and cheating should be referred to the Office of the Dean. The dean of the college or a student-faculty committee approved by the dean, in accordance with the regulations, may impose the following disciplinary penalties on an offender: suspension from the college, expulsion from the college, or recommendation for expulsion from the University.

Adequate Background for College Work

The Code of Rules and Regulations of the College of Liberal Arts urges college-bound students to prepare themselves for college-level work through studies in the following areas: the arts, English, foreign language, mathematics, science, and social science. In 1963-1964, the college's Educational Policy Committee began a review of what constitutes adequate preparation in each of these areas. As a result of the first phase of
Requirements for Admission

To qualify for admission to the College of Liberal Arts, the applicant must meet the college requirements listed below and any special requirements for the program of his or her choice.

The University of Iowa requires all freshmen and undergraduate transfer students to complete the American College Testing (ACT) Assessment Program and have their test scores reported to the university before they register for classes. These examinations are used as a criterion for admission; for placement purpose, for advising, and for awarding University-administered scholarships and loans.

Entering Freshmen

An applicant seeking admission as an entering freshman must have the high school from which he or she graduated provide a certificate of high school credits, including a complete statement of high school record, class rank, scores on standardized tests, and certification of graduation. An applicant may be tentatively admitted after he or she has completed the junior year in high school, but admission will not be final until receipt of the final transcript and certification of high school graduation.

A graduate of an approved Iowa high school who is in the upper one-half of his or her graduating class and meets specific curricular requirements will generally be admitted on the basis of certification of graduation. An applicant who is not in the upper one-half of his or her graduating class may be required to take special examinations, and, after a review of his or her entire record and at the discretion of the college, may be admitted unconditionally, admitted on probation, required to enroll for a trial period during a preceding summer session, or denied admission. An ACT score of 24 will be required for automatic admission of all Iowa resident high school graduates who are in the top half of their graduating class.

A graduate of an accredited high school in another state will be expected to meet higher standards than the minimum requirements for a graduate of an Iowa high school. The options for admission by probation or trial enrollment may not be open to these students. Nonresident students must be in the upper thirty percent of their graduating class or must have an ACT score of 25 or above for automatic admission.

A graduate of a nonapproved high school must submit all data required above, take examinations to demonstrate general competence to do college work, and provide evidence of specific competence for admission to a given curriculum.

Transfer Students

Students from Accredited Colleges and Universities

Transcripts of records are given full value if they come from colleges or universities accredited by the North Central Association of Colleges and Secondary Schools or similar regional associations. The recommendations considered in the current issue of the Report of Credit Given by Educational Institutions published by the American Association of Collegiate Registrars and Admissions Counselors will be followed for schools not regionally accredited.

Each applicant must submit an official transcript showing the original seal and signature of the official in charge of records from each college or university the student has previously attended. The applicant must also submit a high school transcript, scores on standardized tests, and any other records or letters the College of Liberal Arts may require to support his or her application for admission.

A transfer applicant is expected to have maintained a C average (2.0 on a four-point system) for all college work attempted. A student who has been placed on academic suspension from the last college attended, Transfer applicants who are not residents of Iowa are expected to have maintained a 2.25 average. An applicant who does not meet this standard may be permitted to take entrance examinations. An applicant who successfully completes the examinations may be accepted for admission.

In general, transfer applicants under academic suspension from the last college attended will not be considered for admission during the period of suspension or the indefinite period, will not be considered until six months have passed after the last date of attendance. When eligible for consideration, the applicant will be considered on the basis of his or her performance on the entrance examinations.

A transfer applicant under disciplinary suspension will not be considered for admission until a clearance and a statement of the reason for suspension are filed from the previous college. When it becomes proper to consider an application from a student under suspension, the college must take into account the fact of the previous suspension. An applicant granted admission under these circumstances will in each case be admitted on probation, and his or her admission will be subject to cancellation.
Aerospace Military Studies/LIBERAL ARTS

Students from Nonaccredited Colleges

The College of Liberal Arts may refuse to recognize credit from a nonaccredited college, or may admit the applicant on a provisional basis and provide a means for the validation of some or all of the credit. The validation period will not be less than one semester and will ordinarily be a full academic year. The college will specify to the student the terms of the validation process at the time of provisional admission. Each student from a nonaccredited college is considered on his or her merits, and admission or rejection is at the discretion of the admissions officer.

Foreign Students

Foreign applicants (those who are or will be in the United States on a nonimmigrant status, whether U.S. high school graduates or not, may be asked to meet higher standards for admission. Students who are nonresidents of the United States, however, are not subject to any additional English language requirements. Applicants with TOEFL scores of 550 or more will be considered proficient in English, and are not subject to any additional English language requirements. Applicants with TOEFL scores below 550 must be admitted to the University conditionally. The provisional admission will be made final only after the student completes any English as a Foreign Language (ESL) requirements recommended as a result of the English department's proficiency examination.

Foreign undergraduate students are subject to the same rhetoric requirement as U.S. students. Unless they have fulfilled the rhetoric requirement by earning at least an A.A. degree from an Iowa college, they are required to meet the rhetoric requirement by passing the rhetoric examination of 4 credits.

Nondegree Candidates

Under special circumstances, students may be admitted to the college as nondegree candidates. Such admissions may be for certain sessions or semesters. Admission by such students may be contingent on University of Iowa grades. Courses taken by students in this category may not be used toward satisfying the residence requirement for graduation from the College of Liberal Arts.

Credit for Military Service

The admissions officer is authorized to evaluate transcripts from the military services according to the recommendations contained in the American Council on Education's Guide to the Evaluation of Experiences in the Armed Forces, with the understanding that any inconsistencies between such recommendations and the standards of the College of Liberal Arts will be returned to the Liberal Arts Advising Office. Armed Forces Institute correspondence courses may be credited under appropriate circumstances.

Nondepartmental College Courses

Unified Program Courses:

World History (HUM 145)

400.48 Introduction to World Politics (HIST 144)

400.51 Social Issues (HIST 151)

500.51-52 Science and Society (HIST 251-252)

500.53-54 Literature (HIST 351-352)

500.56 Basic Mathematics

Other Nondepartmental Courses

Courses numbered 10 and 11 are nondepartmental courses used principally in satisfying college course requirements for graduation.

110 Health

4.5h

Instruction in and practice in writing, reading, and critical reading, with the focus on argument and criticism. Develops competence in analyzing and synthesizing ideas and in constructing arguments. Includes the use of library resources for amplifying and supporting ideas, adopting a critical stance toward sources.

120 Theatre

4.5h

Cultural perspectives on human life. Students will use library resources for amplifying and supporting ideas, adopting aesthetic considerations toward sources.

130 Political Science

4.5h

Instruction in and practice in writing, reading, and critical reading, with the focus on argument and criticism. Develops competence in analyzing and synthesizing ideas and in constructing arguments. Includes the use of library resources for amplifying and supporting ideas, adopting a critical stance toward sources.

Aerospace Military Studies

Department Head: U. Col. James P. Wathen

Professor: U. Col. James P. Wathen

Aerospace Military Studies: The University of Iowa

The Department of Aerospace Military Studies administers the Air Force Reserve Officers Training Corps (AFROTC) at The University of Iowa. The purpose of AFROTC is to recruit, educate, and commission highly qualified students to be officers in the United States Air Force.

AFROTC is an integrally voluntary and the courses are open to all undergraduate and graduate students. The amount of credit given toward a degree for AFROTC academic work varies with the colleges at the University.

In order to receive a commission, AFROTC students must complete all University requirements for a degree and complete residence requirements specified by the U.S. Air Force. Three programs are offered to complete the U.S. Air Force program. A student may complete the four-year, three-year, or two-year AFROTC program. Prior to commissioning, all AFROTC cadets must complete a course in mathematical reasoning. Those cadets on AFROTC scholarships must also satisfy a requirement for an English composition course and for one semester of a major Indo-European or Asian language. The College of Liberal Arts core requirements minimally satisfy these requirements.
Four-Year Program

The four-year program consists of the General Military Course (GMC) and the Professional Officer Course (POC). The GMC affords a co-obligation book at AFROTC, in addition, books and uniforms for AFROTC classes are provided. The GMC consists of four one-credit AFROTC courses and the leadership laboratory. Normally, as a freshman a student takes 23A:11-12 The Air Force Today and as a sophomore takes 23A:31-32 The Development of Air Power. To be considered an AFROTC cadet, a student must take 23A:96-97 Leadership Laboratory.

The professor of aerospace studies may grant credit toward completion of the GMC for previous military experience.

Three-Year Program

The three-year program is the same as the four-year program except that a student completes the GMC in one year. Sophomores would take the freshman and sophomore sequence simultaneously. This results in two semester hours of AFROTC plus two leadership laboratories per semester.

Two-Year Program

The two-year program consists of field training and the Professional Officer Course (POC). Entry into the two-year program is competitive and requires a student to have at least two academic years of outstanding performance and a graduate work remaining in college. The POC consists of three three-credit AFROTC courses and the leadership Laboratory. In combined classes, juniors and seniors take 23A:114-115 Management and Leadership, concurrently with 23A:112-113 National Security Forces in Contemporary America and Society.

Students desiring to enter the two-year program should contact the professor of aerospace studies by the middle of the fall semester of their junior year. Applicants must be avowable on the basis of college grades, military, ACT/SAT scores, the Air Force Officer Qualifying Test (AFOQT), an air force medical exam, a personal interview by a board of U.S. Air Force officers, successful completion of field training, and the recommendation of the professor of aerospace studies. Students accepted into the program are committed to serve a minimum of four years as a U.S. Air Force officer.

Leadership Laboratory

Leadership Laboratory is a career-centered activity. It is largely cadet-planned and directed toward providing leadership training experiences which will improve a cadet’s ability to perform as a U.S. Air Force officer. Freshmen and sophomores learn air force customs and courtesies, drill and ceremonies, wearing of the uniform, and the benefits of an air force career. Juniors and seniors plan and direct the Cadet Corps activities.

Field Training

All POC applicants must successfully complete field training at a U.S. Air Force base during a summer, normally between the sophomore and junior years. There are two types of field training: a four-week course for cadets in the four-year and three-year programs and a six-week course for two-year program applicants. Field training consists of aircraft, crew, career, and survival orientation, junior officer training, physical training, small arms training, human relations education, and equal opportunity training. The six-week field training provides 60 hours of academics that a student normally would have taken as a freshman and sophomore.

Students receive authorized pay and allowances when they attend field training.

Flight Instruction Program

AFROTC cadets designated pilot candidates and not certified as private pilots participate in the Flight Instruction Program. Normally, during the senior year students receive 13 hours of flying lessons from the Iowa City Flying Service. The program also includes 23A:50 Basic Flight Ground School, taught by a U.S. Air Force pilot or navigator in AFROTC classroom. Ground school includes instruction in meteorology, principles of flight, radio communications, and FAA regulations.

Special Activities

The Cadet Corps sponsors many social events, including informal parties, a formal dinner, the Military Ball, and an awards ceremony.

Cadets can join the Air ROTC, 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 and receive authorized pay and allowances.

Selected AFROTC cadets may attend airborne training and upon completion wear the army parachute "jump wings."

Financial Assistance

AFROTC scholarships are available for 4, 3.1/2, 3, 1/2, and 2 years. In addition, 3- and 2-year pre-health professions and 2-year nursing scholarships are offered. All scholarships are based on merit and provide full tuition, books, laboratory fees, and $100 a month tax-free. Applicants are selected using both objective and subjective factors. Students should apply directly to the professor of aerospace studies. All cadets in the last two years of AFROTC receive $100 a month tax-free AFROTC books and uniforms are furnished.

Educational Delay

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

Courses

23A:11 The Air Force Today 1 s.h.
Introduction to the U.S. Air Force, including mission, organization, and functions. U.S. military forces, and Soviet threat. Emphasizes student’s writing skills. Offered fall semesters.

23A:17 The Air Force Today 1 s.h.
Continuation of 23A:11. Offered spring semesters.

23A:31 The Development of Air Power 1 s.h.
Traces the historical development of U.S. air power from the beginning of the word to the contemporary era. Focuses on major events, key figures, and important factors influencing the development of the U.S. air power. Emphasizes student’s speaking skills. Offered fall semesters.

23A:32 The Development of Air Power 1 s.h.
Continuation of 23A:31. Offered spring semesters.

23A:50 Basic Flight Ground School 2 s.h.
Prepares students to pilot AFROTC’s private plane. Tentative test includes study of aircraft systems, aircraft systems, aerodynamics, meteorology, flight planning, and emergency procedures. Online course does not include flight flying training. Offered fall semesters.

23A:96 Leadership Laboratory 0.5 s.h.
Cadet planned and conducted activities aimed at developing leadership and management skills and providing experience in planning and executing events. Typically 80 hours of required attendance. Military Officer. Offered fall semester. May be repeated for credit.

23A:97 Leadership Laboratory 0.5 s.h.
Continuation of 23A:96. Offered spring semesters. May be repeated for credit.

23A:110 National Security Forces in Contemporary American Society 3 s.h.
Students will learn about the role of contemporary American society, emphasis civil-military relations and the way U.S. society is affected by the military. Emphasizes course in the field of knowledge. Emphasis on the student’s ability to participate in the field of knowledge in the field of knowledge.

23A:112 National Security Forces in Contemporary American Society 3 s.h.
Continuation of 23A:110. Offered alternating spring semesters.

23A:113 Development and Leadership 3 s.h.
Examines many and application of leadership concepts and techniques, and explores the basis of management theories and practices. Emphasizes student’s writing skills. Offered in the spring semester.

23A:98 Leadership Laboratory 0.5 s.h.
Continuation of 23A:97. Offered spring semesters.
communication skills and uses group discussions, case studies, and problem-solving methods. Offered alternating semesters.

AF 115 Management and Leadership
3 3.0
Concentration of AF 115 offered alternate semesters.

AF 116 Readings in Contemporary Military Issues 3 3.0 Individualized material in traditional or contemporary issues written for the Air Force. Prerequisite: 23 or in ABCTC Professional Officer Course. May be repeated up to 3 times with permission of the department to a maximum of 18 hours.

Afro-American Studies

Program director: Donald T. Turner

Because the Afro-American Studies Program is interdisciplinary, it also draws cooperating faculty from various departments, including American Studies, Anthropology, Education, English, French, Geography, History, Political Science, Spanish, and Sociology.

The Afro-American Studies Program focuses on the study of people of African ancestry in the North American colonies and the United States of America from the 16th century through the present. To provide a comprehensive view of this subject, the program also offers courses exploring various aspects of Black life from the perspective of different social and cultural groups. Although the program is designed to offer a historical overview, its student body is engaged in a variety of disciplines, including history and literature. The Afro-American studies program engages in a continuous effort to expand program perspectives by developing courses which will be the knowledge base for many disciplines in the humanities and social sciences. The program originated in 1969 in courses intended to foster awareness of the role Afro-Americans have taken in the development of the United States, and to promote understanding of the present and future.

The Afro-American Studies Program offers a minor or a graduate degree in Afro-American Studies. The minor consists of 12 semester hours in designated Afro-American Studies courses. Students interested in the field may concentrate on Afro-American studies in a program leading to the B.A. degree in American studies. Such a concentration would include 48-56 Literature of the Afro-American Studies, 36 English, 3 History, 1 Philosophy, 1 in the Liberal Arts Advisory Office, and the offices of most departments. Although the Afro-American Studies Program offers a major leading to the degree in Afro-American studies, students interested in the field may concentrate on Afro-American studies in a program leading to the B.A. degree in American studies. Such a concentration would include 48-56 Literature of the Afro-American Studies, 36 English, 3 History, 1 Philosophy, 1 in the Liberal Arts Advisory Office, and the offices of most departments. Afro-American Studies History and literature are 4511-177 Afro-American History and Literature and two of the following: 45-15 Afro-American History History 1860-1830, 45-15 Afro-American History History 1830-1914, and 45-168 Afro-American History History 1914 to the Present.

The Master of Arts Program

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

Curriculum Requirements

The Master of Arts program in Afro-American Studies comprises 34 post-baccalaureate semester hours, normally completed in three semesters.


Language/Tool Requirements

No language or tool is required for the Master of Arts program in Afro-American Studies, but individuals preparing for community college teaching and experience. Such a program especially benefits individuals preparing for community college teaching, work with community-service organizations, or other careers in which an understanding of Afro-Americans may be necessary or helpful.

No language or tool is required for the Master of Arts program in Afro-American Studies, but individuals preparing for community college teaching, work with community-service organizations, or other careers in which an understanding of Afro-Americans may be necessary or helpful.
Comprehensive Examinations
Each student is required to pass a written comprehensive examination in Afro-American Studies. The comprehensive examination will be prepared and evaluated by a committee of faculty members who teach courses in the Afro-American Studies program. A component of the comprehensive examination will be based on a reading list in Afro-American studies prepared and approved by the Afro-American studies steering committee.

Thesis/Project Requirements
A thesis is not required for a Bachelor of Arts degree in Afro-American Studies. However, if a student elects to write a thesis, the thesis must be an original topic in Afro-American culture &/or experience and must utilize research from more than one discipline. The maximum credit for such a thesis is 6 semester hours, and election of a thesis eliminates the requirement of 45.312 Advanced Research in Afro-American Culture.

A student who does not elect to prepare a thesis is required to do so, in consultation with an advisor, a project related to Afro-American culture &/or experience. When completed, this project must be presented to and defended before an appropriate class in Afro-American studies.

Admission Requirements
In addition to the general requirements of the Graduate College, unconditional graduate admission to the Afro-American Studies program requires that a student have an adequate educational background in literature and the social sciences, equivalent to at least 30 semester hours of college credit in Afro-American interdisciplinary courses and, a minimum grade-point average of 3.0 in all required graduate-level courses in Afro-American Studies. A student may be asked to take, without credit toward the master's degree, courses needed to remedy any deficiencies in undergraduate preparation.

An applicant for admission will be expected to provide three letters of recommendation from former professors and a sample of his or her scholarly written work.

Recommendations for admission will be made by the admissions subcommittee of the Afro-American studies steering committee.

Concentration within M.A. in Afro-American Studies
Generally, a student seeking a concentration in Afro-American studies within a Master of Arts program in American studies is preparing for a career as a research scholar or a college/university teacher, and proposes to undertake doctoral work in American studies. Of the 30 post-baccalaureate semester hours required for the degree, 12 to 24 are normally taken in Afro-American Studies. Since the Afro-American Studies Program's interdisciplinary, students taking 24 hours are required to complete an Introduction to Research in Afro-American Culture, 45.317 Afro-American Literature I i.e., and two of the following—45.156 Afro-American History 1860-1830, 45.156 Afro-American History 1830-1840, 45.168 Afro-American History 1840-1914, except when they have taken equivalent courses at the undergraduate level.

For other requirements, see the program for a Master of Arts in American studies described in the Catalog.

Concentration within Ph.D. Program in American Studies
Generally, a student seeking a Ph.D. in American studies with a concentration in Afro-American studies is preparing to be a teacher or research scholar at the college or university level. Of the minimum 72 post-baccalaureate semester hours required for the degree, at least 30 semester hours (not including the thesis) must be in courses in Afro-American studies. Of these, 45.312 Advanced Research in Afro-American Culture, 45.317 Afro-American Literature I, and two of the following—45.156 Afro-American History 1860-1830, 45.166 Afro-American History 1830-1840, 45.168 Afro-American History 1840-1914, except when they have taken equivalent courses at the undergraduate level. Students may elect to enroll in a three-semester-hour course which is offered at the same time as the "institute and the on the current year's topic." The program plans to offer institutes in future summers.

Black Action Theater
Academically sponsored through the Afro-American Studies Program, Black Action Theater affords participants an opportunity to experience productions of plays by black authors.

Afro-American Cultural Center
The Afro-American Studies Program encourages participation in the facilities of the Afro-American Cultural Center. The center serves as both a museum and library of educational and cultural artifacts and exhibits of black culture. Thus, it provides cultural enrichment for Black people of the Ames City community and a cultural meeting place for Black students. It also attempts to promote a knowledge of Black culture which will improve intercultural understanding among all members of the University community.

Black Genesis Troupe
The Afro-American Studies Program also encourages participation in Black Genesis Troupe, a student organization which brings dance, music, poetry, and visual arts presentations of Black culture and history.
Afro-American Studies Graduate Student Association

The Afro-American Studies Graduate Student Association attempts to promote interest in Afro-American culture by sponsoring programs on various topics. Any graduate student of the University who is interested in Afro-American Studies is eligible to be a member.

Related Courses

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

Business Administration

Economics

Education

Economics

Economics

Economics

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Primarily for Graduate Students

45.20 Readings in the Culture of Black America 2 s.h.
Overview of the social, economic, political, and religious experiences which have influenced Black America.

45.211 Introduction to Research in Afro-American Culture 3 s.h.
Methodologies, bibliographies, issues and resources significant in study of Afro-American culture. Required of graduate students concentrating in Afro-American studies.

45.212 Advanced Readings in Black Culture 3 s.h.
Selected are racial, social, and political analyses of works by Black authors. The selecting list is determined by instructor. Same as 45.312.

45.215 Politics and the Black Male 3 s.h.
The role of violence in the formation of political ideology among selected Black males; reading list determined by instructor.

45.229 Religion and Black Culture 3 s.h.
Interdisciplinary of Black cultures, religions, and philosophies in various sections of world. Same as 45.212.

45.227 Three African Writers 3 s.h.
Same as 45.212.

45.281 Seminar in Afro-American History 3 s.h.
Same as 45.209.

45.284 Readings in Afro-American History 3 s.h.
Introduction to historiography, methodology, and methodology for the study of Afro-American History. Same as 45.204.

45.282 Sources for Study of Afro-American Culture 3 s.h.
A collection of texts, folk traditions, folklore, customs, myths, legends, and individuals as sources of attitudes in Afro-American literature.

45.287 Advanced Research in Afro-American Culture 3 s.h.
Seminar or research project for graduate students concentrating in Afro-American studies. Prerequisite: 45.285. Also counts in Afro-American studies and 45.211.

45.281 Seminar Advanced Study in Afro-American History 3 s.h.
In-depth study of selected Afro-American playwrights or periods. Prerequisite: 45.182 or equivalent, or consent of instructor.

45.285 Seminar Advanced Study in Afro-American Poetry 3 s.h.
In-depth study of selected Afro-American poets. May be repeated for credit if content is different. Prerequisite: 45.182 or equivalent, or consent of instructor.

Aging Studies Program

Coordinator: Hermeneault

Advisory committee: Henry F. Brown, (Dentistry), Jerome B. Cook, (Social Work), Samuel G. Davis, (Law), Thomas Hoagland, (Psychology), Alben W. Hurd, (Graduate Education), Periyathos Hummel, (Counseling Education), James F. Jaffe, (College of Creative Arts), Nancy J. Johnson, (Graduate Education), Emeritus Professor Emeritus, (English), Edward W. Lewis, (History), Donald J. Murnane, (Social Work), Lillian Tilly, (School of Social Work), William T. Wall, (School of Social Work), and John W. White, (Graduate Education).

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

Program Requirements

The Aging Studies Program involves 18 approved semester hours of course work related to aging at the 400-level or above. This aging-specific course work is defined as courses within the University that are principally focused on other persons, the aging process, or interventions methods or techniques with the elderly or aging as the target.

Students will be required to take an introductory aging course, and either a research project or practicum in aging in completing the Aging Studies Program. With the approval of the student's major department, course work may be applied to the student's major or professional program of study. However, six semester hours must be taken outside the student's major department.

Students should take the introductory gerontology course prior to or concurrent with other courses in the program. The research project or the practicum should not be taken until the first nine semester hours of the program are completed.

Program Eligibility

The program is open to all interested graduate, upper-level undergraduate (must have completed 48 semester hours), and special status students whose particular career interests and needs will be served by completing the program. Students in good standing at the above-mentioned levels may establish plans of study with the Aging Studies Program coordinator who will work with the students and their advisors to shape the plan of study to complement each student's academic program and career interest.

Students should contact the Aging Studies Program coordinator to develop an appropriate plan of study. The program will include the required courses, as well as a recommendation for the sequence of course work to be taken. The coordinator will keep a record of the student's approved program and of the student's progress. Upon completion of this program, the coordinator will register the student, who will indicate completion of the program on the student's transcript.

Courses

For full descriptions of each of the courses listed below, see the listings in the appropriate departmental sections of the Catalog.

Introductory Courses

All students must take at least one and no more than two introductory courses. The introductory courses accepted in the program include:

117.108 Basic Aspects of Aging
33.174 Aging and Society
212.346 Multidisciplinary Perspectives on Aging

Practicum and Research Courses

At least three and no more than six semester hours of credit for a practicum and/or research course will be accepted for the Aging Studies Program. Practicum and research courses include:

117.119 Directed Studies in Family Development
212.414 Multidisciplinary Perspectives on Aging

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

Elective Courses

Students may take elective courses to meet their particular needs and interests. Additional courses which may be used to fulfill the requirements for the program can be selected from the following:

American Studies
116.149 American Studies in Philosophy
116.163 American Studies in Literature
116.181 American Studies in Law

Anthropology
113.149 Special Topics in Anthropology

Business Administration
55.127 Public Policy in Economic Security Programs

Counselor Education
7C.200 Topics Seminar in Counseling Education

Dentistry
121.145 Introduction to Geriatric Dentistry

Family Practice
115.551 Perspectives on the Process of Aging

Health and Hospital Administration
116.208 Long-Term Care Administration

Home Economics
117.211 Individual and Family Development: Life Style (partial credit)
American Studies Program

Program chair: John Rauburn
Faculty: professors Wayne Franklin (American Studies), John Rauburn (American Studies/Economics), Albert S. Gore (American Studies/Economics), Kevin T. Turner (American Studies/English) and associate professor Richard R. Hermat (American Studies)


In its course work and for its majors, the American Studies Program provides an interdisciplinary introduction to American culture, past and present. The aim of the program is to train students and critics of culture who are broadly familiar with the dynamics of cultural experience. Students may combine related departments' courses in American experience with the interdisciplinary courses and seminars of the American Studies Program to explore such aspects of the life in the United States as popular and high culture, institutions, values, social processes, artifacts, and the contributions of subcultures.

Bachelor of Arts

While the major for the B.A. degree in American Studies stresses broad training in cultural analysis and communication, rather than specific preprofessional or vocational training, it provides preparation for a career in business, education, government, journalism, or social service: for advanced studies in the humanities, the social sciences, theology, or business; or for professional studies in law or medicine.

With his or her advisor's assistance and approval, the student majoring in American studies develops an individual plan of study combining courses from cognate departments and programs with integrative American Studies Program courses to explore a common period, topic, theme, or problem in American cultural experience. The major normally consists of 12 courses totaling 36 semester hours and including four courses (12 semester hours) in American and/or Afro-American studies; two courses (8 semester hours) in American history; and six courses (18 semester hours) in cognate departments and/or American studies. The courses in American and/or Afro-American studies usually include:

Required courses:
- 45:1 American Values 3 s.h.
- 45:90 Turning Points in American Culture 3 s.h.

Two of the following:
- 45:2 American Issues 3 s.h.
- 45:3 Women in American Culture 3 s.h.
- 45:4 Family and Community 3 s.h.
- 45:5 Media Studies 3 s.h.
- 45:6 Regional Studies: The American West 3 s.h.
- 45:7 Sex, Race, and Ethnicity 3 s.h.
- 45:8 American Music 3 s.h.
- 45:9 Introduction to Afro-American Society 3 s.h.
- 45:91 Introduction to Afro-American Culture 3 s.h.
- 45:102 Readings in American Studies 3 s.h.
- 45:152 Childhood and Youth in America 3 s.h.
- 45:153 Aging in America 3 s.h.
- 45:156 Visual Arts and American Culture 3 s.h.
- 45:157 African-American Cultures 3 s.h.
- 45:158 American Institutions: The Business Corporation 3 s.h.
- 45:159 American Communities: The Core Cities 3 s.h.
- 45:166 Autobiography and American Culture 3 s.h.
- 45:188 Popular Culture 3 s.h.

General education courses in historical perspectives, humanities, literature, and social sciences provide relevant preparation for the American Studies major. RC-1 or American lives is especially recommended.

Honor's

Honor's candidates in American studies must take 45:90 Turning Points in American Culture and 45:85 Honor's Project. With her or his advisor's help, the student in 45:90 delivers a research project on an American studies topic, does the research, and presents the results of the research in a senior essay.

Minor

Students interested in a minor in American studies are invited to consult members of the staff.

Master of Arts

The M.A. degree in American studies may be a terminal degree or a degree preliminary to the Ph.D. in American studies or a traditional discipline. The M.A. program in American studies normally includes 12 courses totaling 36 semester hours. Requirements include:

45:200 Theory and Practice in American Studies 4 s.h.
45:201 History, Literature, and Culture 3 s.h.

Two or more seminars or seminars in American studies or Afro-American studies.

Two courses in American history (unless already taken as undergraduate).
Six or eight additional courses selected in relation to a topic or period of cultural history. These courses may be grouped to form a major or will be selected by the student, but must be chosen from more than one discipline or department.

Satisfactory performance on a comprehensive examination on course work and basic concepts.

The M.A. may also be taken with a thesis, in which case 30 semester hours of course work is the required minimum. The student's department chair of the dissertation. A joint program leading to the M.A. degree in American studies and the J.D. degree from the College of Law provides a broad cultural context for the study and practice of law. Similar joint programs may be arranged in other professional fields, including social work and journalism.

Doctor of Philosophy

The Ph.D. program in American studies requires a minimum of 72 semester hours of course work, preparing the candidate in five areas: American studies courses and seminars in interdisciplinary approaches and methods, substantial course work in a major field of topic, equivalent work in a second major field or topic, courses in two minor fields, including one in a field or skills. Although permitted considerable flexibility in planning a program, the American studies candidates must meet certain
basic requirements. One is that all students directly engage, in course work and making a contribution to the cultural life of American life and experience. Some course work is expected in such areas as Afro-American studies and women's studies, this will be specifically explored on the candidate's oral exam. A second requirement is that each program will include substantial study of one period of American cultural history as defined to reflect the student's specific interests. Hence, history is considered either background to or the actual context of all doctoral programs.

The candidate normally takes 45-200 Theory and Practice in American Studies and 45-201 History, Literature, and Culture language for the first year of graduate study, and may include 45-530 Special Graduate Projects among the two or three other courses he or she takes in the area of interdisciplinary approaches and methods in American studies. Instead of a written examination in this area, the student prepares a position paper or interdisciplinary essay.

The student normally takes six or seven courses (18-21 semester hours), including tutorials, in each of his or her two major areas. Four-hour written examinations on each of the major areas, together with the interdisciplinary position paper or essay, provide the basis for the candidate's oral final examination. The student also takes three or four courses, or two of a specific topic or sub-discipline, as one minor area. Instead of a written final examination, the candidate prepares an annotated bibliography on the minor field for evaluation by his or her comprehensive examination committee. A candidate who has already submitted an annotated bibliography by the beginning of the term has the option of taking a two-hour written examination based on an abbreviated reading list.

The tools and skills area or minor field must include at least 8 semester hours of graduate-level course work in a foreign language, film, literary, philosophy, computer science, statistics, etc. In addition, up to 6 semester hours from thesis research and writing, teaching methods, and/or courses in American studies topics outside the major and minor areas may be included in this area.

In demonstrating mastery of one tool or skill useful for culture studies, the candidate must take two graduate-level courses at Iowa.

At the final examination for the Ph.D. in American studies is presentation of an acceptable thesis on a topic whose investigation has a contribution to the field or discipline. The candidate may petition to have the thesis satisfy requirements such as fiction, autobiography, film—combined with a critical analysis of the cultural experiences the thesis reflects, but permission for the candidate such a thesis will not be routinely given.

**Internships**

Qualified graduate students in American studies can arrange internships with the State Historical Society of Iowa, the Division of Historic Preservation, The University of Iowa Museum of Art, the Iowa Humanities Board, Living History Farms, the Herbert Hoover National Historical Site, and the Putnam Museum, Davenport. A candidate conducting research during such on-the-job training may receive academic credit. Other internships in social agencies, government, or businesses may also be arranged and course credit allowed when a research component is included.

**Courses**

**Primarily for Undergraduates**

- 45-030 Cooperative Education Internship
- 45-101 American Values
- 45-120 American History, Art, and Culture of the America's
- 45-130 American Research
- 45-140 American Studies
- 45-150 American Studies
- 45-160 American Studies
- 45-170 American Studies
- 45-180 American Studies
- 45-300 American Studies
- 45-310 American Studies
- 45-320 American Studies
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- 45-990 American Studies

**For Undergraduates and Graduates**

- 45-100 Readings in American Studies
- 45-110 American Folk Literature
- 45-120 Women and American Life
- 45-130 Psychology and Culture
- 45-140 Literature and Culture at American College
- 45-150 Children's and Youth in America

**Internships**

- 45-120 Aging in America
- 45-130 Visual Arts and American Culture
- 45-140 American Studies
- 45-150 Medieval Culture American Renaissance
- 45-160 American Society
- 45-170 American Institutions: Technocracy/Consumerism
- 45-180 American Community: The Consumer State
- 45-190 American Community: The Consumer State
- 45-200 American Community: The Consumer State
- 45-210 American Community: The Consumer State
- 45-220 American Community: The Consumer State
- 45-230 American Community: The Consumer State
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- 45-990 American Community: The Consumer State
in the natural world; their evolutionary background and development; the organization of social life; cultural and symbolic systems; the evolution of cultures and societies; and the interrelations among society, personality, and shared conceptions of thought and feeling.

Bachelor of Arts

An undergraduate major in anthropology provides a solid foundation for careers not only in anthropology but also in a variety of fields involving work with persons from cultures and subcultures different from one's own. These fields include the health care professions, law, economics, and business; political science and government; social work; international affairs; and education. The major requires at least 30 semester hours of course work in anthropology, including:

113:3 Introduction to the Study of Culture and Society 4 s.h.
113:12 Introduction to Prehistory 3 s.h.
113:13 Human Origins 4 s.h.
113:14 Language and Human Behavior 3 s.h.

In addition, each student must take one course in archaeology (area or topical), one course in ethnology, and one course in social institutions. The remaining hours are to be selected in consultation with the advisor.

Anthropology electives offer a wide range of choices, including courses dealing with language and culture, social problems of underdeveloped areas, economic anthropology, religious activity in folk and tribal settings, primitive art, biological anthropology, environment and culture, and urban anthropology. Specialization is encouraged in an undergraduate program, which is designed to give the student the broadest possible cross-cultural background. Course work is encouraged in such related areas as sociolinguistics, geography, history, psychology, zoology, and statistics. Students are also encouraged to participate in anthropological field and laboratory research.

Honors

The honors program in anthropology is open to students with minimum cumulative grade-point averages of 3.2 overall and 3.2 in anthropology in addition to the regular requirements for a major in anthropology. Honors students complete a senior or graduate-level course in anthropology or in a related department and an honors research project.

Field Research

Opportunities are available for students to participate in archaeological field research in central Mexico, the U.S. Southwest, or at various sites in Iowa. Under the direction of University anthropology personnel, participants acquire skills in data recovery and interpretive techniques.

Master of Arts

The M.A. program is general in nature, designed to prepare the student to deal with any aspect of anthropology at an introductory level. The department offers the M.A. degree with or without a thesis. The program without thesis prerequisite consideration for admission to the Ph.D. program. The number of semester hours of credit required for the M.A. with thesis may vary from 30 to 36, depending upon the student's previous anthropological training. The nonthesis program requires at least 36 semester hours of graduate work. A 38-hour M.A. degree without a thesis is available in conjunction with a minor concentration in museology. The following are the core area requirements at the M.A. level:

113:240 Seminar: Social Anthropology or
113:201 Seminar: Anthropological Theory

These four courses:

113:171 Anthropological Linguistics
113:288 Seminar: Anthropological Theory and Method
113:282 Seminar: Biological Anthropology
112:102 Anthropological Data Analysis

Two courses from the following subject areas:

Social Institutions: Linguistics (including courses in the Department of Linguistics) and Archaeology.

No more than nine semester hours of courses outside of anthropology and no more than three semester hours of independent study may be applied toward the M.A. degree requirements in anthropology. Students with previous training in anthropology, whatever their undergraduate major, may petition for permission to waive any part of the above distribution requirements.

Anthropology/Museum Joint M.A. Program

In cooperation with the Museum of Natural History, the Department of Anthropology offers a program of study leading to the M.A. degree in anthropology with a concentration in museum studies. Students interested in preparing to be leaders of museum exhibitions and the general operational procedures of small science museums form part of the student's training. Further information on this option may be obtained from the Department of Anthropology or the Museum of Natural History.

Doctor of Philosophy

Graduate training in anthropology at the Ph.D. level is designed to lead to professional competence in both scholarly research and teaching. The Ph.D. degree represents a balance between general competence in all the subfields of anthropology obtained at the M.A. level and professional specialization in one. The specialization is a student at The University of Iowa currently only select include archaeology, linguistics anthropology, and social-cultural anthropology. Training in a specialization will be guided by a Ph.D. committee composed of members of the faculty competent in the particular areas and topics chosen by the student. The only limitations in program selection are based on the faculty's expertise in given areas or the feasibility of arranging for training and guidance.

These are the requirements:

At least 75 semester hours of graduate course work;

Demonstration of a reading knowledge of one foreign language;

Mastery of a relevant research skill (for example, fluency in a foreign language or proficiency in a branch of mathematics, logic, computer programming, geology, or paleoecology);

Ethnographic or archaeological specialization in a major geographic area (for example, North America, Middle Eastern, Southeast Asia, the Caribbean, Europe), approved by the student's Ph.D. advisory committee;

Specialization in a major and minor topical area;

A written comprehensive examination in the student's area of specialization; and

Preparation and oral defense of a dissertation.

The major topical area is the area of theoretical concentration and specialization for the dissertation. Levels of topics that may serve either as major or minor areas in anthropology include: kinship or social organization, ethnolinguistic, economic anthropology, language and culture, religion, cultural ecology, and urban anthropology. Examples of possible major topical areas for students in the anthropology major include: settlement archaeology, environmental archaeology, and dating methods.
The comprehensive examination ordinarily will be taken when the student's coursework is completed or nearly completed, after the language and research skills required have been satisfied, and before he or she begins fieldwork. All doctoral candidates are required to carry out original, anthropological research. Ordinarily, students conduct fieldwork as the basis for their Ph.D. dissertation, however, a research proposal may be carried out using only documents, collections, or other source materials. All doctoral candidates are required to be adequately trained in techniques of gathering primary data in archaeological or ethnographic field research.

Graduate Admission

Applicants for admission to the graduate program in anthropology will be considered regardless of the field of their previous training. An applicant with an M.A. degree in another discipline must seek admission as a first-year graduate student. Admission to the department's graduate program may be at either the M.A. or Ph.D. level; however, full admission to the Ph.D. program depends on successful completion of departmental requirements.

Any student with an M.A. with thesis may apply for admission to the Ph.D. program. A student admitted with an M.A. degree and a full faculty institution may proceed directly to a specific Ph.D. degree program. A student admitted to the Ph.D. program is limited to students who wish to conduct research in an area of interest and competence represented among the doctoral faculty. Applicants for admission to the graduate program must meet the general admission requirements of the Graduate College (see "Graduate College") and will be required to submit a completed University Application for admission. Applications of all previous undergraduate and graduate work, three letters of recommendation from individuals competent to judge the candidate's potential for graduate study, scores from the aptitude portion of the Graduate Record Examination (GRE) Aptitude Test, and at least one typewritten essay of previous work (for example, a term paper or an original experiment). An applicant with an M.A. degree from another university must submit a copy of his or her master's thesis; an applicant who earned an M.A. without a thesis or whose thesis is not yet complete should submit a typewritten copies of three papers completed in graduate school.

It is desirable that the applicant have at least a 3.0 grade-point average. However, applicants with lower grade-point averages may be admitted with conditional status if other criteria indicate potential for graduate work.

Graduate Minor in Anthropology

A graduate student from another department of the University may minor in anthropology. The number of credit hours and the selection of courses which constitute the minor should be determined in consultation with members of the faculty of the Department of Anthropology, and with appropriate members of the student's major department.

Assistantships

Most graduate students receive financial aid in the form of teaching and research assistantships. Application for an award should be made directly to the chair, Department of Anthropology.

Facilities

The Department of Anthropology has access to the Iowa Archaeological Collections through the Office of the State Archaeologist. Prof. Thomas H. C. Barton maintains a field laboratory in Mexico. The University is a charter member of the Human Relations Area Files (HRAF), an extensively annotated set of source materials on the peoples of the world—their environments, behavioral patterns, social lives, and cultures. The HRAF and other library resources give anthropology students access to source materials on more than 400 different cultures.

Faculty

Members of the anthropology faculty have studied and lived in the Pacific islands, Asia, Europe, the Caribbean, Mesopotamia, South America, and the Subarctic. Department faculty have recently conducted field research in Mexico, Bolivia, Guatemala, Peru, Micronesia, Papua New Guinea, Thailand, the Canadian Subarctic, New Guinea, Trinidad, Fiji, New Zealand, Sri Lanka, Hungary, Iceland, the American Southwest, and Iowa.

Recent research by department faculty includes: precontact trade networks and the role of hydraulic cultivation systems in the emergence of civilization in the Valley of Mexico, Plains-Pueblo interaction in the United States, historical archaeology in Iowa, patterns of political and economic development of emerging nations, comparative anthropological studies of hunting-and-gathering groups, archaeological investigations of Indian villages in Iowa, alcohol use and abuse in Micronesia and Melanesia, Mayan linguistics in Guatemala, market women in Peru, and agrarian and economic decision making among rural peoples in Thailand, Bolivia, and Iowa.

Courses

For Undergraduates Only

150 Introduction to the Study of Culture and Society
4 h.
Comparative study of culture and social organization.
150-150 Anthropology and Contemporary Field Problems
3 h.
Examines selected world problems from an anthropological point of view, using leading anthropologists' current proposals with those theories to identify human groups in recent times and the recent past.
1512 Introduction to Prehistory
3 h.
Dates and reinterprets the evolution of human culture and of Polynesia in terms of complex societies; emphasizes on prehistoric cultural information from areas of the world from which relatively complete sequences are known.
1513 Human Origins
3 h.
Examines prehistoric, genetic, and anthropological evidence for human evolution; emphasis on interrelationships of culture and behavior and on emergence of modern Homo sapiens.
1514 Language and Human Behavior
3 h.
Language and human communication in cultural context; speech communication and sociolinguistic implications, as an area of investigation, and communication in relation to the origin and development of language, nonverbal communication.
1525 Introduction to Middleamerican Prehistory
3 h.
Prehistoric cultural sequences of Iowa viewed against the background of North American prehistory. Discussion of current and future research.
1527 Field Introduction to Archaeological Analysis
3 h.
Field introduction to archaeological analysis.
1527 Individual Study
1-15 h.
Supervised research in some special area or subspecialization in anthropology in which student has had basic course.
1530 Directed Research
3-15 h.
Honors research under the special research project of a faculty member in conjunction with the honors advisor; may be repeated.

Advanced Courses General Anthropology

1530 General Anthropology
3 h.
Survey of modern worldwide cultural systems (primary for nonmajors with advanced training; not required for other majors in anthropology; 15-30 credits of anthropology are required).
1510 Anthropological Data Analysis
3 h.
Introduction to computer science for analyzing field data and library materials; elementary statistics and introduction to computer language.
1532 Introduction to Museology
3 h.
Same as 40-151, 24-110, 104-110, 79-110.
1532 Introduction to Fieldwork Studies
3 h.
Introduction to fieldwork, including field methods and the role of the anthropologist in various areas, including field and lab report writing, field notes, culture, customs, and techniques.
1532 American Archaeology: The Cushion Chip
3 h.
Same as 43-160.
1532 Comparative Cultural/Health Work
3 h.
Same as 96-174. Prerequisites: junior standing or consent of instructor.
1532 Health and Cultural Diversity
3 h.
Prerequisite: 33-120 or 112-120, or consent of instructor. Same as 96-172.
1532 Laboratory Anthropology
3 h.
Same as 83-113, 48-151.
1532 History of Anthropology
3 h.
Survey of development of anthropology as a discipline; prehistoric origins, concepts, problems and methods, and intellectual and cultural anthropology. Prerequisites: 15-320 or 15-321 or consent of instructor.
1532 Special Topics in Anthropology
3 h.
Problems and concepts involved in comparing and contrasting behavior and ideas of different cultures. Certain topics are chosen each semester; topics not announced in current schedule. May be taken a maximum of three times with consent of instructor.
Individual Reading and Research Projects
113350 Independent Study Anthology
113350 Anthropology
113350 Thoras

Applied Mathematical Science
See "Mathematical Sciences."

Art and Art History
School Faculties: Wallace J. Tortenat
Feinbirk Schumann Keith Araschni; Margaret Alexander; Roger Alexander; Wayne Slep; Martha Brand; Ryan Kusner; Chung-I Chou; Hung-Wei Hsu; Margaret Lawson; Ben Weiss; Virginia Myers; Lawrence Fullman; Bob Wood; Jack Jost; Bela Jost; S. Halley; Wallace Tapias; Nancy Lunemeyer; Harry Johnson; Peter Foleman; Stephen Foster; Gary Haugenberger; Charles Froning; Barry McHugh; Robert Young; Christopher Roc; Stephen Schulte; James Steiner; Martha Foust; Nancy Talley; Reggie Walker; assistant professor Marilyn J. Andree; Patricia Houstet; D. Kay Miller; Anne Roberts; Ann Svin; Carol Stambaugh; Jane Tullerton

The University of Iowa School of Art and Art History pioneered the artist-teacher concept, appointing its teachers on the basis of their quality of work rather than the number of their degrees. It was one of the first university-based art schools to bring established professional artists to its permanent faculty. It was also among the first schools of art to join studio art with art history studies, reflecting the concept that the young artist will benefit from a formal study of the traditions of art, and a prospective historian from personal experience with the creative process. The emphasis on the creative productivity of its faculty reflects an educational philosophy that made Iowa one of the first universities to accept creative work for academic credit. The school early established a tradition of and achieved national recognition for presenting large exhibitions of contemporary American painting and sculpture. Its national image and position are maintained not only through the University of Iowa Art Museum, its program of exhibitions, and its growing collection of works of art periods and national art, but also through its graduate program of employing visiting artists and scholars of both national and international prominence. The facility of its undergraduate and graduate programs in art history continues with the support of an excellent art library and a large collection of visual materials. The employment of visiting lecturers for short-term workshops, in addition to the permanent faculty, continues to keep students directly involved with current scholarship. A number of the school's graduates enjoy success as practicing professional artists, art historians, art department administrators, museum directors and curators, and teachers. Regardless of employment status, graduates of the school have traditionally continued to find acceptable positions. This condition prevails. Although the emphasis has always been placed on fine arts and specifically commercial art courses are not part of the program, many graduates have taken positions as commercial designers. As far as possible, the design of academic programs in art history is modelled after the development of specific as well as general programs in studio arts and history. The major requirements of the undergraduate program are broad and flexible; specialization is encouraged. The art history major requires at least an introduction to studio work. The studio major requires development of a foundation in art history and in at least six areas of studio art. The aim of the joint curriculum is to give students a basic understanding of art and aesthetics; it does not focus on particular short-term styles or fashions.

Bachelor of Arts
The B.A. candidate in art or art history must earn at least 74 semester hours of credit in non-art courses, but may apply no more than 56 semester hours toward the total of 124 semester hours required for the degree. Cross-listed courses originating in the School of Art and Art History may not be counted toward the total of the general library arts core and hour requirements. Art majors in the B.A. degree program may waive three semester hours of Historical Perspectives general education requirement, those in the B.F.A. degree program may waive six semester hours of Historical Perspectives general education requirement.

Studio Emphasis
The B.A. degree with an emphasis in studio requires the following courses and credits in art:

Art History:
Two courses
6 s.h.
Selected from among 114, 114.5, 114.8, and 114.16

Two additional courses exclusive of those courses listed above
6 s.h.
1A:1-2 Colloquium
2 s.h.

1A:3 Biosc Drawing
2 s.h.
1A:4 Bakon Design
2 s.h.
Applicants of the following courses:
1C:60 Ceramics I
2 s.h.
1G:84 Introduction to Metalworking I, Jewelry
2 s.h.
1J:50 Multimedia I
2 s.h.
1J:15 Undergraduate Sculpture I
3 s.h.
One introductory studio course
4 s.h.

Electives to bring the total number of credits in History of Art, Studio, or Art Education combined to a minimum of 36 semester hours.

No more than 50 semester hour of credit in art courses the school itself will be counted toward the total of 124 semester hours required for the degree.

Transfer students majoring in studio must complete at The University of Iowa a minimum of three semester hours in art History, and 12 semester hours in studio beyond the six basic studio courses and including at least two different studio areas.

Undergraduate transfer students majoring in Studio must, at their first registration, show a portfolio of a faculty review committee, which will determine the student's placement in, or exemption from, the sequence of basic studio courses.

Art History Emphasis
Major requirements for the B.A. degree with an emphasis in art history was 9-2 semester hours of studio courses, as defined, and six semester hours (two courses) from among 114, 114.5, 114.8, and 114.16, plus 18 semester hours of intermediate and advanced art history. Electives must raise the total of art courses to a minimum of 30 semester hours and may raise the total to a maximum of 50 semester hours. Art courses taken beyond this level do not count toward the B.A. degree.

Honors students in art history must maintain a minimum grade point average in art history of 3.5, and must complete six semester hours of intermediate and advanced art history in a seminar and a written thesis, for three semester hours each.

Non-credits must include two or more semesters of a second foreign language, and at least 12 semester hours in at least three areas, including two of the following: 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 the B.A. degree in art education may choose either the studio or art history emphasis, satisfying the requirements described above, and, in addition to the general requirements for teacher certification (see the “College of Education” section of the Catalog), must satisfy these specific requirements:

1E:196 Concepts in Art Education 2 s.h.
1E:198 Art Education Study 3 s.h.
7E:143 Methods: Art 3 s.h.
7S:105 Advanced Methods: Art 3 s.h.
7S:117 Seminar: Curriculum and Student Teaching 3 s.h.
7E:152 Lab Practices in Elementary School 6 s.h.
7S:151 Observation and Lab Practices in Secondary School 6 s.h.

The following course is an elective:
1E:230 Art Education and the Museum 3 s.h.

Bachelor of Fine Arts (studio only)

In addition, B.F.A. students must apply to enter the program following completion of at least 30 semester hours in art. The B.F.A. requires 60 semester hours of credit in School of Art and History courses. In addition to the general education requirements (see “Collegen of Liberal Arts” section) and major requirements listed above for the B.A. degree, the art studio major, the B.F.A. candidate must complete three courses in a studio area of concentration beyond the fundamental core, and must complete at least the second semester of course work in each of two additional studio areas. Art education majors in the B.F.A. program must meet the same teacher certification requirements as those in the B.A. program.

Master of Arts in Art History

An M.A. student in art history is expected to acquire a broad general knowledge of art history as an academic and humanistic discipline, becoming familiar with major periods and monuments of world art, and gain proficiency in techniques of research within the art history area.

Specific requirements include:

- A B.A. or B.F.A. degree, with at least 18 semester hours of undergraduate work in art history
- A minimum of 36 semester hours of graduate level coursework, with a grade-point average of 3.0 or higher

- At least a one-semester (minimum 100-hour) practice in each of the following areas of art history:
  - Ancient (300 B.C.)
  - Medieval (300-1500)
  - Renaissance to Baroque (1500-1750)
  - Nineteenth Century to Modern
  - Oriental
  - Pre-Columbian

- Course development for the M.A. in art history includes:
  - 1H:294 Seminar: Methodology of Art History and Criticism 3 s.h.
  - Two other art history seminars (with different instructors) 4 s.h.
  - Additional art history courses 4 s.h.
  - Studio 6 s.h.
  - Courses outside the school 0-6 s.h.

- Students with little or no undergraduate studio training are required to take at least one studio course.
- Students with substantial undergraduate studio training may be exempted from the graduate studio requirement.

- A student preparing to teach in both the art history and studio areas will take at least 12 to 18 semester hours of studio course work, with a minimum of nine semester hours in one subject, in addition to the undergraduate requirement for a studio major, and will also satisfy the drawing requirement. Studio courses may be taken on a satisfactory/unsatisfactory basis.

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

- Within the first 30 semester hours of graduate work, the M.A. candidate will be expected to demonstrate the ability to read art historical writings in an appropriate foreign language, normally German or French, though other languages, including Oriental languages, may be acceptable. This requirement may be satisfied by the Graduate School Foreign Language Test (GSFLT), examination by the appropriate University of Iowa language department, satisfactory completion of the final semester of a Ph.D. language reading course, or satisfactory completion (at least a 3.0 grade-point average) of the fourth semester of a college or university language course.

- Qualification for the M.A. degree requires a comprehensive written examination, broadly covering the entire field of art history.

- The student must prepare either a written thesis, for which three semester hours of credit may be allowed, or a substantial research paper (approximately 20-40 pages).

Master of Arts in Studio

The school offers the M.A. degree in studio with emphasis in sculpture, design, drawing, metalworking and jewelry, multimedia and video art, painting, photography, printsmaking, or printmaking.

- The degree requirements are:
  - The B.A. or B.F.A. in art equivalent to that offered at the University of Iowa (undergraduate or graduate degree(s), if any, may be made upon concurrent with, but are in addition to, graduate requirements).
  - A minimum of 38 semester hours of graduate work, including at least 12 semester hours in a major studio subject, a total of at least 21 semester hours in studio courses, nine semester hours in the history and theory of art, and up to eight semester hours of courses outside art and art history.
  - Graduation occurs for M.A. candidates by successful review, and
  - Studio and written thesis.

- Studio majors may elect to take at least one studio course for unsatisfactory-unsatisfactory basis.

- Graduates who have not had drawing at the University of Iowa must take at least one drawing course during the first year.

- A student preparing to teach in both the studio and art history areas may offer an art history minor of 15 semester hours, including Seminar: Methodology of Art History and Criticism, and one other seminar. These hours are in addition to the graduate requirements for an art history major (except for the second foreign language, and in combination with the undergraduate hours) must satisfy the distribution requirement for art history.

Master of Arts in Art Education

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

- The B.A. or B.F.A. in art equivalent to that offered at the University of Iowa, Teaching certification in art.

- Completion of 38 semester hours of graduate credit, including 18 semester hours of studio and art history in a ratio of two to one (either 12 semester hours of studio credit and six in art history, or six in studio and 12 in art history), eight semester hours in graduate seminars in art education
and 12 semester hours to be specified after the student commences the program.

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

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

Art education majors may elect to take art history courses on the satisfactory/unsatisfactory basis.

Master of Fine Arts (studio only)

The school offers the M.F.A. degree with a major in ceramics, design drawing, printmaking and sculpture. The M.F.A. candidate must have an M.A. degree in an art equivalent to that offered at The University of Iowa. A minimum of 48 semester hours of graduate work, including at least 12 semester hours in a major studio subject, at least six semester hours in a minor studio subject, nine semester hours in the field of art education, and theory of art, and eight semester hours in courses originating outside the school; clearance for M.F.A. candidacy by faculty review, and written theses. Thesis credits earned in an M.A. program are not applicable toward the M.F.A. credit requirement.

Doctor of Philosophy (art history only)

The Ph.D. student is expected to have a broad general knowledge of art history and to acquire detailed knowledge of monuments, an understanding of artistic development, and a knowledge of methods of research within certain specialized areas of world art to be selected by the student in consultation with appropriate faculty members in the school.

No more than 36 semester hours of credit earned in an M.A. program may be applied toward the dissertation hours required for the Ph.D.

The University of Iowa's credit requirement for the doctorate must be met by enrollment at this University as a full-time student in each of two semesters beyond the first 24 semester hours of graduate work.

Course requirements beyond the M.A. program outlined above are:

Two art history seminars (with two different instructors) 4-6 s.h.

Additional art history courses 18-28 s.h.

Courses outside the school 0-12 s.h.

Students holding the M.A. from another institution must take the school's M.A. comprehensive examination within the first two regularly scheduled examination times following admission.

Within the first 15 semester hours of graduate work toward the M.A., the doctoral student must demonstrate ability to read art historical writings in two appropriate foreign languages. For majors in European art, one language will normally be German; for majors in Oriental art, Sanskrit. Chinese, or Japanese may be acceptable. The procedure for satifying the Ph.D. language requirement is as explained in the description of the M.A. in art history program.

The student must take a comprehensive examination in one major field (six semester hours) and two minor fields (three semester hours each) selected by the student in consultation with the adviser and approved by the art history faculty. At least one minor must be concerned with an art historical period or area remote from the major field. Each minor field may be revisited to the major; this may be in a discipline or disciplines outside the school, for example, religion, history, or philosophy.

The student must prepare a written dissertation containing an original scholarly contribution to the field. The school will allot a maximum of 24 semester hours of credit toward the art history coursework for dissertation preparation. The student must formally present the dissertation topic for faculty approval. The student is given a final oral examination on the dissertation.

Graduate Admission: Studio

Admission procedures for graduate studio programs include a committee review of applications and an interview with the applicant's supporting material. Contact the school for meeting dates.

Ceramics, design, metalworking or jewelry, multimedia or video art, or painting majors must submit slides and/or photographs of their work in their major fields; only applicants who are in residence at the University may submit original work in these areas. Drawing majors must submit original drawings; include figure drawings. Among others majors must submit from 6 to 20 original prints and drawings. Photography majors must submit a selection of original photography. Sculpture majors should send 8-10 black-and-white photos—slides, if color is important—or their work. Studio applicants must also submit examples of their work in other areas, and must submit three letters of recommendation.

Newly admitted students who do not register within two semesters of their admission must reapply. Students who attend for a limited time and thereafter interrupt their studies for two or more years must reapply for admission.

Graduate Admission: 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.

Applicants in art education must submit both 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.

Deadline for receipt of completed application and art education applications is June 15 for the fall semester, November 15 for the spring semester, or April 15 for summer registration.

Assistantships and Scholarships

Assistantships paying approximately $6,000 per academic year for 20 hours of departmental duties weekly are awarded to graduate students on a competitive basis. One-quarter assistantships are also available. The award of an assistantship entitles the recipient to an in-state tuition rate.

Scholarships paying partial or full tuition and entailing no departmental duties require a 3.0 cumulative grade-point average.

Those financial aids are generally awarded to students who have been in residence for at least one semester, so that faculty members have had an opportunity to observe their performance and potential.

Facilities

School facilities include an art library containing 60,000 volumes; a visual materials library containing 325,000 slides and 80,000 photographs; an integral printshop, forge and equipment for large and small bronze casting processes as well as facilities for welding and fabrication of steel sculpture; a well-equipped darkroom; extensive skin facilities, including provision for construction of various types of temporary and specialized kits; a large shop for woodworking, metalworking and industrial design; electroforming.
Asian Languages and Literature

Undergraduate Programs

The department offers two programs leading to the Bachelor of Arts degree, one primarily for those interested in studying the culture and civilization of traditional and modern Asia, and the other intended for those who wish to concentrate on developing competence in one or more Asian languages. Graduates of either program may find careers in government, banking, and commerce in America and Asia. The programs also provide an excellent background for advanced study in literature, history, art, religion, political science, geography, anthropology, or sociology. The department urges its undergraduate majors to study as early as possible, and every effort is made to facilitate transfer of credit with universities in Asia.

The Program in Asian Studies

This program is designed to introduce students to the East and Southeast Asian cultures, both modern and traditional, and to the political, economic, and social problems in Asia. Courses are taught by Asian specialists in many departments. Students are encouraged to take courses in a number of disciplines and in more than one area of Asia.

Students in the Program in Asian Studies major must complete 30 semester hours of courses on Asia distributed as follows:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>39:10-11</td>
<td>Second Year Chinese</td>
<td>12 s.h.</td>
</tr>
<tr>
<td>39:18-11</td>
<td>Second Year Japanese</td>
<td>12 s.h.</td>
</tr>
</tbody>
</table>

39:23-24 Second Year Sanskrit 6 s.h.
At least one course on the history of the area whose language they are studying, chosen from:
39:13-13 History of Ancient and Traditional India 3 s.h.
39:13-14 Imperialism and Modern India 3 s.h.
39:15-15 Traditional China 3 s.h.
39:15-16 China: Opium War to Mao 3 s.h.
39:15-17 Premodern Japan 3 s.h.
39:15-18 Modern Japan 3 s.h.

Other courses on Asia 100-level or above:
for those taking Chinese or Japanese 15 s.h.
for those taking Sanskrit 21 s.h.

Many students find a Program in Asian Studies major is conveniently combined with a major in history, political science, art history, religion, business, anthropology, or another discipline.

Chinese, Japanese, or Sanskrit

This program is tailored for students who wish to achieve an ability to speak, understand, read and write Chinese or Japanese, or to read Sanskrit, and to gain knowledge of the literature of China, Japan, or South Asia. Majors are required to complete advanced courses distributed as follows:

For students of Chinese:
39:10-11 Second year Chinese 12 s.h.
39:10-10 Third Year Chinese 12 s.h.
39:14 Chinese Literature: Poetry 3 s.h.
39:22 Chinese Literature: Prose 3 s.h.

For students of Japanese:
39:10-11 Second Year Japanese 12 s.h.
39:10-10 Third Year Japanese 12 s.h.
39:22-14 Traditional Japanese Literature 3 s.h.
39:14 Modern Japanese Fiction 3 s.h.

For students of Sanskrit:
39:23-24 Second Year Sanskrit 6 s.h.
39:18-18 Third Year Sanskrit* 6 s.h.
39:13-13 Indian Literature 6 s.h.
39:13-13 Indian Religous Texts 3 s.h.

"With the approval of the departmental advisor, students may substitute, for third year Sanskrit, six semester hours of 100-level courses in South Asian studies. Students are strongly urged to fulfill the general education requirement to study a cultural area through historical perspectives by completing 39:55-56 Civilizations of Asia.

Honors

Students with junior status who maintain a 3.5 grade-point average or above are encouraged to enroll in the Honors Program. With the permission of the departmental chair and a faculty sponsor selected from among Asian specialists in any department, the student will register for 39:191 Honors Tutorial and 39:195 Senior Honors Thesis. To receive a B.A. with honors, it is essential to complete an acceptable thesis based on original research in an appropriate area of Asian studies.

Master of Arts

Graduate study in Asian civilization is designed to prepare students for careers in government, business, journalism, diplomacy, service, or commerce, in which a knowledge of the languages and culture of a culture would be helpful. It also provides excellent preparation for advanced study on the doctoral level.

All students are required to write an M.A. thesis in English using Chinese, Japanese, or Sanskrit language sources. The thesis may count for four semester hours of the 30 required. All students must maintain a 3.0 minimum grade-point average.

By the end of the final semester of residence, students will be expected to demonstrate, by a departmental examination, language competence at the following levels:

for students of China, four years of modern Chinese and one year of Classical Chinese;
for students of Japan, three years of modern Japanese and the following courses at the fourth year level: Intermediate Reading in Modern Japanese and Advanced Readings in Modern Japanese at the fourth year level, and Readings in Japanese Literary Texts;
for students of South Asia, three years of Sanskrit (two years for students of modern South Asia).

In addition, all students will be examined on a History of China, Japan, or South Asia, and in two appropriate areas from Chinese or Japanese or South Asian history, literature, art, or religion; East, Southeast, or South Asian anthropology, or politics; or South Asian social sciences. The department can accommodate native speakers of Chinese or Japanese who wish to work toward professional competence in Asian civilization. A curriculum for each student would exclude any modern language work, and would include 26 semester hours of content courses on Asia, as well as four semester hours for the M.A. thesis. All candidates are expected to fulfill the general requirements of the Graduate College.

Graduate Admission

Applicants for 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, 3.0 for regular admission.
admission. In addition, applicants must submit a specimen of their writing—such as a term paper, seminar paper, or graduation thesis—for the Department of Asian Languages and Literature.

All non-fictional applications for graduate awards for the following academic year are due February 1. Applications for admission without support will be accepted until July 15 for the fall semester or December 1 for the spring semester. The candidate is advised to take the Graduate Record Examination (GRE) Aptitude Test at an early date, since an admission decision cannot normally be made until scores are received.

Library Facilities

Since 1960 the University Library has been purchasing all books on Asia issued by major publishers in Western languages. The library's Asian collection includes approximately 75,000 books, periodicals, and microfilms. It is particularly strong in literature, history, art, and philosophy, and it is constantly being augmented.

Courses

Undergraduate Language

32:1 Chinese 6 a.b.

A systematic study of spoken Mandarin, with some instruction in written characters. Chinese culture will be introduced. Open to freshmen. Offered in alternate odd-numbered years.

32:2 Chinese I 6 a.b.

A study of spoken Mandarin, with more emphasis on written language. Prerequisite: 32:1. Offered in alternate even-numbered years.

32:3 Chinese II 8 a.b.

A study of spoken Mandarin, basic grammatical patterns, and Chinese culture. Prerequisite: 32:2. Offered in alternate even-numbered years.

39:5 French I 3 a.b.

A study of spoken French, with more emphasis on written language. Prerequisite: 39:4 or 39:9. Offered in alternate odd-numbered years.

39:6 French II 3 a.b.

Continuation of the French course begun in 39:5. Satisfies the B.A. foreign language requirement. Prerequisite: 39:5 or 39:9. Offered in alternate even-numbered years.

39:10 Second Year Japanese 4 a.b.

Continuation of the second-year Japanese course begun in 39:9. Emphasis on everyday spoken and written Japanese, with additional instruction in basic conversational skills. Prerequisite: 39:9 or permission of instructor. Offered in alternate odd-numbered years.


Continuation of the third-year Japanese course begun in 39:10. Emphasis on the written language and additional instruction in basic conversational skills. Prerequisite: 39:10 or permission of instructor. Offered in alternate even-numbered years.

39:12 Fourth Year Japanese 4 a.b.

Repetition of the third-year Japanese course, with more emphasis on the written language. Prerequisites: 39:11 or permission of instructor. Offered in alternate even-numbered years.


Advanced language courses in spoken and written Japanese. Prerequisite: 39:12 or permission of instructor. Offered in alternate odd-numbered years.

39:14 Sixth Year Japanese 4 a.b.

Repetition of the fifth-year Japanese course, with a special emphasis on oral and written language. Prerequisite: 39:13 or permission of instructor. Offered in alternate even-numbered years.

Language Courses for Graduate Students

39:15 Beginner's Chinese for Graduate Students I 4 a.b.

Introduction to Chinese for graduate students. Prerequisite: 39:4 or 39:9. Offered in alternate odd-numbered years.

39:16 Beginner's Chinese for Graduate Students II 4 a.b.

Prerequisites: 39:15 or 39:9. Offered in alternate even-numbered years.

39:17 Beginner's Chinese for Graduate Students III 4 a.b.

Prerequisite: 39:16. Offered in alternate odd-numbered years.

39:18 Beginner's Chinese for Graduate Students IV 4 a.b.

Prerequisite: 39:17. Offered in alternate even-numbered years.

39:20 Classical Chinese I 4 a.b.


39:21 First-Year Chinese 4 a.b.

Further development of language proficiency through reading of modern texts. Prerequisite: 39:18 or 39:19. Offered in alternate even-numbered years.


Prerequisite: 39:21. Offered in alternate odd-numbered years.


Selections from the Analects of Confucius, Chuang and Lieh Tzu, and other classic works of the Han period. Prerequisite: 39:20. Offered in alternate even-numbered years.

39:24 First-Year Hebrew 4 a.b.


39:25 Linear Hebrew 4 a.b.

Survey of the Hebrew language and its relation to Semitic languages in general. Prerequisite: 39:24 or permission of instructor. Offered in alternate even-numbered years.

39:26 Second-Year Hebrew 4 a.b.

Further development of language proficiency through reading of modern texts. Prerequisite: 39:25 or permission of instructor. Offered in alternate odd-numbered years.


Selections from the Bible, including the entire book of Job. Prerequisite: 39:26. Offered in alternate even-numbered years.


Selections from the biblical literature and other works of the Old Testament. Prerequisite: 39:27. Offered in alternate odd-numbered years.

39:29 Classical Hebrew I 4 a.b.

Further development of language proficiency through reading of modern texts. Prerequisite: 39:28 or permission of instructor. Offered in alternate even-numbered years.

39:30 Biblical Hebrew III 4 a.b.

Selections from the biblical literature and other works of the Old Testament. Prerequisite: 39:29 or permission of instructor. Offered in alternate odd-numbered years.

39:31 Classical Hebrew II 4 a.b.

Further development of language proficiency through reading of modern texts. Prerequisite: 39:30 or permission of instructor. Offered in alternate even-numbered years.

39:32 Classical Hebrew III 4 a.b.

Further development of language proficiency through reading of modern texts. Prerequisite: 39:31 or permission of instructor. Offered in alternate odd-numbered years.

39:33 Beginner's Japanese for Graduate Students I 3 a.b.

Introduction to Japanese for graduate students. Prerequisite: 39:11 or 39:12. Offered in alternate odd-numbered years.

39:34 Beginner's Japanese for Graduate Students II 2 a.b.

Prerequisites: 39:33 or 39:11. Offered in alternate even-numbered years.

39:35 Beginner's Japanese for Graduate Students III 2 a.b.

Prerequisites: 39:34 or 39:12. Offered in alternate odd-numbered years.

39:36 Beginner's Japanese for Graduate Students IV 2 a.b.

Prerequisites: 39:35 or 39:11. Offered in alternate even-numbered years.

Literature Courses

39:19 Asian Literatures I 3 a.b.

Major literary and philosophical texts of China, India, and Japan in English translation. Open to freshmen. Offered in alternate odd-numbered years.

39:20 Asian Literatures II 3 a.b.

Open to freshmen. Offered in alternate even-numbered years.

39:10 Indian Literature 3 a.b.

Literature of Sanskrit and Hindi in translation: myths and epics.

39:19 Jewish Literature 3 a.b.

Major literary and philosophical texts in translation: court poetry and drama.

39:18 The Literature of Islam 3 a.b.

Readings illustrating the pervasive influence of Islam on literary and religious "Islamic" culture in such areas of rationalistic Chinese life as political poetry, panegyric and satire, astrology and medicine, secular culture and Islamic. Same as 39:31.

39:23 Chinese Literature 3 a.b.

Development and characteristics of Chinese literature from tenth-century B.C. to tenth century A.D., with emphasis on poetry.


A survey of English translation of major works of the Japanese literary tradition from the seventh century to early nineteenth century. No knowledge of Japanese required.


Development and characteristics of Chinese literature from Han and Tang to present, with emphasis on fiction and drama.

39:26 Western Japanese Fiction in Translation 3 a.b.

Survey in English translation of major works of Japanese fiction from the seventeenth century to the present, no knowledge of Japanese required.

39:19 Classical Japanese Drama 3 a.b.

Staging and readings in classical Japanese. Prerequisites: 39:1 and permission of instructor. Offered in alternate odd-numbered years.


Readings in modern Japanese texts for advanced students. Prerequisites: 39:1 and permission of instructor. Offered in alternate odd-numbered years.

39:22 Beginning Seminar for Graduate Students I 3 a.b.

Introduction to Sanskrit for graduate students. Prerequisite: 39:1 or permission of instructor. Offered in alternate odd-numbered years.

39:23 Beginning Seminar for Graduate Students II 3 a.b.

Prerequisites: 39:11 and 39:22. Offered in alternate even-numbered years.

39:24 Beginning Seminar for Graduate Students III 3 a.b.

Prerequisites: 39:11 and 39:23. Offered in alternate odd-numbered years.

39:25 Beginning Seminar for Graduate Students IV 3 a.b.

Prerequisites: 39:11 and 39:24. Offered in alternate even-numbered years.


Staging and readings in classical Japanese. Prerequisites: 39:1 and permission of instructor. Offered in alternate odd-numbered years.


Readings in modern Japanese texts for advanced students. Prerequisites: 39:1 and permission of instructor. Offered in alternate odd-numbered years.

39:19 Chinese Drama 3 a.b.

The development of classical Chinese dramatic works in a historical context. Same as 39:25.

39:29 The Chinese Tale 3 a.b.

Broad readings in Chinese literature; a study of literature, myth, and oral traditions relating oral and drama. Same as 39:31.

39:30 East-West Literary Relations 3 a.b.

Reading of ideas and theme literary works related to the development of the modern Chinese critical idea of itself. Same as 39:31.
Civilization Courses—Instruction in English

255 Chinese Civilization
Historical and topographical study of Chinese civilization, examining backgrounds, foundation, history, characteristics, activities and mental maps of ancient and modern times; uses common denominators of ancient works.

284 Introduction to Asian Art
Introduction to the art of India, China, and Japan. Same as ART 148.

291 Civilization of Asia
Introduction to the traditional cultures and societies of the four major regions of East Asia: India, Japan, Korea, and China. China: 1 semester. Asia: 16 weeks.

454 Civilization of Asia
Introduction to the modern history and present cultural currents of East Asia. Offered in Chinese or Japanese. Offered spring semesters. Same as 454.

455 Lang Leagues of the East
Selected historical and cultural aspects of the non-Japanese peoples of Southeast Asia, South Asia, and the Middle East. Same as 321.

311 Study of the Written Character
Analysis of the structure and the historical development of Chinese, Japanese, and Korean characters. Prerequisite: 102 or 114.

313 Chinese Painting I
Deals with the artistic problems of the study of Chinese painting. Prerequisite: 103.

315 Chinese Painting II
Continuation of 313. Offered every spring. Same as 103.

321 Japanese Painting
History of Japanese painting and the development of its techniques, its general cultural context and overall development. Same as 321.

392 Japanese Society
Description and analysis of Japanese culture and society, with emphasis on modern Japan. Same as 392.

395 Culture of Southeast Asia
Historical backgrounds and contemporary conditions of mainland Southeast Asia, including Vietnam, Thailand, Malaysia, the Philippines, Indochina, and the Malay peninsula. Same as 313.

328 Vietnam War in Historical Perspective
Same as 143.

316 Cultural and Social History of India
Social and cultural survey of India from Harappan period to 1500 A.D., emphasizing the spread of Buddhism and the rise of modern India. Same as 190.

324 Language and History of India
Survey of the main regions of India, including Kashmir, Afghanistan, Pakistan, and the remaining Asian states from ancient to modern times. Same as 228.

320 Chinese Cultural History
Examination of Chinese culture including the history, art, thought, and philosophy of China, with emphasis on its influence on modern China. Same as 320.

320 Chinese Civilizations
Introduction to the general trends in Chinese civilization, examining the influence of Chinese thought, art, and culture on modern China. Same as 320.

326 History of the Chinese Language

316 History of the Chinese Civilization

314 Introduction to Chinese Linguistics
Introduction to the syntax, phonology, palaeography, and phonology of the Mandarin Chinese language. Same as 314.

312 History of the Chinese Language

325 History of the Chinese Civilization

323 History of the Chinese Civilization
History of the Chinese language and its influence on the development of modern Chinese civilization. Same as 323.

325 History of the Chinese Civilization

326 History of the Chinese Civilization
Individual Study for Advanced Students
39151 Honor Tapesal
Offered on satisfactorial basis.
39152 Senior Honors Thesis
Offered on satisfactorial basis.
29020 Methods of Teaching Chinese
3 s.h.
Introduction to the teaching of elementary Chinese. Prerequisites: 39156 or equivalent.
39220 Methods of Teaching Japanese
3 s.h.
Introduction to the teaching of elementary Japanese. Prerequisites: 39156 or equivalent.
39271 Individual Chinese for Advanced Students
3 s.h.
Individually selected research and translation projects. Prerequisite: 29220 and permission of instructor.
29272 Individual Japanese for Advanced Students
3 s.h.
Individually selected research and translation projects. Prerequisite: 29220 and permission of instructor.
29317 Individual Seminar for Advanced Students
2 s.h.
Offered on an individual basis to students preparing for graduate study. Prerequisites: consent of instructor.
29320 M.A. Thesis
Offered each semester.
29321 M.A. Thesis
Offered spring semester.

Astronomy
See "Physics and Astronomy."

Biochemistry
Department head: Edward C. Heath
Degrees offered: B.A., B.S., M.S., Ph.D.
Biochemistry is the study of the basic chemical processes which occur in all living systems. It is one of the most active areas of research in the sciences, and promises to remain so for a considerable time to come.
Biochemists generally work in laboratories and/or classrooms. Those with the Bachelor's degree are most often employed as research assistants in laboratory work in a wide variety of situations in industry, government, education, health service, or secondary school teaching, for which certification is also required.
Biochemists with advanced degrees—usually the doctorate—pursue learning, research, and/or administrative careers in universities, medical schools, hospitals, private research agencies, and government laboratories; and in the food, drug, cosmetics, chemical, petroleum, and allied industries as well as in recombinant DNA gene companies.

Bachelor of Science
The Bachelor of Science program in biochemistry prepares the student, upon graduation, to work as a biochemist in certain positions requiring no further formal training. It is also an excellent background for graduate study in biochemistry and related sciences, or professional degree work in the health sciences.
In addition to the College of Liberal Arts general requirements, the Bachelor of Science degree in biochemistry requires:

29225-2926 Calculus I-II
8 s.h.
29325-3936 Engineering Calculus I-II
8 s.h.
29261-29262 Introduction to Physics I-II
8 s.h.
3733 Principles of Animal Biology
5 s.h.
29114 Introduction to Botany
4 s.h.
61175 General Microbiology
3 s.h.
61176 Survey of Invertebrates
3 s.h.
72552 Mammalian Physiology
4 s.h.
Other areas of interest include:
29291 Principles of Chemistry I
3 s.h.
29292 Principles of Chemistry II
3 s.h.
29293 Principles of Chemistry Lab
2 s.h.
29112-29112 Organic Chemistry I-II
5 s.h.
29113 Physical Chemistry I
3 s.h.
29114 Physical Chemistry II
3 s.h.
96135 Physical Biochemistry
4 s.h.
96136 Organic Chemistry Laboratory
3 s.h.
99100 Seminar: Undergraduate
0-1 s.h.
(Three s.h. total required)
99120 The Chemistry of Biological Materials
3 s.h.
99130 Metabolism
3 s.h.
99150 Experimental Biochemistry
4 s.h.
99155 Biochemistry of the informational macromolecules
3 s.h.
99157 Research, Independent Study
at least 6 s.h.
(A may be taken for honors)
Advanced science electives
at least 15 s.h.

Bachelor of Arts
In addition to the College of Liberal Arts general education requirements, the Bachelor of Arts degree in biochemistry requires:

29115 Mathematics for the Biological Sciences
4 s.h.
29261-29262 Calculus for the Biological Sciences
8 s.h.
29111-29112 College Physics I-II
8 s.h.
3733 Principles of Animal Biology
5 s.h.
29111-29112 Introduction to Botany
4 s.h.
61175 General Microbiology
3 s.h.
61176 Survey of Invertebrates
3 s.h.
72552 Mammalian Physiology
4 s.h.
Other areas of interest include:
29291 Principles of Chemistry I
3 s.h.
29292 Principles of Chemistry II
3 s.h.
4-15 Principles of Chemistry Lab
1 s.h.
4-121-122 Organic Chemistry I-II
6 s.h.
4-130 Physical Chemistry for the Life Sciences
3 s.h.
99100 Seminar: Undergraduate
0-1 s.h.
99120 The Chemistry of Biological Materials
3 s.h.
99130 Metabolism
3 s.h.
99140 Experimental Biochemistry
4 s.h.
99155 Biochemistry of the informational macromolecules
3 s.h.
Advanced science electives
at least 9 s.h.

Astronomy
See "Physics and Astronomy."

Biology

Coordinated Degree Specifiers:

Graduate Programs, Facilities, Courses
See "Biochemistry" in the College of Medicine section of the Catalog for descriptions of the department's graduate programs and facilities, and for its faculty roster and course offerings.
Undergraduate Program

The biology major is jointly administered and taught by the departments of Botany and Zoology.

The basic courses emphasize processes which are either common to living systems at molecular, cellular, organismic, and population levels. Later, through appropriate selection of elective courses, students may follow their own interests by concentrating in such areas as genetics, development, physiology, ecology, molecular biology, or courses which emphasize plant or animal systems.

Students interested primarily in field biology have article opportunity for this emphasis through the program in ecology and evolutionary biology, and program's use of the Macbride Field Station.

Also, a variety of courses is offered during the summer at the Iowa Lakeside Laboratory at Lake Okoboji.

The science requirements are identical for the Bachelor of Science and Bachelor of Science degrees with a major in biology. They total 34 semester hours, as follows:

- 21 Introduction to Botany 4 s.h.
- 37.3 Principles of Animal Biology 5 s.h.
- 37.128 Fundamental Genetics 3 s.h.

Minor

A minor in biology is available for students majoring in other subjects. The biology minor requires 15 semester hours of credit in botany, microbiology, zoology, and/or ecology (systematics) courses taken at the University of Iowa and including at least 12 semester hours in 300-level courses, excluding those designated primarily for non-science students. Biology courses taken at other institutions or taken on a pass-fail basis will not apply toward requirements for the minor in biology.

Honor

The honors Program in biology gives the superior student membership in a small, active group of undergraduates with common interests and association with one of the department's research groups. It introduces the student to the pursuits of practicing scientists—experiments, discussions of current research, work on specialized topics, attendance at research lectures.

Students in the College of Liberal Arts and Honors Program may earn an honors degree in biology by completing at least 6 semester hours of honors coursework in the departments of Botany and/or Zoology, including at least 2 semester hours in 219H Honors Laboratory Research or 319H Honors Laboratory Research; at least 2 semester hours in 219H Honors Readings in Botany or 319H Honors Readings in Zoology, and at least one hour in 319H Honors Seminar in Zoology or a comparable seminar. Students in the biology program must maintain at least a 3.6 grade-point average overall and at least a 3.2 average in the biological sciences. A final research paper approved by the research supervisor is required.

Graduate Programs

The departments of Botany and Zoology offer Master of Science degree programs in botany and zoology. See Biology and Zoology in this section of the Catalog.

Department Chair: Jeffrey T. Schaal
Faculty professors: Robert W. Cruden, Robert M. nuit, Jeffrey T. Schaal
Associate professors: Wayne R. Carenzo, Robert W. Cruden, David N. Fleischer, Richard G. Spandau, Wen-Wei Wang
Assistant professors: Bruce C. Bograd, E. Gene Fleischer, Jonathan E. Fulton, Dan B. Gloger

Adjunct assistant professors: Kenneth Jensen

Department of Botany and Zoology

66 LIBERAL ARTS/Botany
in the earth’s biosphere, their structure, function, reproduction, diversity, evolution, ecology, and relation to human affairs. Training of professional botanists for teaching and research positions in colleges, universities, governmental agencies, and industrial firms is available. Students majoring in botany often prepare to enter careers in fields related to the plant sciences, such as agriculture, forestry, horticulture, plant breeding, microbiology, the chemistry of natural products, ecology, medicine, environmental law, and pharmacy.

Bachelor of Science

In addition to the general education requirements of the College of Liberal Arts, students seeking the B.S. degree are required to take:

Botany Requirements

21 Introduction to Botany 4 s.h.
210 Plant Diversity 4 s.h.
2113 Plant Anatomy 4 s.h.
2129 Fundamental Genetics 3 s.h.
2102 Algae and Fungi 4 s.h.
or
2107 Mycology
and
2105 Physiology 4 s.h.
A Taxonomy Course
213 Biology of the Local Flora 3 s.h.
2101 Plant Taxonomy 4 s.h.
2151 Field Botany 3 s.h.
2105 Plant Taxonomy 5 s.h.
A Physiology Course
2109 Plant Physiology 4 s.h.
2110 Plant Physiology 4 s.h.
2115 Cellular Plant Physiology 3 s.h.
37105 Cell Physiology 4 s.h.
An Ecology Course:
2112 Physiology 4 s.h.
2132 Ecology 4 s.h.
2116 Field Ecology 4 s.h.
Special Topics
2133 Special Topics 2 s.h.
Zoology Requirement
373 Principles of Animal Biology 5 s.h.
Chemistry Requirement
413 Principles of Chemistry I 3 s.h.
414 Principles of Chemistry II 3 s.h.
415 Principles of Chemistry Laboratory I 3 s.h.
4121 Organic Chemistry I 3 s.h.
4122 Organic Chemistry II or
99120 The Chemistry of Biological Materials 3 s.h.
4141 Organic Chemistry Laboratory 2 s.h.
or
99140 Experimental Biochemistry 4 s.h.
Mathematics Requirement
22013 Mathematics for the Biological Sciences 4 s.h.
or
22012 Elementary Functions 3 s.h.
A Statistics course
22012 Introduction to Statistical Methods or equivalent.

Bachelor of Arts

The B.A. curriculum provides a broad background in botany yet allows more electives than does the B.S.
In addition to the general requirements of the College of Liberal Arts, students majoring in botany are required to take:

21 Introduction to Botany 4 s.h.
373 Principles of Animal Biology 5 s.h.
2129 Fundamental Genetics 3 s.h.
A minimum of one course from each of the following five areas (15-20 semester hours).

Structural Botany
2113 Plant Anatomy 4 s.h.
Physiology and Cell Biology
2109 Plant Physiology 4 s.h.
2110 Plant Physiology 4 s.h.
2114 Cellular Plant Physiology 3 s.h.
2126 Plant Biochemistry 3 s.h.
37105 Cell Physiology 4 s.h.

Vascular Plant Diversity
2113 Biology of the Local Flora 3 s.h.
2100 Plant Diversity 4 s.h.
2101 Plant Taxonomy 4 s.h.
2151 Field Botany 2 s.h.
2120 Paleobotany
L105 Plant Taxonomy 5 s.h.

Ecology and Evolution
2111 Plant Ecology 4 s.h.
2116 Field Ecology 4 s.h.
2131 Evolution 4 s.h.
2132 Ecology 4 s.h.

Biological Science of Non-Vascular Plants
2102 Algae and Fungi 4 s.h.
2105 Physiology 4 s.h.
2106 Mycology 4 s.h.
2107 Mycology 4 s.h.
A one-100-level course in Botany or cognate sciences

Chemistry
413 Principles of Chemistry I 3 s.h.
414 Principles of Chemistry II 3 s.h.
415 Principles of Chemistry Laboratory I 3 s.h.
4121 Organic Chemistry I 3 s.h.
4122 Organic Chemistry II or
99120 The Chemistry of Biological Materials 3 s.h.

Mathematics
(one of the following)
22015 Mathematics for the Biological Sciences 4 s.h.
22016 Calculus for the Biological Sciences 4 s.h.
22020 Elementary Functions 3 s.h.

22M10 Calculus I 4 s.h.

Students preparing to teach in secondary schools should consult the "College of Education" section in the Catalog regarding requirements for teacher certification.

Honors

An undergraduate program leading to graduation with honors provides opportunities for participation in independent research projects guided by professional staff members. In addition to the regular requirements for the B.A. degree, honors students must complete 3 semester hours of research during the senior year, maintain the grade-point averages required for admission to the program, and pass an honors examination at the end of the senior year.

Minor

The botany minor requires 16 semester hours of credit in Botany. At least 12 of these semester hours must be earned in courses at the 300 level or above. None of these courses may be taken pass-fail.

Biology Program

Undergraduate and Graduate degree programs in biology are administered jointly by the departments of botany and biology. See "Biology" in this section of the Catalog.

Graduate Programs

An advanced degree enhances career opportunities in botany. The department currently offers advanced degree work in anatomy, histology, cell biology, ecology, genetics, development and morphogenesis, mycology, paleobotany, physiology, plant genetics, and taxonomy. Graduate training frequently involves interdisciplinary study requiring some course work in cognate departments. Each graduate student is therefore assigned a faculty guidance committee to help him or her set educational goals and define course requirements necessary to meet them.

Master of Science in Botany

The botany department offers two distinct M.A. degree programs, one with thesis and one without. The M.S. with thesis places greater emphasis on independent research and less on formal course work. It is intended primarily for candidates entering with a strong course background in botany or biology.
Master's Degree without Thesis

Each student must:
Submit a program of study approved by a guidance committee comprising three members of the graduate faculty, one of whom shall be from another department. Normally, as a guidance procedure, the program of study should be prepared during the first semester in residence as a regular graduate student.

Complete at least 34 semester hours of graduate courses in botany or supportive areas, as prescribed by the guidance committee. Six hours of research (2225) are required in this program. Additional research hours may be taken, but no more than six may be counted toward the 34-hour degree requirement.

Achieve a grade point average of 3.0 on all courses—other than Research—completed prior to the time of the final examination.

Pass a written examination during the term in which he or she is to graduate (Individual committee members may opt not to give a written examination in their area.) This is followed within a week by an oral examination. These examinations cover the courses and research experience the student has had up to this point.

Master's Degree with Thesis

Each student must:
Submit a program of study, as above, for the M.S. without thesis.
Complete at least 30 semester hours of graduate courses in botany or supportive areas, as prescribed by the guidance committee. Nine hours of research and thesis (2225 and 2226) are required in this program. Additional research hours may be taken, however, no more than nine may be counted toward the 30-hour degree requirement.

Achieve a grade point average of 3.0 on all courses—other than Research—attempted prior to the time of the final examination.

Prepare a thesis on research conducted.
Defend the thesis in an examination during the term in which he or she is to graduate.

Master of Science in Biology

The degree program leading to a M.S. in biology is administered jointly by the botany and biology departments. See "Biology" section of the Catalog.

Doctor of Philosophy in Botany

The Ph.D. is primarily a research degree. It may be earned after conducting original research of sufficient magnitude and value to allow the writing of a thesis and its successful defense before the final examination committee. In addition, the student must complete 72 semester hours of graduate course work and research as prescribed by the student's guidance committee. Hours earned for the master's degree may be counted toward the 72 hour minimum. The guidance committee may also allow a use that course work beyond the 72 hours be taken to meet specific proficiency requirements (e.g., language, statistics) or to make up for background deficiencies (e.g., chemistry, general botany) clases.

Specific degree requirements are as follows:
Submit a program of study for the Ph.D. to a guidance committee during the first semester in residence as a Ph.D. candidate. The program must be approved by the guidance committee.

Fit all course work requirements of the program above. Changes may be made only with the formal (written) approval of the guidance committee.

Complete an Initial Research Proposal within 2-3 semesters of admission to the Ph.D. program (i.e. post-M.S.). The proposal should outline the specific objectives, significance, and methodology of the chosen research project. This proposal should be a written version of the proposal accepted by members of the guidance committee. Subsequently, copies of the accepted proposal will be distributed by the candidate to all faculty members of the Botany Department.

Give an Oral Presentation of the proposed research work to members of the botany department within a six-month period following acceptance of the Initial Research Proposal. The candidate will thereby be eligible for 1 semester hour credit under 2-22 Seminar. Botany (see also section on botany Seminars).

Take a written and oral comprehensive examination when formal course work has been completed or nearly completed.

Submit a doctoral thesis based on original research in the final examination committee for review.

Present the results of the thesis research at a special meeting of the Botany Seminar, preferably before the thesis defense.

Pass the final doctoral examination which is primarily a defense of the ideas, methods, and significance of the doctoral thesis.

Doctor of Philosophy in Biology

The degree program leading to a Ph.D. in biology is administered jointly by the botany and biology departments. See biology section of the Catalog.

Graduate Admission

University requirements

An application form for admission to the Graduate College must be completed and sent to the Director of Admissions, University of Iowa, Iowa City, Iowa 52242. Official transcripts from each undergraduate and graduate institution attended must be submitted with the application form. Scores on the Graduate Record Examination (GRE) Aptitude Test (verbal and quantitative parts) should be filed with the application. A valid B.S. or B.A. degree from an accredited institution is required.

Departmental requirements

Masters Degree Program:
A cumulative grade point average of at least 3.0 on all college level work attempted.
A GRE Aptitude Test score (verbal plus quantitative) of 1100 or greater.
Three letters of recommendation.

Provision: The numerical requirements are not absolute. For example, a GRE Aptitude Test score slightly below 1100 may be compensated for by a high level of academic achievement, especially during the M.S. program.

A master's degree in botany or a degree in a closely related field provision.

The numerical requirements are not absolute. For example, a GRE Aptitude Test score slightly below 1100 may be compensated for by a high level of academic achievement, especially during the M.S. program.

Students applying for admission to the master's program in botany must have a bachelor's degree in one of the biological sciences. Students with bachelor's degrees in other areas will need to regular as special students (AS) and make up the equivalent of our bachelor's degree program prior to a consideration for admission. In addition to the botany and biology courses listed in our undergraduate program, special students will need to complete the chemistry and mathematics requirements to show equivalency. Students should consult the department chairman before attempting to set up a program as special students.

Special provision for foreign students:
Admission for foreign students is based on a quantitative score on the GRE Aptitude Test of 550 or greater and a Test of English as a Foreign Language (TOEFL) score of 500 or greater. These scores may be used in place of the total GRE requirement, as outlined above.

Financial Support
New students wishing to apply for assistantships or fellowships may do so by submitting an Application for Graduate Awards form when applying for admission to graduate study. The application forms may be obtained from the Office of Admissions, the Graduate College or the Department Office. Applications are reviewed by the faculty for teaching assistantships and by the Graduate College upon recommendation by the Department faculty, for research assistantships and fellowships.

The kinds of amounts of support for graduate study in botany, as in other departments, vary from year to year depending on the availability of funds. The types of appointments and support are: teaching assistantships and research assistantships (half-time or quarter-time); teaching/research fellowships (TRF); genetics research assistantships; and other sources of support.

Teaching and Research Assistantships. Appointment to an assistantship requires that the student provide approximately 20 hours of work per week (half-time) or 60 hours per month (quarter-time) at a graduate tuition rate.

Teaching and Research Fellowships (TRF). Teaching-research fellowships are the most liberal awards available. The award is made for four years for beginning graduate students and three years for students who come with an M.S. degree. They carry a stipend for 12 months plus waiver of tuition. Appointment render service to the department and, in some cases by offering or requiring of research for two or three years, in addition to being free of service requirements, permitting a student to spend as much time to research or thesis writing. The Graduate College requires that teaching-research fellowships be awarded to students from other campuses or students from The University of Iowa who have not taken a graduate degree.

Genetics Research Assistantships are awarded by the Interdepartmental Genetics Program from University funds. All students whose thesis project is primarily concerned with genetics are eligible to apply.

Other sources of support
Summer appointments are few and depend upon the amount of the surpluses in the student's budget. We have awarded as many as four teaching assistantships in recent summer sessions. Summer session stipends are 2/9 of the academic year salary. Awards are made for half-time service or 20 hours of time per week for the 8-week summer session. Selection of teaching assistants for the summer are made by the instructor in charge of the course to be served.

Faculty members with individual grants-in-aid may wish to employ half-time or quarter-time research assistants. These awards are made by the principal investigator in charge of the grant and carry stipends similar to those available from other sources. Graduate College and Departmental regulations and standards apply to these appointments.

Grants-in-aid for graduate students: Agencies such as NIH, NSF, and Sigma XI make grants-in-aid to graduate students. Announcements of the availability of these will be made from time to time. Consult the department chairmen for details. The Graduate College also provides information regarding grants available to graduate students.

Special Facilities and Activities
There is an excellent departmental library in the Chemistry-Botany Building.

Students considering teaching research projects requiring the cultivation of plants have access to greenhouse and special culture rooms with controlled environments. A plant physiology laboratory is available, with associated greenhouses.

A number of research laboratories are equipped with standard and more sophisticated apparatus for research in growth regulation and photosynthesis, plant biochemistry, biochemical systems, photosynthesis, plant pathology, cytogenetics, ecophysiology, physiology, cell biology, and tissue culture. There are two transmission electron microscopes in a special laboratory, and staff and students may use the Scanning Electron Microscope Laboratory in the Bowen Science Building.

An herbarium for research and general study contains more than two hundred thousand specimens. These standard specimens include extensive collections of seed plants and ferns from Iowa and the Midwest, special research specimens from Mexico and Central America, the Conard herbarium of bryophytes, and a growing repository of fossil pteridophyte plants.

Within a few miles of the campus, a forest preserve is available for field trips and experimental projects. A biological field station at Iowa Lakeside Laboratory (see "Iowa Lakeside Laboratory in this section of the text") on Lake Okoboji in northwestem Iowa offers excellent conditions for summer study in field biology, limnology, physiology, aquatic ecology, pollution biology, and plant taxonomy. Students frequently participate in field expeditions in Mexico, and Central America. Qualified graduate students may use the Weig Conge Computing Center in their research projects.

Courses

Primary for Undergraduates

1. Introduction to Botany

Biology of plant life emphasizing structure, function, reproduction, diversity, and relationship. Requirements for course include biology and, for those planning to teach science.

2. Introductory Botany

Field and laboratory study of native and cultivated plants, and flowering herbs found in the region. Identification, recognition, and reproductive biology examined.

3. Biology of the Local Flora

Identification, classification, and evolutionary biology of ferns, gymnosperms, and flowering plants growing in the moist forests and upland habitats in native woodlands and urban communities when feasible. Prerequisite: 2.1 or equivalent.

4. Plant Propagation

Studying selection and vegetative propagation techniques, budding and grafting, seed culture, tissue culture, seed quality, seed dormancy, and seed sterilization.

5. Fungi and Fungi-Pathogenic

Study of ways plants are killed in man, as food, for clothing and shelter; soil, economic, and ecological significance of plants.

6. Botany of Aquatic Plants

A survey of plant life emphasizing the structure, reproduction, and evolutionary relationships of major plant groups. Prerequisite: 2.1 or equivalent.

For Undergraduates and Graduates

1. Plant Taxonomy

A laboratory and field analysis of evolutionary changes within species, genus and families of ferns, conifers, and flowering plants emphasizing integration of traits from comparative morphology, cytogenetics and biochemistry. Identification and recognition of major plant families. Prerequisite: 2.1 or equivalent.

2. Fungal Diversity

Survey of algae, fungi, and mycophytes, showing emphasis on mycophytes with emphasis on the morphological and reproductive biology of representatives of major taxonomic groups. Lecture and laboratory experience with fungi and protists. Prerequisite: 2.1 or equivalent.

3. Introductory Genetics

Basic principles of genetics including individual, chromosome, molecular, and evolutionary aspects. Prerequisite: 2.1 or equivalent.

4. Bryophytes

Structure and function of bryophytes; growth of reproduction; chlorophylls; hormones; sporophytes; axis development; origin; and evolution. Prerequisite: 2.1 or equivalent.

5. Physiology

Structure and reproduction of algae, taxon and experimental studies with emphasis on the physiology and biochemistry of representatives of major bryophyte groups. Prerequisite: 2.1 or equivalent.

6. Botany

Lectures, laboratory, and field study of algae and submerged and emergent aquatic plants. Prerequisite: 2.1 or equivalent.

7. Mycology

Morphology, taxonomy, and botany of fungi with
Bachelor of Arts
The B.A. curriculum in chemistry provides a general education with some concentration in fundamental chemistry, but with a wider choice of electives than the B.S. curriculum includes. Students electing this program may qualify for high school teaching, provided they meet teaching certification requirements. By selecting appropriate electives, students can meet entrance requirements for medicine, dentistry, or other professional programs in the sciences, while satisfying the B.A. requirements in chemistry. These are the major requirements for the B.A. degree.

413-14 Principles of Chemistry I-II
416 Principles of Chemistry Lab I
417 Basic Measurements
418-112 Analytical Chemistry-I
4112-122 Organic Chemistry-I
4113-132 Physical Chemistry-I
4114 Organic Chemistry Laboratory
4143 Analytical Measurements
4144 Physical Measurements Integral calculus (23M, 23S, 25T, 25U Calculus-I accepted)
Introductory physics (2117-18 Introductory Physics I-II recommended, 29-11 to 12 College Physics accepted) A minimum of four semesters in one language, either German, French, or Russian

Advanced courses in chemistry, biology, mathematics, physics, or other scientific areas are recommended.

Teacher Certification
The chemistry courses required for the B.S. or B.A. degrees satisfy the major requirements for teacher certification in secondary schools. Chemistry courses through organic chemistry satisfy the requirements for a teaching minor in chemistry (see the "College of Education" section of the Catalog).

Master of Science
The department offers the M.S. degree, with options in: analytical, inorganic, organic, and physical chemistry, and in chemical physics. Candidates for the M.S. degree are required to obtain minimum grades of C in three of the following courses or to meet the requirements by examination.

4110 Advanced Analytical Chemistry
4112 Advanced Organic Chemistry
4120 Advanced Physical Chemistry

The department offers a wide variety of opportunities to students with a B.S. degree in chemistry, including participation in research, preparation for advanced study, and preparation for careers in industry.

Doctor of Philosophy
A program of study for the Ph.D. degree in the areas listed includes the courses required for the M.S. degree, and courses in the major field of interest. The student must present a thesis covering the research. Students who have demonstrated the required ability to do research in the major field of chemistry and who have maintained a minimum grade-point average of 3.0 are admitted to the Ph.D. candidacy. Final oral examinations are required for all candidates for the Ph.D. degree. The student must successfully defend the Ph.D. thesis and a manuscript of the publishable portion of the thesis before an examination committee.

Interdisciplinary Programs
The Department of Chemistry collaborates in interdisciplinary programs in applied mathematical sciences and in chemical physics (see "Graduate College" section in the Catalog) with students with graduate degrees in chemistry, physics, mathematics, or engineering. They are eligible.

Graduate Admission
An applicant for graduate admission should have a bachelor's degree in chemistry with a grade-point average above 3.0. Most of the graduate students who are admitted are expected to have financial support, and application forms may be obtained by writing to the Department of Chemistry. Most assistantships and other appointments for the following academic year are filled by April 1, but there are occasional openings at the beginning of the second semester.

Facilities
The department is housed in a five-story building containing two auditoria, 5 lecture rooms, 15 undergraduate laboratories, 45 graduate research laboratories, a computer laboratory, and a number of special-purpose instruction rooms. Modern scientific equipment is available for research.

The department's excellent library facilities are available to all students. The library contains standard reference works and complete volumes of chemical and chemical engineering journals, and subscribes to a large number of current scientific journals.

Courses

Primary for Undergraduates

Students planning to take more than one year of chemistry should take 413, 414, and 416. Students requiring only one year of chemistry may take 4.7, 4.8, and 4.15.

1005 Cooperative Education Internship
116 Technology and Society
124 Analytical Chemistry
129 Organic Chemistry
131 Physical Chemistry
134 Analytical Measurements
135 Physical Measurements
136 Introductory Physics I
137 Introductory Physics II
140 Advanced Analytical Chemistry
142 Advanced Organic Chemistry
811 Thermodynamics and Quantum Chemistry
818 Advanced Physical Chemistry
820 Advanced Quantum Chemistry
823 Advanced Physical Chemistry
825 Quantum Chemistry
830 Advanced Physical Chemistry
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20:1-2 Elementary Latin 8 s.h.
20:15 Latin Review 4 s.h.
20:16-17 Intermediate Latin I-II 6 s.h.
20:91 Age of Cicero 3 s.h.
20:92 August of Augustus 3 s.h.
20:171 Greek Literature I Latin Composition 3 s.h.
Two Latin literature courses, 150 level or above 6 s.h.

Major in Classics (Greek and Latin)
The B.A. degree with a major in Classics requires a minimum of 30 semester hours of major credit, of which 30 semester hours must be in Greek and Latin language courses. These courses, or their equivalents, are required:
14:1-2 Elementary Greek 8 s.h.
14:1-12 Second-Year Greek 6 s.h.
20:1-2 Elementary Latin 8 s.h.
20:16-17 Intermediate Latin I-II 6 s.h.
14:121-122 Homer and Hesiod I-II 6 s.h.
or
20:81 Age of Cicero 3 s.h.
20:82 August of Augustus 3 s.h.
14:171 Elementary Greek Composition 3 s.h.
or
20:171 Elementary Latin Composition 3 s.h.

Major in Ancient Civilization
The major is approved by the School of Art and Art History and the departments of Classical, History, and Religion. The major concentrates on the ancient civilization of the Mediterranean world and draws on courses currently offered by various departments of the University. It is not primarily a preparation for a graduate degree program; nevertheless, it could be used as a very sound basis for preparation of teachers at the secondary and junior college levels. In addition to the normal college requirements for the B.A. degree, the following are the specific requirements of the major:
Ancient art 6 s.h.
Ancient history 6 s.h.
Ancient philosophy or religion 6 s.h.
Classics or "Classics in English" courses, or Latin or Greek language courses 6 s.h.
Appropriate courses in art, history, philosophy, religion, or linguistics 3 s.h.
14:152 Seminar in Ancient Civilization 3 s.h.

Honors
For exceptional seniors who attained a 3.5 grade-point average in their first three years of classics courses, two courses are offered in honors reading.

one each semester of the senior year, for three semester hours of credit each semester. The readings and discussions are on either an ancient author or a field in ancient history or literature chosen by the student and the instructor. During the first semester the student presents an essay every other week; at the end of the second semester the course presents a long paper which is examined by at least three members of the department.

Language for Nonmajors
Students wishing to satisfy the College of Liberal Arts foreign language requirement for the B.A. degree by studying Greek should take 14:1-2 Elementary Greek and 14:11-12 Second-Year Greek. Students who wish to meet the requirement by studying Latin may elect 20:1-2 Elementary Latin or 20:15 Latin Review, and 20:16-17 Intermediate Latin I-II.

Graduate Program
For the general requirements of the Graduate College, including the comprehensive examinations, see the "Graduate College" section of the Catalog. Graduate students in classics may include in their programs no more than six semester hours of courses numbered 101-189.

Master of Arts
The department offers the M.A. degree in Latin, Greek, or classics. The candidate must earn a minimum of 36 semester hours of major credit in courses numbered 101 and above. Normally, students in the Latin program who have had no Greek are also expected to pass at least elementary Greek in their program.

Doctor of Philosophy
Required Courses
A one-term course in Greek readings (3 s.h.)
A one-term course in Latin readings (3 s.h.)
Advanced Greek composition (3 s.h.) or equivalent.
Advanced Latin composition (3 s.h.) or equivalent.
Any two of the following three courses:
A. A 3 s.h. course in Indo-European philology—3 s.h.
B. A 3 s.h. course in Greek paleography—3 s.h.
c. Any graduate-level art course—3 s.h.
A total of 42 semester hours of specified courses is thus required. The minimum graduate college requirement is 72 semester hours; the difference of 30 semester hours is to be made up from regular department offerings.

Required Ph.D. Examinations
A. Pre-Comprehensives
French Competency
German Competency
Latin Sigh (3 s.h.)
Greek Sight (3 s.h.)
One sight exam must be attempted by the end of the first year of graduate study.
B. Ph.D. Comprehensives (A request for the comprehensive examination must be filed at least three weeks before the date of the examination.) Candidates have the option of taking examinations in any sequence.
Greek Literature (including passages)—4 hours, written
Latin Literature (including passages)—4 hours, written
Ancient History—4 hours, written
Special Field or Author—3 hours, written
Oral on Written examination—1 hour

Dissertation
Special Facilities
Extensive collections of classical texts and periodicals in the University library and the art library facilitate research in the major areas of Greek and Roman civilization.
The department has a varied collection of slides on classical subjects, and a small library.
Associated with the department, the classical museum contains a valuable collection of coins, vases, and faience in bronze from Mysianae, Pompeii, and Herculanum.
The University is a supporting institution of the American School of Classical Studies at Athens, the American Academy in Rome, and the Vergilian Society, thereby making their facilities available to its faculty and graduates.

Courses
Greek
For Undergraduates Only
14:1 Elementary Greek 4 s.h.
Fundamentals of Attic Greek and basic concepts of Greek civilization
14:2 Elementary Greek 4 s.h.
Selections from Greek authors. Continuation of 14:1, which is prerequisite.
14:6 New Testament Greek 3 s.h.
Reading knowledge of New Testament Greek, with some knowledge of Greek at 14:1 level is desirable. These courses are also open to senior and junior language major and minor candidates.

For Graduates Only
14:8 Greek Literature 3 s.h.
V narz 14:2 Greek Language 3 s.h.
14:3 Greek Language 3 s.h.
14:4 Greek Language 3 s.h.
14:5 Greek Sigh 3 s.h.
14:7 Greek Language 3 s.h.
14:10 Greek Language 3 s.h.
14:11 Greek Language 3 s.h.
14:12 Greek Language 3 s.h.
14:13 Greek Language 3 s.h.
14:14 Greek Language 3 s.h.
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15:12 Latin History 3 s.h.
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For Undergraduates and Graduates

16:121 Homer and Heidegger 3 s.h.
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16:184 Homer and Heidegger 3 s.h.
The Department of Communication and Theatre Arts is concerned with the study of personal expression and development, with communication as the major means by which people adjust themselves to their society and their society to them. With communication as the essential process for the operation of any society, especially the highly technological society, and with artistic as well as functional communication, these concerns with communication are manifested in two ways: faculty attempted and attempts of the department's students to better understand communication processes, and to improve abilities to communicate effectively.

The department has six major divisions, whose emphases and distinctive courses are described below under the headings "Communication," "Communication Education," "Theatre Arts," "Rhetorical Studies," "Communication Research," and "Broadcasting and Film.

General Departmental Degree Requirements

Bachelor of Arts

Regardless of the specialization, a student seeking a Bachelor of Arts degree in the department must earn:

A minimum of 36 semester hours in the department, including at least two courses outside the division of concentration.

An undergraduate student may specialize in communication, theatre arts, or both. The requirements for these emphases are cited in the division sections.

Master of Arts

A student can earn a general M.A. degree in the department or a more specialized degree either in one of the divisions or in some combination of divisions.

Departmental requirements for the Master of Arts degree are:

A minimum of 30 semester hours, including 36,300 Introduction to Research or its equivalent.

A research thesis or, for the nonthesis degree, a graduate seminar involving significant original research.

Successful completion of a six-hour written examination, the scope of which is determined by the candidate's division and graduate committee, and at least a 3.0 cumulative grade-point average for all courses in the plan of study.

The application deadline for the fall semester or summer session is February 1 preceding, for maximum probability of admission. The minimum cumulative undergraduate grade-point average required for admission in good standing is 3.75.

Master of Fine Arts in Dramatic Art

See "Theatre Arts" section.

Educational Specialist (for Jursar Credit Teaching)

Departmental requirements for the Educational Specialist degree are:

A minimum of 30 semester hours, including 36,300 Introduction to Research, a course in the teaching of communication, an approved seminar; and at least 19 semester hours completed in the College of Education's graduate program in higher education.

Successful completion of a research report.

A seminar's membership in an assigned teaching position;

Satisfactory performance on a nine-hour written examination covering areas of learning agreed upon by the student and his or her graduate committee;

Successful completion of such specialization as the departmental division in which the student's work is concentrated.

Doctor of Philosophy

Departmental requirements for the Doctor of Philosophy degree are:

A minimum of 72 semester hours of graduate credit, exclusive of research tools and dissertation.

A minimum of ten semester hours of dissertation credit, 36,300 Introduction to Research or its equivalent, at least two courses in theory taken within the department, and others as determined by the student's adviser and graduate committee, in consultation with the student;

Successful completion of a qualifying examination and demonstrated competence in the student's major research areas;

A substantial scholarly dissertation;

A 3.0 minimum cumulative grade-point average for all courses in the plan of study.

The application deadline for the fall semester or summer session is February 1 preceding, for maximum probability of admission. Admission decisions are
based upon a composite consideration of the applicant's undergraduate achievement, letters of reference, and other evidence of scholarly potential or achievement, Graduate Record Examination (GRE) Aptitude Test results and samples of scholarly work are desirable for the latter purpose.

Facilities
For the non-theatre divisions, the Communication Studies Building, one of the newest facilities on campus, has been specifically designed to meet both research and technical needs. Included are two television studios, a complete video production facility, a film sound stage, a scenic shop, areas for animation and graphics production, a radio studio, and an advanced audio studio that serves the needs of courses throughout the university. A large pool of equipment is available to support student work in both studio and location settings. Scholars have access to individual viewing areas, a lab complex devoted to experimentation, and a computer dedicated to research efforts. This is one of the best facilities of its kind in higher education and must be visited to be fully appreciated.

Interdepartmental Courses
36-150 Corporate Education Internship 1-5 hrs.
36-158 Working in Communication and Theatre Arts 1-3 hrs.

Marketing, print and research communication theory, and related transfer areas, provide work in corporate settings, including public relations, advertising, and promotion.
Student must be a high school senior to receive credit.
36-154 Holmes Colloquia 1-3 hrs.
36-164 Women in Communication and Theatre Arts 1-3 hrs.

An interdisciplinary approach to the study of women in the arts.
36-140 Problems in Communication and Theatre Arts an.

Frontrunners in the field.
36-141 Reading Theatre 2-3 hrs.

An approach to group story telling, including performance, drama, music, film, and oral literature.
36-142 Drama and Speech Dynamics for Professionals 2-3 hrs.

Methods of instruction designed for professional communicators, radio-TV reporters, producers, directors, and the layman in connection with the theatre and public speaking.
36-147 Holmes' Theatre Criticism 1-3 hrs.

A study of criticism with the Holmes' Theatre Criticism as the basis of discussion.
36-171 Writing in Teaching Communication, Journalism, and Theatre 2-3 hrs.

Methods, materials, preparation and evaluation in teaching, and especially students in courses and programs in which knowledge of written and oral communication is a major part of the curriculum. Emphasis on planning, preparation, analysis, and practice in teaching theatre, drama, and technical and theatrical activities.
36-172 Writing in Teaching of English 3 hrs.

Same as 75-172.
36-185 Working in Dramatic Literature and Play Analysis 3 hrs.

Same as 75-185.
36-188 Writing in Contemporary Theory and Practice 2-3 hrs.

Descriptive and critical approaches to the teaching of theatre, drama, and technical activities in a manner of group.

Communication Education
Access to a course in Design Theatre. Degree offered: D.A., M.A., M.S.T.
The communication theatre major requires a minimum of 30 semester hours of coursework in the Department of Communication and Theatre Arts. Students should also include the following in their program: 360-105 Voice Improvement, 360-120 Composition of Literature, and two courses selected from each of the four departmental undergraduate divisions, with approval of a communication education advisor.

In addition to the secondary education Teacher Education Program Foundation courses, students seeking teaching certification in communication and theatre arts must also register for:

75-160 Methods: Communication 3 hrs.
36-150 Methods: Communication 3 hrs.
36-151 Observation and Lab Practice in the Secondary School 12 hrs.
75-167 Seminar: Curriculum and Student Teaching 3 hrs.

To strengthen both their major and their employment opportunities, students are strongly advised to complete a minor certification in English, reading, or other subjects, and to accumulate a record of achievement in University forensic, broadcasting and film, readers' theatre, and theatre activities.

Minor Certification in Communication and Theatre Arts
Completion of 23 semester hours of coursework in communication and theatre arts is required. These hours must include communication methods and a distribution of at least two courses in any two of the departmental divisions.

Courses
36-151 Directing Foreign Activities 2 hrs.

Planning, organizing, and evaluating foreign programs at the secondary level; course the establishment of foreign programs, the study of the problems inherent in developing and planning faculty activities, and future international programs in the secondary schools. Same as 70-150.
36-125 Methods: Communication 3 hrs.

Teaching communication, reading, and literature, consideration of various patterns in teaching, and application to classroom problems, objectives, instructional-methods and materials, effects of oral and written expression, and evaluation, testing and grading, textbook, and materials, and work in groups of students, and consideration of contemporary communication theory, practice, and methods.
36-130 College: Teaching Practice in French: 1 hr.

Three weeks and problems involved in teaching on campus, public relations, and meeting French department needs.
36-131 Current Issues, Approaches, and Materials in Secondary Communication 2-4 hrs.

Development, comparison, and evaluation of student communication preparation in technical, vocational, and teaching strategies, and various departmental and local programs.

Communication, social science, education, and sociology students interested in student teaching, general and special education students interested in student teaching, and special education students interested in teaching of the deaf.

Communication degree offered:

B.A.
Within a liberal arts philosophy, communication majors study oral, written, visual, and electronic messages, media, and their environments from the theoretical, critical, historical, and social-scientific perspectives. They also take work in a broadened communication world, through informed practice, they improve their communication skills. Especially well regarded for career in business, communication, social sciences, education, and public administration, this major equips its students for careers in business, not-for-profit organizations, the media industry, public relations, and others use the major as professional preparation for advanced studies in business training, law, business, the ministry, and graduate studies.

Majors must meet general departmental requirements. The 24 semester hours include the 12 hours required by the 150-160 of Communication (360-150), and at least 15 must be in courses numbered 360-150 to 360-159, and at least 9 must be in courses numbered 360-60 or above (not including 360-105).

The department and division sponsor an internship program for providing for nondegree work experience, and an active intercollege film program, internships provide opportunities to apply communication knowledge and skills in a variety of settings, e.g., in advertising, public relations, organizational development, politics, personnel, research, and training in the forensics program, communication majors and others have an opportunity to expand research skills, to develop improved listening habits, to work on methods for organizing and amplifying ideas, and to understand communication skills before audiences outside the classroom. Students may choose to work in debate of in nondegree work experience. Forensics scholarships are available.
Doctor of Philosophy

The program leading to the doctorate in rhetorical studies is designed to give candidates a mature grasp of the various specialties and perspectives embraced in this division and to develop research competence essential to a life of productive scholarship.

Work in related departments—often, in political science, history, sociology, English, comparative literature, American studies, philosophy, and psychology—complements rhetorical studies course offerings. Many doctoral students also do extensive work in Communication Research and in Broadcasting and Film to improve their range of teaching opportunities and their research skills. For candidacy requirements, see the initial sections of this department's description. Teaching and research assistants are available; evaluation of these applications begins about February 15 each year.

Courses

321.10 Historical Criticism
321.11 Critical and Current Public Address
321.12 Elements of Public Speaking
321.13 American Public Address
321.14 British Public Address
321.15 Rhetorical Criticism
321.16 Social Theory
321.20 Symbolic Interactionism
321.21 Social and Cultural Theory
321.22 Social and Cultural Theory
321.23 Social and Cultural Theory
321.24 Social and Cultural Theory

Graduate Programs

Three programs lead to the Master of Arts Degree: Broadcast Studies Film Studies, and Production. Broadcast Studies Film Studies candidates emphasize critical, theoretical, historical, and policy issues during their course of study. Production candidates develop significant knowledge within these scholarly areas in addition to their artistic work. The Ph.D. programs in both broadcasting and film are individually tailored under recommendation of the academic committee to develop competence in research.

Broadcasting and Film

Department of Media and Mass Communication

321.10 Mass Media and Mass Society
321.11 Introduction to Broadcasting and Film Production
321.12 Introduction to Film Analysis
321.13 Advanced Film Analysis
321.14 Advanced Film Analysis
321.15 Advanced Film Analysis

Courses

321.10 Historical Criticism
321.11 Critical and Current Public Address
321.12 Elements of Public Speaking
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Department of Media and Mass Communication

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THEATRE ARTS

Bachelor of Arts

Undergraduate Program in Theatre Arts

The major in theatre arts provides a liberal arts education and preparation for professional or educational work in the theatre. The Bachelor of Arts degree provides a strong background in theatre art and dramatic literature with requirements and electives in the major interest areas of acting, design, directing, playwriting, and theatre history. The program provides ample opportunity for performance experience and workshop activities. Students demonstrating special aptitude and potential may enroll in special emphasis programs in acting, design, directing, or theatre history and criticism.

Advising

Initial advising for theatre arts undergraduates is handled by the undergraduate program chair. After a student has declared an area of interest, the undergraduate program chair will assign that student a faculty advisor in that area. Although an advisor is necessary for enrollment, no student is required to accept any advisor, and may request a change at any time by consulting with the professor in charge of the major. Faculty advisors also have the right of acceptance.

Pre-enrollment in many theatre arts courses requires special permission signatures. These are obtained from the theatre arts office, room N-2-2, E.C. Malloy Theatre or the relevant faculty.

Auditions

Audition for departmental productions usually takes place the first week of each term. Audition materials and information may be picked up at the theatre arts office, room N-2-2, E.C. Malloy Theatre at 306 and at 304 Malloy and during registration.

Degree Requirements

The following courses comprise the basic experience for all undergraduate theatre majors. These students who can demonstrate readiness/proficiency for higher level work may seek permission for advanced standing by notifying their advisor of their desire to do so. It is the responsibility of faculty in each interest area to set their own criteria of evaluation, and determine the student's qualification for advanced standing. Students wishing to be considered for special emphasis programs must seek the guidance of the undergraduate program chair.

Transfer Students

Students transferring 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 before they may undertake advanced level electives or seek admission to a special emphasis program.

Minimum Requirements (required of all theatre arts majors)

367:1 Art of the Theatre

367:11 Theatre History I

367:22 Acting I

367:40 Stagecraft Practicum

367:41 Costume Practicum

367:80 Playwriting Analysis

367:90 Freshman Production

367:91 Production

357:50 Senior Seminar

Special Emphasis Program Requirements:

Acting emphasis:

357:22 Acting II

357:22 Acting III

357:22 Acting IV

357:125 Voice for the Actor

357:185 Movement for the Actor

One course from the following:

Any advanced Dramatic Literature course

367:114 Contemporary Theatre

367:178 American Theatre History

367:113 Decades of the Twentieth Century

*367:145 Stage Makeup

Design Emphasis:

367:47 Elements of Design

Two courses from Group I:

367:44 Scene Design I

367:45 Costume Design I

367:46 Lighting Design I

Two courses from Group II:

367:158 Advanced Costume Design

367:158 Advanced Lighting Design

One course from Group III:

367:142 Drawing for Theatrical Design

367:143 Rendering

367:144 Scene Plotting

367:145 Stage Makeup

367:146 Drafting I

One course from Group IV:

367:150 Machine Shop Practice

367:155 Properties and Special Effects

367:152 Costume Crafts: Drafting and Draping

367:153 Costume Crafts: Fabrics

367:174 Costume Crafts: Corsets and Petticoats

367:155 Costume Crafts: Accessories

367:158 Electrical Control in the Theatre

Directing Emphasis:

367:70 Directing I

367:71 Directing II

367:43 Elements of Design

367:22 Acting I

Two courses of the following:

367:114 Contemporary Theatre

367:192 Backgrounds of Modern Theatre Practice

367:113 Decades of the Twentieth Century

Any Dramatic Literature course

Master of Arts

The M.A. program is designed for students who anticipate teaching at the high school and junior college levels, and for those who want to earn an advanced degree before proceeding to the doctorate. The program consists of a combination of prescriptive and elective courses covering the general areas of dramatic literature, criticism, theory, history, and production. A thesis or graduate seminar in history, theory, or criticism of drama or theatre is required.

Master of Fine Arts

Students who demonstrate exceptional ability in acting, directing, playwriting, design, technical direction, costume direction, production stage management, or arts management, may apply for admission to the program of study and examination leading to the M.F.A. Admission is based on interview, audition, and a portfolio of relevant
artistic work, in addition to undergraduate record, other records or proof of artistic accomplishment, and the letters of recommendation. Six semesters in residence and the requisite number of graduate credits in the individual programs are required, and students must reapply for admission each year. All graduate work must be of high quality is expected of all candidates.

Facilities

The division's commitment to an extensive and varied production program is reflected in its use of four quite different theatres. Studio II is a large, flexible space in which class projects, experimental productions, and resident theatre productions are performed with limited scenery before small audiences. The Old Armour Theatre is a 200-seat house with flexible seating arrangements. New scenes are produced in a converted lecture hall in Main Hall. The E.C. Malcolm Theatre is an excellently equipped proscenium theatre which offers seating for almost 500 patrons.

The division occasionally also stages productions in Hamden Auditorium. Seating 2,500, the facility is used mainly by the numerous professional touring shows which perform in Iowa City.

To support its continuous production tempo and to provide its students with an adequate range of experiences, the division has designed to provide its students with a range of experiences, designed to provide its students with a range of experiences, designed to provide its students with a range of experiences, designed to provide its students with a range of experiences, designed to provide its students with a range of experiences. To support its continuous production tempo and to provide its students with an adequate range of experiences, the division has designed to provide its students with a range of experiences, designed to provide its students with a range of experiences, designed to provide its students with a range of experiences, designed to provide its students with a range of experiences.

Courses

For Undergraduates

3611 Art of the Theatre 3 b. h.
3612 Theatre and Society 3 b. h.
3613 Theatre and Society 3 b. h.
3614 History of the Theatre 3 b. h.
3615 Art of the Theatre 3 b. h.
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3732 Theatre and Society 3 b. h.
3733 History of the Theatre 3 b. h.
3734 Theatre and Society 3 b. h.
3735 History of the Theatre 3 b. h.
Comparative Literature

Program Chair: J. Dudley Andrew
Faculty: professors J. Dudley Andrew, Stanislaw Dlugosz, Donald J. Kuehn, I. Nagy, G. F. Palma, Jeanne P. Allman, Thomas E. Lewis, Virginia Kipkorir, W. Garrett Robertson, Steven Ungar, Geoffrey Wade, Daniel Weinstock
Faculty assisting in the program: the following faculty members in various other areas, including science, Asian languages and literature, communication and theatre arts, English, film, French and Italian, German, Hebrew, Spanish, Portuguese and Russian.

Degrees offered: B.A., M.A., Ph.D.

The program in Comparative Literature presents literature as an international and interdisciplinary study and provides a basis for intensive work in literature, literary theory, and critical method.

Bachelor of Arts

The undergraduate major in comparative literature provides an individualized program in the international and interdisciplinary study designed to promote cultural awareness, to increase speaking and writing skills, and to develop capacities for in-depth reasoning. Students who major in comparative literature may expect to acquire training in foreign language, to gain an international perspective on literature, and to become acquainted with in-depth approaches to cultural study. In conjunction with an appropriate overall curriculum, the major in comparative literature can offer effective preparation for professional studies in fields such as law and medicine. It also provides suitable preparation for graduate work in the humanities.

The successful pursuit of comparative literature requires that students study one history, one philosophy, one literature in historical context. Familiarity with the literatures and cultures of other nations is afforded by course work that develops awareness of various national literatures and relations between literature and other arts (such as film, painting, or translation), as well as by theoretical inquiry into the nature of literature itself. Course work in comparative literature also emphasizes interdisciplinary relations between literature and other arts of study such as history, philosophy, linguistics, anthropology, art, music, and psychology.

Majors in comparative literature do not proceed through a strictly prescribed common curriculum toward the B.A. degree. Working closely with faculty advisers, students develop coherent, individualized programs of study that reflect their own interests and developing skills.

In addition to completing general education requirements for the B.A. degree, majors complete a minimum of 36 semester hours in courses 'distributed as follows:

| Comparative Literature | 48:40:41 Major Texts in World Literature I-IV | 6 s.h. |
| 48:95 Undergraduate Seminar | 2 s.h. |
| 48:100 Introduction to Critical | 3 s.h. |
| 2 elective comparative literature courses at the 100 level | 6 s.h. |

Foreign Literature

Courses in one foreign literature (read in the original language beyond those courses taken to satisfy the general education requirement in foreign language; nine semester hours (one course in composition and conversation may count toward the major).

Related Areas

Courses in a related area (e.g., English and American literature, film, linguistics, anthropology, philosophy, history) or courses in a second foreign literature; nine semester hours.

Master of Arts

The degree of Master of Arts in comparative literature requires 36 semester hours of study in literature in an international context, concentrating on two or more national literatures and on the theory and study of literature in general. In consultation with faculty advisers, students combine courses in the program and in the individual allied departments to design a coherent course of study.

Formal degree requirements may be satisfied by a written examination on reading lists approved by students and their advisers, or by a written thesis and an oral examination on the thesis and its relation to problems and issues in comparative literature. The M.A. may also be awarded after 45 semester hours of graduate study with a grade-point average of 3.35, and following successful completion of the comprehensive examination for the Ph.D.

Doctor of Philosophy

Students seeking the doctorate in comparative literature study at least three areas of literature and are studied in historical depth, and two or others in limited departments of specialization. An interdisciplinary area of concentration is encouraged. All candidates devote a portion of their programs to comparative study that brings the several areas into focus. Specific areas and interrelations of these areas are selected by the student in consultation with appropriate faculty members.

Some typical critical and comparative areas are:

- European Renaissance
- Romanticism
- Structuralism and Poststructuralism
- Narrative theory
- Symbolist poetics and modern literature
- Post-Kantian philosophy and literature
- Satire, rhetoric, and the theory of social interaction

Literature, History, and Criticism

The Ph.D. dissertation should demonstrate the candidate's ability to write a substantial piece of scholarship or criticism. A translation of a work of sufficient significance and linguistic complexity, preceded by a critical introduction, may serve as an acceptable dissertation. The final oral examination centers on the dissertation and its background.

Admission

A study of literature across linguistic boundaries requires special training in language. A thorough knowledge of at least one foreign language is required for admission to the M.A. courses of study. Knowledge of at least two foreign languages is a prerequisite for doctoral study.

For further information, consult the graduate school for graduate students in comparative literature, available by request from the program office.

Courses

4000 Cooperative Education Internship 0 s.h.
4400 Major Topics in World Literature I 3 s.h.
4401 Major Topics in World Literature II 3 s.h.
4402 Major Topics in World Literature III 3 s.h.
4403 Major Topics in World Literature IV 3 s.h.
4500 Comparative Literature Survey 3 s.h.
4501 Introduction to Film Analysis 3 s.h.
4502 Advanced Reading in Comparative Literature 3 s.h.
4503 Advanced Reading in Comparative Literature 3 s.h.
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4609 Advanced Reading in Comparative Literature 3 s.h.
The department offers three undergraduate degrees—the Bachelor of Science and Bachelor of Arts in the College of Liberal Arts, and the Bachelor of Business Administration in the College of Business Administration. The B.A. and B.B.A. have similar major requirements, but their college requirements differ. The B.A. program is designed to provide a background in the business fields of accounting, finance, marketing, business law, and management. The B.B.A. program is designed to prepare the student for graduate work in economics or related business and technical fields. The B.A. program is designed for the student seeking a less technical liberal arts background.

Bachelor of Arts

These are the requirements for the B.A. degree with a major in economics:

225:25 Elementary Statistics and Inference 3 s.h.
225:7 Quantitative Methods I 4 s.h.
225:8 Quantitative Methods II 4 s.h.

Twenty semester hours of credit in 100-level economics courses, including 6E:103 Microeconomics and 6E:109 Macroeconomics.

Most 100-level courses in economics have as prerequisites the Principles of Economics and 6E:1 Principles of Macroeconomics, although 6E:1 and 6E:2 satisfy the general education requirement in social sciences.

Credit gained in 6E:100 Price, Employment, and Production Theory cannot be counted toward the 20 semester hours of 100-level economics course credit required for the B.A. degree.

Bachelor of Science

The B.S. program in economics requires these courses and electives:

225:25-26 Calculus I-II 3 s.h.
225:120 Probability and Statistics 3 s.h.
6E:183 Statistical Methods in Econometrics 3 s.h.

Twenty semester hours of 100-level economics courses, including 6E:103 Microeconomics, 6E:105 Macroeconomics, and 6E:184 Methods of Quantitative Economics.

Credit earned in 6E:100 Price, Employment, and Production Theory or 6E:183 Statistical Methods in Econometrics cannot be counted toward the required 20 semester hours of 100-level course credit.

Minor

A student in the College of Liberal Arts may complete a minor in economics by earning at least 18 semester hours of credit in courses offered by the Department of Economics, including at least 12 semester hours in courses numbered 100 or above.

Students interested in an economics minor should obtain information concerning course selection from the department office.

Honors

Undergraduate students working toward the B.A. or B.B.A. degree with a major in economics are eligible to participate in the Honors Program in economics. The Honors Program offers the high-achieving student an opportunity to pursue special research projects. Honors students must complete four 100-level economics courses, including 6E:103 and 6E:105, before the senior year. They must also register for 6E:157 Senior Thesis in Economics and 6E:158 Senior Seminar in Economics for three semester hours of credit each during the senior year. Complete a senior thesis under direction of an economics faculty member of professorial rank, and take during the final semester of the program an examination covering their departmental honors work. A student satisfactorily completing the Honors Program receives his or her degree "with honors.

Bachelor of Business Administration

The program for the B.B.A. degree is described in the "College of Business Administration" section of theCatalog.

Course Work for Nonmajors

Departmental course 6E:1-2 Principles of Economics satisfies the College of Arts general education requirement in social sciences, as it provides an introduction to specialized topics under division courses. Students with limited exposure to economics may examine the division of labor behind current policy issues in 6E:7 Contemporary Economics Problems and Policy.

Course work in economics can be related studies in other fields—e.g., example, history majors might take 6E:101 American Economic History and 6E:103 Microeconomics, political science majors could elect 6E:118 Economics of the Government Sector and 6E:141 Economics of American Industries.

A number of students combine related interests by pursuing double majors in economics and in fields such as computer science, geography, history, mathematics, political science, sociology, or statistics.

Graduate Programs

The department offers Master of Arts and Doctor of Philosophy degree programs. Each program has a separate theory and quantitative core enhanced by a set of field courses.

The M.A. degree program is designed to provide breadth in economic training without the requirement of specialization. The M.A. program can be completed within 18 months.

Within the M.A. program, the department offers concentrations in: economic history, health economics, history of economic thought, industrial organization, international economics, labor economics, economic theory and methodological economics, monetary economics and policy, public finance, and regional and urban economics.

The Ph.D. program is designed to provide students with rigorous training in microeconomic theory, macroeconomic theory, mathematical economics, and econometrics. In addition, the student selects a major area or intensive study and specialization. The usual time required to complete the Ph.D. program is four years.

See "College of Business" section for details on requirements of these degree programs.

Special Seminar

Each year the department offers a seminar program involving eminent economists from business, government, and as presentations by visiting and student members of the department.

Courses

Primarily for Undergraduates

Note: 6E:1 and 6E:2 may be taken in either order or they may be taken simultaneously. They satisfy the general education requirement in social sciences.

6E:60 Cooperative Education Internship 3 s.h.
6E:1 Principles of Economics 3 s.h.
6E:2 Principles of Economics 3 s.h.
6E:3 Principles of Economics 3 s.h.
6E:4 Principles of Economics 3 s.h.
6E:5 Principles of Economics 3 s.h.
6E:6 Principles of Economics 3 s.h.
6E:7 Contemporary Economic Problems and Policy 3 s.h.
6E:80 Computer Education Internship 3 s.h.
6E:96 Washington Internship 3 s.h.

Open only to students participating in the Washington Center for Learning Alternatives: a program jointly sponsored by the Economics Department.
Undergraduate Programs

Bachelor of Arts

A Bachelor of Arts degree with a major in English requires between 30 and 50 semester hours of credit in courses offered by the Department of English, nine of which should come from courses prefixed principally with literature written before 1800 and at least 15 of which should be taken in residence at The University of Iowa.

In conference with their academic advisors, students for selective programs of study designed to satisfy their current interests and achieve their future goals. Normally they begin with courses emphasizing close reading of poetry, fiction, drama, and expository or argumentative prose. Later they study particular literary forms and the literature and culture of different historical periods.

English majors may also have courses in such diverse subjects as following, literature, and film, or printing arts of design. They may also study the history and structure of the English language, or they may do advanced work in other imaginative writing, poetry, fiction, and dramatic or functional writing (exposition or argument) in the fields of journalism, business, science, or the arts.

To buttress their understanding of literature, English majors are encouraged to choose elective courses from such disciplines as history, classical or modern foreign literature, speech, film, and the fine arts. Students planning to teach in primary or secondary schools will add appropriate courses in education.

Those seeking careers in the media may elect courses in business, law, or the sciences.

As soon as students decide to undertake an English major, they should consult the director of undergraduate study in the English department office who will assign them a faculty advisor in the English office, too, they may obtain a pamphlet on designing your English Major, and other printed material explaining departmental programs, courses, and special events.

Minor

A minor in English requires 16 semester hours of course work in Department of English courses. Two of these semester hours should be in advanced English courses (8B 11 and above). Courses for the Liberal Arts general education requirements must be taken in the minor in English.
will have to work with details of expression in English. They will need advanced training in writing—not criticism, poetry, and fiction are all important—because these courses will help students understand and utilize linguistic, rhetorical, and stylistic devices in various kinds of writing.

They will need to understand the nature of the English language, including syntax, phonology, and semantics, because this knowledge should help students understand language development and how language can be adapted to meet various speaking and writing situations. Since communication also occurs visually, students should explore the relationships between written, oral, and visual media.

Finally, students should explore the processes of reading, from the first stages of learning to read through advanced stages when a reader comes increasingly to understand and respond to details of meaning and nuances of expression.

All these areas of study can be satisfied by courses within the department except the exploration of the processes of reading. That area can be satisfied by courses in the College of Education. Prospective English teachers should remember that an undergraduate degree represents only minimal training, so they should plan a program which will permit graduate study in these areas.

English majors seeking teaching certification must plan with their advisors appropriate education courses to be taken concurrently with courses in English. In addition, they must devote one semester of the senior year to professional training apart from any other course work.

The department also participates in a joint major in English and elementary education. Those interested in such a program should consult their advisors in elementary education.

Students who seek certification to secondary teaching in fields other than English may seek minor certification in English. This is particularly appropriate for students majoring in speech or journalism. Such a student must complete 20 semester hours of English, excluding freshman courses in rhetoric, speech, or writing.

The English minor certification program must include a course in each of these areas: advanced composition, linguistics, Shakespeare, American literature, and British literature of the nineteenth or twentieth century. In addition, the student must complete 26 semester hours of English, the student is required to take 75:115:1 Methods: English in the College of Education's Division of Secondary Education.

While this program meets minimum requirements for certification, the department believes that anyone desiring to teach English should have considerably more training in the field.

Graduate Programs

Master of Arts (Literary Studies)

This program offers an introduction to the professional study of literature. It provides a general knowledge of the major, crucial, and major works of English and American literary history, as well as a transfer sensitivity to artistic language as a medium of expression. Each student, in consultation with an adviser, will plan a course of study that reflects his or her own individual pattern of interests. Depending on the style of thesis or comprehensive examination, the program requires either 33 or 36 semester hours of course work, of which 24 semester hours must be earned in residence.

Course requirements

Course work must be taken in each of these areas:

- Literary history (up to five courses, depending on graduate preparation)
- Language and writing (one course)
- Critical methods (one course)

Remaining semester hours may be used for electives, including graduate courses in other departments when such courses are germane to the student’s degree objective.

Thesis or Comprehensive Examination

In order to graduate, students must do one of the following:

- Satisfactorily complete a 10,000-15,000 word thesis for 3-6 semester hours of credit.
- Pass an oral examination based on a list of literary texts, a copy of which may be obtained from the department’s graduate office.

Given its design, the master’s program may serve either as an end in itself or as preparation for doctoral study.

Master of Arts (Expository Writing)

This program emphasizes the theory, analysis, practice, and pedagogy of expository writing for students wishing to become teachers or critics of expository writing, or professional writers in such areas as the humanities, business, and technical fields, or free-lance work.

Normally, the program takes from three to four semesters to complete.

To qualify for the M.A. emphasis in expository writing, a student must complete 30 semester hours of graduate work with a grade-point average no lower than 3.0. At least 24 of these semester hours must be earned in residence. At University of Iowa, including nine semester hours of work in advanced composition with a grade of B or better. In addition to the 30 semester hours of course work, students will be required to complete at least three and no more than six semester hours of credit for the thesis.

In consultation with an adviser, the student will design an approved program of courses. Candidates of study may be highly individual, including courses from widely different areas of departments, but must be coherent around the student’s interests and objectives as a writer.

Finally, the student will submit to his or her committee a proposal for a thesis, which will be an extended piece of expository writing. Final approval will be given after oral examination covering the project, and the finished thesis must receive the committee’s final approval.

Students interested in this program should consult the director of the M.A. with emphasis in expository writing, or the director of advanced writing.

Master of Arts and Specialist in Education

This program is designed specifically for the person with a strong undergraduate major in English who wishes to prepare to become a first-year English teacher. Upon successful completion of the program the student will receive the Master of Arts degree in English and the Specialist in Education degree. Both are nonthesis degrees, but a research paper is required.

This 90-semester-hour program of study includes nine semester hours of open electives, 4 semester hours of English (literature, expository writing, or creative writing), nine of advanced expository writing and/or linguistics, and 14 in professional courses taught by specialists in English and in education. Each student spends one semester interning in a community college.

Master of Fine Arts

The purpose of the M.F.A. program is to provide professional guidance and a stimulating environment for students with previous achievement or notable promise in writing poetry or fiction. The requirements are flexible, but usually include 30 semester hours of graduate credit, earned chiefly in the Writers Workshop, a book-length collection of poems or stories or a novel, and satisfactory performance on an examination on modern poetry or fiction.
Master of Fine Arts with Emphasis in Translation

This alternative to the M.F.A. program in creative writing emphasizes the discipline of translation, viewed as a distinct literary genre. Student programs are individually structured and are designed to develop skills in source and target languages and cultures. The course also seeks to develop awareness of the traditions of translation and the history of translation theory. The program normally requires 48 semester hours of graduate credit, including a minimum of 12 semester hours of "Translation" Workshop; a collection of translated poetry, fiction, or drama; and an examination in principle and criticism involving problems of translation.

Doctor of Philosophy

The Ph.D. program is designed as preparation for the teaching, publishing, and service required of college and university faculty members. The doctorate requires 72 semester hours of graduate credit, of which at least 30 must be earned in residence at the University of Iowa.

Concentrations are possible in areas of literary history, literary criticism, writing, rhetorical theory and stylistics, folklore, bibliography, pedagogy, comparative literature, and linguistics.

Requirements for the Ph.D. include:

1. Formal admission to candidacy by a vote of the full faculty of the department.
2. Demonstration of a high level of competence in two foreign languages or mastery of a single foreign language and its literature.
3. Twelve semester hours in specified historical areas, two seminars:
   - A partial, written, oral comprehensive examination covering material of which must be a historical period of European, American, or Russian literature.
   - A dissertation, which may be either a scholarly work or a piece of imaginative writing; and
   - A final examination in defense of the dissertation.

All doctoral candidates are required to gain teaching experience, preferably in the major and minor areas of cognate programs of the College of Liberal Arts. Interested students should write to the department’s director of financial aid and doctoral admissions for more detailed explanations.

Financial Aid

Aid is available to graduate students in the form of scholarships, fellowships, and teaching and research assistantships. It is awarded on a competitive basis. Since sources are limited, normally fewer than half the new doctoral students receive aid. Most, but not all, advanced doctoral students are supported by a combination of teaching or research assistantships and financial aid applications are considered only from students who have been admitted to a degree program in the Graduate College. Applications and all necessary supporting material must be submitted by February 15 for the following academic year. Forms are available from the department and the University Office of Admissions.

Admission

All applicants for admission to any graduate program in English must meet the general requirements for admission to the Graduate College, and must submit at least two letters of support in support of the application. In addition, M.F.A. applicants should submit samples of their poetry or fiction to the director of that program, and Ph.D. applicants should submit a representative sample of their writing—a course paper, seminar paper, or these chapters—to the department’s director of doctoral study.

Writing Programs

For the past 50 years, The University of Iowa has been a national leader in virtually all areas of the teaching of writing. In 1922 it founded the first institution of higher education to accept creative dissertations for advanced degree programs.

Founded in 1936, the Writers Workshop was a pioneer in the field of creative writing; it numbers scores of distinguished poets and novelists among its alumni. The workshop provides opportunities for students at all levels to work with outstanding teacher-authors and also brings numerous prominent authors to campus each year for lectures and readings.

The International Writing Program, founded in 1966, brings numbers of prominent foreign writers to campus each year. The University of Iowa has also been a leader in the area of literary writing and rhetorical theory; it is one of the few academic institutions in the nation which offers a full range of graduate courses in this area.

Facilities

The University Library is strong in all areas of English and American literature. It is especially noteworthy for its collection of American periodicals, its holdings in nineteenth and twentieth-century works, including the Lewis Hight collection, and its manuscript collections of eighteenth-century author’s.

The department provides a wealth of opportunities for student involvement in critical, scholarly, and creative publications. The Iowa Journal of Literary Studies is a quarterly publication published by graduate students, which features creative and scholarly work of students in English and related areas. Students may also participate in numerous courses by working with The Iowa Review, Philological Quarterly, and the Windhover Press.

Students are welcome to participate in the activities of the English Graduate Student Society, the Humanities Society, the Knights of Old-Time Music, and the Midwest Modern Language Association. Visiting writers and lecturers on the campus almost every week, and various conferences and literary "festivals" complement the schedule of class work.

Courses

Individual exceptions for some of the English courses in the fall may not be included because the catalogue and some courses are considerably from one semester to another. Detailed course descriptions for all offerings in a specific semester are available in the English department office well in advance of the beginning of each semester.

General Education Library

The general education course requirements in the humanities may be satisfied by one or more of the following courses:

1. BM 105: "The English Essay: A Primer of Appraisal" (offered in the fall)
2. BM 106: "Essence of Poetry, Short Fiction, and the Novel:主要 English and American" (offered in the fall)
3. BM 107: "Biblical and Classical Literature"
4. BM 108: "Selections from World Classic Literature: Greek; Latin, Greek; Plato, Virgil, and others; French; Italian"
5. BM 109: "Mexican and Hispanic Literature"
6. BM 110: "Selections from English Literature: Shakespeare; Milton, and others; French and German; BM 101".
7. BM 111: "Ideas of Ireland"
8. BM 112: "Ideas of Ireland"
9. BM 113: "Ideas of Ireland"
10. BM 114: "Ideas of Ireland"

Variables in course content of the past and present, including syllabi, titles, and content, may vary and are not published. Prerequisite: BM 101.

BM 111: "Ideas of Ireland"

1. BM 112: "Ideas of Ireland"
2. BM 113: "Ideas of Ireland"
3. BM 114: "Ideas of Ireland"
4. BM 115: "Ideas of Ireland"
For Undergraduates

Lecture courses are open to all undergraduates who have satisfied the rhetoric requirement.

636 Cooperative Education Internship 1.5 h.
637 Modern Fiction 1.5 h.
638 Modern Drama 1.5 h.
651 Short Stories 1.5 h.
659 Modern and Biblical Literature 3.0 h.
661 The Renaissance in Europe 3.0 h.

Introductory Close Reading of Texts

These are the limited-enrollment discussion courses in which a small number of students read carefully to illustrate representative problems in interpreting and evaluating literature.

830 Critical Approaches to Literary Works 3.0 h.
835 Reading Poetry 2.5 h.
840 Major Texts in World Literature I 3.0 h. Same as 441.
841 Major Texts in World Literature II 3.0 h. Same as 442.
846 Survey of British Literature I 3.0 h.
847 Survey of British Literature II 3.0 h.
850 Works of English Literature 3.0 h.
851 Major British and American Poets I 3.0 h.
852 Major British and American Poets II 3.0 h.
854 American Literary Classics 3.0 h.
855 Selected Works of the Middle Ages 3.0 h.
856 Shakespeare's Contemporaries 5.0 h.
857 Selected Works of the Eighteenth Century 5.0 h.
858 Major Nineteenth-Century British Works 3.0 h.
859 Selected Early Modern Works 3.0 h.
861 Selected Works of the Twentieth-Century 3.0 h.
862 Masterpieces of the Renaissance I 3.0 h.
863 Masterpieces of the Renaissance II 3.0 h.
864 Selected English Romantic Works 2.5 h.

Major Authors

The following are limited-enrollment discussion courses. Each author is represented by several major works. Combinations of authors are changed regularly. With permission of the instructor, a student may repeat registration for same course number if authors have been changed.

671 Chaucer 3.0 h.
672 Shakespeare Same as 807-10.
674 Selected American Authors 3.0 h.
676 Selected Modern Authors 3.0 h.
677 Selected Authors Same as 807-10.

Seminars for Undergraduate Majors

875 Freshman Honors Seminar 3.0 h.
876 Honors Program Same as 48-50.
878 Undergraduate Seminar 3.0 h.

For Undergraduate and Graduate Students

Literature and Culture

Primarily for upperclass students and beginning graduate students, these lecture courses are designed to present major works and authors within the context of the social, political, intellectual, and artistic movements of a given time. Students who have established backgrounds in history or related arts are especially welcome. Undergraduate majors in English are urged to include at least one course of this type in the latter half of their majors.

855 Introduction to Critical Prose 3.0 h.
861 Literature and Culture of the Middle Ages 3.0 h.
862 Literature and the Culture of the Renaissance Same as 48-50.

Fiction

864 Literature and the Culture of Eighteenth-Century England 3.0 h.
866 Literature and the Culture of Nineteenth-Century England 3.0 h.
875 Literature and Culture of Twentieth-Century England 3.0 h.
877 American Prose Fiction 3.0 h.
878 British Prose Fiction 3.0 h.
879 American Prose Fiction 3.0 h.
882 Contemporary American Fiction 3.0 h.
883 The European Novel 3.0 h.
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Professional
Although open to all graduate students, the primary purpose of these courses is to offer theoretical and practical training to those who plan to teach.

- SP 20: Advanced Reading Comprehension
  Duration: 1 hr

- SP 30: Specialized Reading
  Duration: 1 hr

- SP 40: Practical College Vocabulary
  Duration: 1 hr

- SP 50: Reading Strategies and Techniques
  Duration: 1 hr

- SP 60: Reading in Literature
  Duration: 1 hr

- SP 70: Reading in Humanities
  Duration: 1 hr

- SP 80: Reading in Social Sciences
  Duration: 1 hr

Expository Writing
General interest
These courses are designed to serve the general interests and needs of undergraduates and graduates in all areas of the University.

- WP 10: Expository Writing
  Duration: 3 hrs

- WP 20: Technical and Scientific Writing
  Duration: 3 hrs

- WP 30: Greek and Latin for Vocabulary Development
  Duration: 3 hrs

- WP 40: Grammar and Style
  Duration: 3 hrs

- WP 50: Popular Writing
  Duration: 3 hrs

- WP 60: Writing for the Personal and Public Purposes
  Duration: 3 hrs

- WP 70: Advanced Expository Writing
  Duration: 3 hrs

Special Interest
These courses are designed to serve the special interests and needs of advanced undergraduates and graduates in particular academic and professional areas of the University. They offer practice in specialized forms of writing for specialized purposes and audiences.

- WI 111: Writing for the Humanities
  Duration: 3 hrs

- WI 112: Writing for the Sciences
  Duration: 3 hrs

- WI 113: Writing for Business and Industry
  Duration: 3 hrs

- WI 114: Writing for the Social Sciences
  Duration: 3 hrs

- WI 115: Writing for the Arts
  Duration: 3 hrs

- WI 116: Extended Thesis New Journalism Writing
  Duration: 3 hrs

- WI 131: Forms of Writing
  Duration: 3 hrs

- WI 139: Fine Line Writing
  Duration: 3 hrs

- WI 150: Fine Line Workshop
  Duration: 3 hrs

- WI 150: Fine Line Workshop
  Duration: 3 hrs
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 French major; nor do a grade of D in any required French course.

Literature Track

Designed for students who are interested in French literature or in combining the study of French literature with a major in another area, such as English, comparative literature, cinema, or fine arts, the literature track requires a total of 35 semester hours of credit in French, including:

- 9:27-28 Second-Year Composition and Conversation 8 s.h.
- 9:11-112 Third-Year Composition 6 s.h.
- 9:126 French Conversation: Third Level 2 s.h.
- 9:138 French Conversation: Fourth Level 2 s.h.
- 9:175 Advanced French Pronunciation 2 s.h.
- 9:25 French Pronunciation 2 s.h.

A minimum of four 100-level courses in literature (at least two of which must be above the 160 level), plus a fifth 100-level course in a choice of literature, advanced language, or civilization, totaling 15 semester hours.

Civilization Track

Designed for students interested in French history, politics and culture, and recommended for students wishing to combine a study in French with a major in another area such as history, political science, pre-law, or journalism, the civilization track requires 35 semester hours of credit in French, including:

- 9:27-28 Second-Year Composition and Conversation 8 s.h.
- 9:111 Third-Year Composition 3 s.h.
- 9:112 Third-Year Composition 3 s.h.

A minimum of four 100-level courses in civilization and three 100-level courses in literature, totaling 21 semester hours and including at least one course in literature above the 160 level.

Teaching Track

This teaching track requires 35 semester hours of credit in French, including:

- 9:27-28 Second-Year Composition and Conversation 8 s.h.
- 9:111-112 Third-Year Composition 6 s.h.
- 9:175 Advanced French Pronunciation 2 s.h.
- 9:126 French Conversation: Third Level 2 s.h.
- 9:125 French Conversation: Fourth Level 2 s.h.

A minimum of five 100-level courses, of which at least two are in literature and two in civilization, totaling 15 semester hours and including at least two courses above the 160 level.

The student who plans to acquire a secondary teaching certificate must also complete the College of Education requirements for teacher certification.

Applied French Track

Designed for students with an interest in areas such as international business, commerce, or language, and others in which applied French would be an asset, the applied French program requires 38 semester hours in French, including:

- 9:27-28 Second-Year Composition and Conversation 8 s.h.
- 9:111-112 Third-Year Composition 6 s.h.
- 9:115 Business French 3 s.h.
- 9:126 French Conversation: Third Level 2 s.h.
- 9:136 French Conversation: Fourth Level 2 s.h.
- 9:155 Commercial and Technical Translation 3 s.h.
- 9:176 Translation Project 3 s.h.

Two courses each in French civilization and literature 12 s.h.

Electives recommended as an adjunct are courses in French stylistics and textual analysis, another language, economics, political science, and/or business administration.

Bachelor of Arts in Italian

Requirements for the major in Italian include:

- 18:11-12 Intermediate Italian 6 s.h.
- 18:111-112 Advanced Composition and Conversation 8 s.h.
- 18:105-106 Introduction to Italian Civilization 8 s.h.
- 18:115-120 Dante and His Times 6 s.h.
- 18:101 Literature of the Nineteenth Century 3 s.h.

A Course in Twentieth Century Literature 3 s.h.

Total 29 s.h.

Honors

The department participates in the College of Liberal Arts Honors Program. For an honors degree in French, the student must complete:

- 9:156 Honors Readings 3 s.h.
- 9:195 Honors Seminar 3 s.h.

Advanced Placement in French language, literature, or civilization (numbered above 160) 3 s.h.

Summer Program in France

The department is cosponsor of a summer program in France for students enrolled in the three Iowa Regents universities. Eligibility for the program requires a good basic knowledge of French (two years of college-level preparation is recommended), but does
Master of Arts in French Education

This program is intended primarily for prospective secondary school and junior college teachers. Requirements include a total of at least 36 semester hours of graduate credit. Of this total, eight must be in education or related fields, and at least one must be in graduate (600 level) courses in French literature. The following courses are also suggested:

195:313 - Stylistics: Analytic and Application
195:314 - Textual Analysis
209:303 - Advanced Grammar and
210:310 - Comparative Stylistics
210:311 - French Civilization
215:311 - French American Literature
215:312 - Language Laboratory Equipment
215:313 - Contemporary French
215:314 - Advanced French Pronunciation
Candidates must pass a final written and oral examination.

Doctor of Philosophy

Requirements for the Ph.D. degree in French include completion of at least three years of graduate study, of which at least one must be spent in residence at the University; the passing of a comprehensive examination, and the successful oral defense of a dissertation. Specific requirements include:

195:301 - Historical Grammar
195:302 - French Civilization
195:303 - Language Laboratory Equipment
195:304 - Contemporary French
215:305 - Advanced French Pronunciation
215:306 - graduate work in another language other than French.

The candidate must also complete three graduate courses for a minimum total of eight semester hours of credit in a related field, such as another literature, or history, philosophy, etc. and must earn at least six semester hours of credit in 927 Thesis.

Students working toward the doctorate are required to spend at least one year teaching as graduate assistants in the department.

Graduate Admission

To be considered for admission to an M.A. program in French, the applicant must have completed the equivalent of The University of Iowa's undergraduate major in French. Students may make up deficiencies in previous training by taking appropriate courses.

The M.A. in French is prerequisite to the Ph.D. program in French. Successful completion of the M.A. program, in French, does not necessarily qualify a student for doctoral studies. For students earning the M.A. at The University of Iowa, the M.A. comprehensive examination committee will make a recommendation concerning admission to the Ph.D. program. Students applying for doctoral candidacy with the M.A. earned at another institution are, when admitted, placed on conditional status, and this status is reviewed after one semester of residence.

In addition to the Graduate Record Examination (GRE) Aptitude Test scores required by the Graduate College, the department requires that all applicants for admission graduate programs in French submit scores from the GRE Advanced Test in French.

Appointments

Teaching and research assistantships and University fellowships and scholarships are available to qualified graduate students. Please see the "Graduate College" section of the Catalog. The department may name one Teaching/Research Fellow annually. Inquiries should be addressed to the departmental office.

Exchange assistantship agreements with the French Ministry of Education, the University of Poitiers, and the University of Picardie provide a limited number of graduate students one year of residence in France.

French Courses

A detailed description of courses offered each semester is available in the department office. All courses are given in French, unless indicated. Courses numbered 150-199 are intended primarily for advanced undergraduates; a graduate student should consult with his or her advisor before enrolling. Courses numbered 140-149 are given in English for students preparing toward the major requirements in French, but may be taken as electives; consultation with the adviser is recommended prior to registration. Students who have had significant experience with French through study or foreign residence are required to take placement tests given just prior to the coining of each form. A student may not repeat, for either credit or grade points, a course that is a prerequisite to, or whose equivalent is prerequisite to, a higher-level course the student has already completed.

Primary for Undergraduates

5800 Cooperative Education Internship 1 a.h.
51 Elementary French 4 a.h.
52 Elementary French 4 a.h.
53 Elementary French 4 a.h.
54 Elementary French 4 a.h.
55 Elementary French Intensive Course 1 spring or fall semester
57 French for Teachers 4 a.h.
60 Intermediate and Advanced French for the Traveler. Given in: Saturday and Evening Class Program
Genetics

Program chair: Gary Busch
Faculty: professors Roger Chalecki (Biochemistry), Thomas Garvey (Biochemistry), Irving Davidowitz (Microbiology), John DeRisi (Biochemistry), Michael Faro (Microbiology), Joseph Parker (Pharmacology), Gary Sokol (Genetics), James Hendrie (Pharmacology), Jeffrey Furst (Pharmacology), Victor Vassilev (Pharmacology), John DeRisi (Biochemistry), David Mekler (Zoology), David Nichol (Zoology), Peter Glazier (Zoology), Ming Young (Pharmacology), George Windhorst (Biochemistry)

Course offerings

professor American Ph. (Teaching Professor) associate professors Warren Carbon (Biostatistics), Bruce A. Murer (Pharmacology), Carol Nelson (Zoology), Edward Furst (Pharmacology), William Hessel (Pharmacology), Kenneth Shaw (Clinical Medicine), Donald Walker (Microbiology), William Wang (Biostatistics), David Cleag (Microbiology), Gordon Grider (Medicine), Matthew George, Sydney Parker, Brian Van Ness (Biochemistry), Anthony Wood (Biochemistry), Chun Ting Wu (Zoology)
Degree offered: Ph.D.

The interdepartmental Ph.D. program in genetics is designed to promote collaborative investigations and intellectual interactions among students and faculty participants affiliated with different departments.

Admission

The prospective doctoral student in genetics should have a strong undergraduate background in science, including courses in general genetics, organic chemistry, inorganic chemistry, physics, and mathematics, and a strong commitment to research and teaching in genetics. A student with deficiencies in a particular area can make himself/herself ready during the first year of graduate study.

Admission to the program is based on assessment of the applicant's undergraduate academic record, performance on the Graduate Record Examination (GRE) Aptitude Test, verbal, quantitative, and analytic aptitude tests, and letters of recommendation. Requirements for admission are as follows:

- The student must have an undergraduate grade-point average of 3.5 or better.
- A student must have obtained a grade of B or above in five of the following courses: Calculus, Linear Algebra, General Chemistry and Organic Chemistry, General Physics, and General Biology.

Requests for admission are not current. Although almost all students currently working toward the Ph.D. in genetics at the University of Iowa have graduate-level training in a particular area, graduate training in the field of molecular biology is not essential for admission. The program accepts applications at any time.

Financial Aid

All graduate students receive a financial stipend that is in the range of $15,000 to $18,000 per year, depending on the source of the support. Most of the financial support comes from the National Institutes of Health, the Howard Hughes Medical Institute, the Department of Defense, the National Science Foundation, the National Institute of Allergy and Infectious Diseases, and the National Institute of Dental Research. The Office of Graduate Study awards a number of fellowships, teaching and research assistantships, and teaching assistantships.

Medical Scientist Training Program

Students may combine study toward an M.D. or a Ph.D. in genetics. Further information about this program can be obtained from the Medical Scientist Training Program in the College of Medicine.

Departmental Ph.D. Programs

The departmental programs in Biochemistry, Botany, Microbiology, and Zoology offer degrees in genetics. Students may specialize in a particular aspect of genetics. See departmental descriptions elsewhere in the Catalog for further information about these programs.
Courses
The following genetics courses are available to graduate students. Some are offered every year, others are offered periodically.

96:120 The Chemistry of Biological Materials 3 s.h.
96:130 Metabolism 3 s.h.
96:150 Biochemistry of Interanimational Macromolecules 3 s.h.
99:201 Topics in Molecular Biology 1-2 s.h.

2:104 Cytogenetics 3 s.h.
2:160 Genetics and Biogenesis of Cell Organelles 0-2 s.h.
2:213 Genetics Seminar 3 s.h.

61:175 Microbial Genetics Laboratory 1 s.h.
61:179 Comparative Microbial Genetics and Physiology 3 s.h.
61:270 Topics in Molecular Biology 3 s.h.
37:162 Population and Evolutionary Genetics 3 s.h.
37:163 Behavioral Genetics 3 s.h.
37:165 Quantitative Genetics 3 s.h.
37:170 Eukaryotic Molecular Biology 3 s.h.
37:171 Molecular Genetics 4 s.h.
37:173 Topics in Molecular Genetics 2 s.h.
37:175 Topics in Evolutionary Genetics 1-2 s.h.
37:376 Topics in Eukaryotic Molecular Biology 2 s.h.
37:78 Advanced Genetics 2 s.h.
37:258 Developmental Genetics 2 s.h.

Geography
Department Head: David R. Rappaport
Faculty professors: John W. Fuller, Andrew M. Hayter, Paul J. Lemke, Michael L. McKeon, David R. Reynolds, Garretson Palmer
professors emeriti: H. S. Kals, A. M. McNair
associate professor: D. J. Hony, J. O. Horowitz, R. L. Zottl
associate professor: Mary Ann K. Lee, Graham A. Tideman
Instructor: Mark W. Rhys侯

Geography seeks to explain spatial organization and the variation in patterns and processes which promote change within and between human and physical systems. Geography is a composite science, one that is broad based in knowledge and provides an analytical science which seeks explanations of specific research questions from a distinctly geographic perspective.

Students who elect courses in geography find they develop insights and methods of inquiry which are particularly applicable to understanding many of the complex problems confronting adjacent 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 inequalities, location of services, and conflicts between nations are some of the issues which will be dealt with during geographical training.

Studies in geography also provide students with concepts and methods for organizing such spatial units as urban areas, marketing regions, school districts, health service areas, drainage basins, and areas of environmental concern. Thus, geographers can make substantial contributions to understanding the behavior of individuals, or societies, and of their relations with the environment.

Career opportunities for majors in geography exist in many branches of government and in business. There is a demand for persons capable of dealing with resource management, regional development, urban area analysis, and problems related to the distribution and spatial interaction of physical, economic, social, and political phenomena.

Courses in geography are commonly required of students preparing to enter the teaching profession at the elementary and secondary school levels, of students 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 Program
The geography faculty has developed an undergraduate instructional program which provides educational opportunities for a variety of students: for the nonmajor interested in taking one or more elective courses as they relate to a liberal education, or for students interested in entering a cluster of courses in concert with another discipline or for the B.G.S. degree, and for students interested in acquiring a major in geography. The department also has a significant interdepartmental program involving global, urban, and environmental concentrations.

Programs for the Undergraduate Major
Students majoring in geography may choose alternative programs depending on their interests. The substantive strengths of the department fall into three areas: environmental studies, urban and regional studies, and international development studies. Students may choose to develop expertise in one of these areas, or they may choose to develop an individualized program within the curriculum offered by the department.

Students planning advanced training or seeking careers in geography should elect the Bachelor of Science degree. Those who wish to pursue a liberal arts objective are advised to elect the Bachelor of Arts degree.

Requirements
All geography majors must complete a minimum of 26 semester hours of geography course work, at least 15 of which must be at the 100 level. Students will find that they will need more than the minimum requirements for mastery of a specific subfield.

All geography majors must complete:

44-110 Spatial Organization
44-150 Undergraduate Seminar for Geography Majors
and one of the following statistical courses:

22:3.127 Applied Statistical Methods and Computations
22:3.126 Elementary Statistics and Inference
22:3.101 Biostatistics
22:3.102 Introduction to Statistical Methods

In addition, Bachelor of Science students must complete a mathematics requirement consisting of one of the following courses:

22M.3 Mathematical Techniques II
22M.4 Fundamental Concepts of College Mathematics I,
or 22M.5 Mathematics for the Biological Sciences

and one of the following courses:

22M.6 Elementary Functions
22M.16 Calculus for the Biological Sciences
22M.12 Calculus I,
or 22M.15 Engineering Calculus I
22M.17 Calculus II and
a computer science requirement consisting of:
22C.3 Introduction to Computing with FORTRAN;
or 22C.16 Introduction to Programming with Pascal.

With the consent of the geography faculty, equivalent courses which have objectives similar to these may be accepted in fulfillment of the statistical, mathematical, and computer science requirements.

Recommendations
Students majoring in geography are advised to:

Take both the introductory level courses 44:1 Introduction to Human Geography and 44:2 Introduction to Physical Geography during their freshman or sophomore years.

Take first 44:110 Spatial Organization
Individual Programs

Students with more general interests who wish to pursue a Bachelor of Arts degree may design their own individual programs of instruction with the help of their advisors. Such programs must include 35 semester hours of geography, at least 15 of which must be at the 100 level. They also must include the following courses:

44:10 Spatial Organization
44:100 Undergraduate Seminar for Geography Majors
and one of the following statistics courses:
225:127 Applied Statistical Methods and Computations
225:25 Elementary Statistics and Inference
225:101 Biostatistics
225:102 Introduction to Statistical Methods

The 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.

Graduate Program

The goals of the department at the graduate level are to prepare students to carry on creative and productive work in geography involving the use of theory, modeling, and formal-verification methods, and to prepare students for positions in research, teaching, or some area of applied geography. The achievement of these goals is demonstrated in large measure by the demand for University of Iowa graduates to fill positions on college and university faculties, in research-oriented institutions, and in government and business.

The department offers specialized instruction in the teaching of geography at the college level for those interested in academic careers. Opportunities are provided for selected graduate students to gain practical teaching experience through service as departmental teaching assistants or through other supervised teaching duties.

Master of Arts

The department offers an M.A. program designed for students seeking professional positions in community planning, health planning, market research, resource management, regional development, and transportation as well as for those whose ultimate goal is the Ph.D. The program emphasizes the acquisition of analytical skills and substantive knowledge in a primary and a secondary area of concentration. Areas of concentration include: Location Theory, Regional Development, Behavioral Geography, Political Geography, and Environmental Science. These areas cut across some of the more traditional breakdowns of the discipline and subdivide others. For example, topics of interest in urban geography are included in three subprograms: location theories, regional development, and political geography, while the traditional concerns of economic geography are covered in location theories and regional development. The environmental science subprogram lays stress on physical/hydrological processes, biogeochemistry, and resource management. Courses which provide necessary training in oral and written communication, computer programming and graphics, statistics, mathematics, and research methodology are an integral part of the M.A. program.

The department is also a leading participant in two interdisciplinary programs at The University of Iowa: the Regional Science Program, the Transportation Program, and the Development Support Program. It is possible to obtain the M.A. in Geography while pursuing study in the first two of these.

As soon as possible during the first year of residence, students, in close consultation with their advisor and other faculty members, develop a plan of study for the degree program. This should include a description of the student's interests and should identify clearly the general area (or areas) within geography in which the student wishes to concentrate. The program of study should also emphasize relevant problem-solving methods, and philosophy and epistemology in geography.

The M.A. degree requires a minimum of 36 semester hours of graduate work, of which 15 semester hours must be 200- level or above. Specific requirements for the degree are: at least four semester hours chosen from among the minor-courses 44:201-202 Geography and GIS. In addition, satisfaction of the department’s B.S. degree requirements in mathematics, statistics, and computer programming or their equivalents (see above), complete, with a grade of B or better, at least one three-semester-hour quantitative methods course at a level above that required for the B.S. degree from a list of courses approved by the faculty.

An additional 12 semester hours in geography.

Additional courses in geography or related fields complete the student's program.

Students who enter with sufficient background are frequently able to complete the program in one full year (including summer session).

The M.A. degree is available with or without thesis. A maximum of six...
Doctor of Philosophy

The Doctor of Philosophy program is designed to prepare students for careers in college and university teaching and in advanced research. It provides programs of study leading to (1) broad knowledge of a field in geography and its literature, as well as (2) a specific field of competence and specialization. The former might represent the general area in which the Ph.D. holder seeks employment, whereas the latter would represent the area of active research involvement.

Students whose objective is the Ph.D. degree in geography are required to complete eight semester hours of 44201-202 Geographical Analysis I-III and complete with grades of B or better at least two additional quantitative methods courses (six semester hours) at levels above that required for the B.S. degree from a list of courses approved by the faculty. The eight mini-courses comprising 44201-202 should be taken within the first two years in residence, and must include mini-courses offered by at least six different faculty members. Courses to fulfill the quantitative methods requirement should be taken during the first year in residence.

All doctoral students must also complete two research seminars, preferably during the second year in residence, under the direction of different faculty members. Unless excused by the faculty, Ph.D. candidates are also required to register for 44315 Research Seminar. Staff each semester while they are in residence.

The remainder of the Ph.D. program involves the completion of three research seminars, independent research in geography courses in disciplines closely related to the student's objectives and interests, courses which satisfy the tool requirements. By their fourth semester in residence, doctoral students should submit a written report that includes an assessment of progress to date, an outline of the area within geography in which they intend to specialize, and a proposed plan of study for the following year.

Preferably during the second year in residence, doctoral students who have been admitted to the graduate program without advanced credit must register for an original research paper to the faculty, with the approval of their advisors. Students who have been admitted with advanced graduate credit of 24 semester hours may request, in writing, to submit this paper earlier. The faculty will pass upon the qualifications of the paper as it was demonstrated. Students become Ph.D. candidates when their qualifying papers have been accepted.

All doctoral candidates are expected to have supervised experiences as classroom instructors and research assistants before being awarded the Ph.D. degree.

Regional Science

The department also offers graduate study in regional science. In addition to the requirements for the M.A. or Ph.D. degree in geography, students selecting regional science as their field of study are required to take courses in location theory and analysis, regional economic development, methods of regional analysis, microeconomic theory, macroeconomic theory, and operations research. Doctoral candidates in the field of regional science also are expected to complete courses in philosophy and methodology in geography and in economics as well as three courses in a field of specialization such as location theory, regional economic development, environmental systems management, transportation modeling and policy, or population studies. Students may choose to apply to the Department of Economics to earn master's degrees in economics in addition to their master's and doctoral degree in Geography, because completing the regional science requirements entails satisfying most requirements for the master's in economics.

Transportation Specialty

The Geography Department of the University of Iowa offers the M.A. and Ph.D. degrees with specialization in transportation systems analysis. The transportation specialty draws on the resources of the school of engineering and the department's strengths in economic and urban and regional planning as well as those of the geography department. This specialty has a strong quantitative orientation. It is designed to provide students with a broad range of quantitative skills relevant to transportation and urban and regional analysis. It also serves to prepare students with an appreciation of political and organizational considerations affecting transportation such as the exigencies of practical problem solving.

M.A. students typically take five courses in transportation and urban and regional planning and analysis, three quantitative methods courses, and four additional courses in geography or economics. The M.A. degree is available with or without a thesis. If a thesis is prepared, it can substitute for two of the courses. Students who have not studied calculus as undergraduates may complete the program in four semesters. Students who have not studied calculus as undergraduates or who have research or teaching assistantships may require an additional one-two semesters to complete the program. On completion of the M.A. program, with specialization in transportation, students receive a transportation certificate in addition to their graduate degree.

Undergraduate studies in the Department of Geography are guided by the General Education Program. The department may also offer advanced courses in areas such as economics, operations research, regional development and economics, and location theory and analysis. Ph.D. students also are required to undertake original research leading to the preparation of a dissertation.

Graduate Admission

In addition to general rules and regulations set forth in the Manual of Rules and Regulations of the Graduate College, the department considers the applicant's undergraduate grade-point average, especially of his or her junior and senior years; scores on the Graduate Record Examination (GRE) Aptitude Test; three letters of recommendation; and an essay in which the student sets forth the reasons for wanting to study geography at the University of Iowa. An applicant with an undergraduate grade-point average between 2.3 and 2.75 will be admitted only for the M.A. degree and on the condition that he or she achieves a grade-point average of 2.75 or better in the first 12 semester hours of graduate work as approved by the department.

Foreign students, and those from undergraduate institutions that evaluate students on a basis other than grade-point average, are admitted according to their relative academic standing in their respective institutions.

Financial Assistance

A number of graduate appointments as teaching assistantships are available. Awards are based on merit and a student must ordinarily have achieved a combined score of 1100 on the GRE Advanced Test verbal and quantitative sections, and have a 3.0 undergraduate or graduate grade-point average, to be appointed to an assistantship. Appointments for graduate appointments should ordinarily be received by February 15.

Facilities

The department possesses a unique complete graphics hardware system in the IM/LAC PDS-4 minicomputer that supports a GRAF PEN GP3-20 Pong Display. The PDS-4 is a 24 KRAM with a CRT for on-line editing and an accompanying software support package, DIGIT SERIES, developed locally that allows for a broad range of computer graphics applications. This system is linked to one of four PRIME 750 minicomputers, which were added to the IBM 370/168. Complementary software systems are an increasing number of sophisticated software packages that will dramatically improve interactive computing capabilities.
Resources and 12.24 Introduction to Environmental Geology, a team-taught, laboratory-intensive course designed to acquaint the College of Liberal Arts general education requirement for natural science studies. Other offerings for nonmajors include a lecture sequence for persons interested in a general survey of geology, and several advanced courses with few prerequisites—paleontology, geology of Iowa, energy in contemporary society, a planet in crisis, remote sensing, geomorphology, and oceanography.

Undergraduate Programs

Students majoring in geology must meet the general requirements of the College of Liberal Arts. It is recommended that they satisfy the language requirement with French, German, or Russian, and the social science requirement with approved courses in economics, geography, and/or anthropology.

Bachelor of Science

The Bachelor of Science professional program in geology is designed primarily for preparation as graduate study and for employment in industry. Required courses in this program:

12.5: Introduction to Geology 4 s.h.
12.6: Evolution of the Earth 4 s.h.
12.41: Mineralogy 4 s.h.
12.52: Elementary Pedology 4 s.h.
12.52: Structural Geology 4 s.h.
32.39: Geologic Field Methods 2 s.h.
12.113: Summer Field Course 6 s.h.
12.121: Principles of Paleontology 3 s.h.
At least two elective geology courses 9 s.h.

Total: At least 39 s.h.

(For the student may substitute 12.23 Earth History and Resources for 12.5 Introduction to Geology, but 12.5 is preferred.)

The geology major requires at least 10 semester hours of college mathematics, including 22.26 Calculus II or 22.138 Engineering Calculus II. Computer science or statistics courses may be counted toward the total hour requirement. Additional mathematics is strongly recommended.

Eight semester hours of physics, eight semester hours of chemistry, and one-semester lab course of college zoology or botany are also required.

Bachelor of Arts

The Bachelor of Arts program is designed to provide a general background in geology, with a broader choice of electives than is the B.S. program, for students who are not planning to become professional geologists. With appropriate course work in education, the B.A. program provides a base for high school or community college teaching. A general background in geology and allied fields is also applicable in such areas as conservation and environmental problems. Course requirements for the B.A. in geology:

12.5: Introduction to Geology 4 s.h.
12.6: Evolution of the Earth 4 s.h.
12.41: Mineralogy 4 s.h.
12.52: Elementary Pedology 4 s.h.
12.121: Principles of Paleontology 3 s.h.
At least 11.116 (two sections) 4 s.h.
Geology electives 12 s.h.

Total 35 s.h.

(Note: The student may substitute 12.23 Earth History and Resources and/or 12.24 Introduction to Environmental Geology for 12.5 Introduction to Geology, but 12.5 is preferred for the major.)

The B.A. in geology requires at least ten semester hours of university-level mathematics, which may include computer science or statistics. Eight semester hours of chemistry are also required, and courses in other sciences and social sciences appropriate to the student’s objectives are recommended.

Joint Programs

Joint programs can be arranged, typically with chemistry, physics, zoology, and anthropology.

Original Research

A junior or senior who is ready to pursue original research for credit in geology may assist a faculty member or graduate student with a current research project, or initiate a small-scale project involving research, field, laboratory, or library investigation. Independent study is also available. Undergraduate classes have produced term reports which subsequently were published.

Honors

A degree "with honors" in geology is offered. Students in the honors program can elect a senior thesis.

Graduate Programs

Students planning to take graduate work in geology should have completed geology and supporting courses equivalent to those required for an undergraduate major in geology at The University of Iowa. Students with deficiencies may remedy them at the beginning of graduate study. All beginning graduate students in geology must take 12.107 Geologic Orientation.

All graduate students in geology must perform teaching, research, or related appropriate services as part of the degree program.
Prospective graduate students in geology should consult the "Rules and Regulations" in the "Graduate College" section of the Catalog for general admission and graduate study requirements.

**Master of Science**

The M.S. degree programs are designed to complete the student's broad fundamental background in geology and the supporting sciences. They prepare the student for a professional career in geology, or for more advanced and specialized studies—although in certain situations and with faculty approval the student may pursue an already specialized program at the master’s level. Entering graduate students are assigned to a general graduate adviser. Before the end of the second semester, the student should have selected a research area and related thesis topic. The chair then approves a thesis adviser and two additional faculty members, who form the student’s advisory committee. The student is responsible for getting the committee's approval of a suitable program of course work, and for satisfactory development of research plans as outlined in a thesis proposal which is submitted to departmental approval.

The degree requires at least 30 semester hours of credit in graduate level course work, including not more than eight semester hours of thesis and research courses, and at least 24 semester hours in residence at The University of Iowa.

Master's degree candidates complete at least one half of the Ph.D. language and tool requirements as part of the master's program. Course work taken to satisfy these requirements does not count toward the master's-hour requirements for the degree.

To qualify for admission to the final masters program, the graduate student must have at least a 3.0 grade-point average of 12 or more graduate courses, which are being offered toward the 30 semester hours minimum requirement for the degree. Additionally, the grade-point average of all graduate geology courses is to be at least 3.0. Not more than eight semester hours of thesis and research may be counted toward the 30 semester hours minimum required for the degree program.

**Master of Science with Thesis**

Students are encouraged to select thesis topics involving a variety of geological subdisciplines and scientific skills. Research topics might include field work or mapping, laboratory experiments, analytical work, or some combination.

**Master of Science without Thesis**

The Department encourages few students to pursue the M.S. without thesis, which requires that the applicant have approximately three months' experience working under supervision of a professional geologist or in a field or laboratory experience in some phase of geologic activity. If possible, the student should receive prior faculty permission to apply the experience toward the degree.

The student must submit a written report on the activity and on the geologic principles involved and its value and broader applications and implications. No college credit is granted for this activity. The M.S. degree without thesis requires at least 38 semester hours of graduate course work, of which at least eight hours must be earned in other departments of the University. The faculty may also require the students to submit a formal scientific report dealing with an appropriate subject or project. Credit may be granted for this report.

The final examination covers course work and work done in lieu of the thesis.

**Master of Arts in Teaching (Earth Science)**

This program enables students to combine certification to teach secondary school with participation in a specialized graduate curriculum. Awarded by the College of Education, the M.A.T. degree requires at least 20 semester hours of graduate study in professional education and at least 18 hours of graduate course work in earth science.

**Doctor of Philosophy**

The Ph.D. degree in geology requires at least 72 semester hours of graduate course work, including at least two full-time semesters in residence beyond the first 24 semester hours of graduate study.

Departmental language and tool requirements for the Ph.D. degree may be met either by achieving competence in two languages or in one language and one tool, or by achieving proficiency in one language. Competence is normally achieved by satisfactory completion of a one-year sequence of appropriate courses. Proficiency by satisfactory completion of a two-year sequence.

French, German, and Russian are the languages which meet departmental requirements; statistics and computer science are suitable tool areas. In exceptional circumstances, the faculty may approve other languages or tool areas. Courses in such related disciplines as botany, chemistry, hydrology, and zoology are not regarded as satisfying tool requirements, although they may provide indispensable background for the various areas of geological specialization. Course work taken to satisfy language and tool requirements may not be applied to credit requirements for the degree.

These are the minimum requirements:

- Satisfaction of course requirements for the M.S. degree in geology at The University of Iowa. Where appropriate, additional work in one area may be approved as satisfying requirements in another.
- An appropriate graduate course in another discipline. Courses crosslisted between geology and other departments are not generally considered to meet this requirement.
- At least 24 semester hours of graduate course work, exclusive of credits for dissertation research and beyond course work applied toward the M.S. degree.

The comprehensive examination covers, in depth, at subdivisions of one major field and one subdivision in each of three other major fields. It is also presumed that the doctoral candidate is proficient in the basic elements of general geology, as presented by current elementary textbooks.

These are the major and minor fields:

- **Economic Geology**
  - Petroleum
  - Economic Deposits
  - Engineering Geophysics
  - Mineralogy

- **Geophysics**
  - Crystallography
  - Determinative Mineralogy
  - Crystalline Chemistry and Mineral Chemistry

- **Igneous and Metamorphic Petrology**
  - Igneous Petrology
  - Metamorphic Petrology
  - Aqueous Geochemistry and Thermodynamics

- **Structural Geology**
  - Geochronology
  - Structural Analysis
  - Remote Sensing

- ** stratigraphy**
  - Exploration Geophysics
  - Soil-Earth Geophysics
  - Rock Properties

- **Physical Stratigraphy**
  - Physical Stratigraphy
  - Biostatigraphy

- **Depositional Environments**
  - Sedimentary Petrology
  - Sedimentation
  - Sandstone and Carbonate Petrology

- **Pleistocene Studies**
Field Trips
Field trips are integral parts of several courses in geology. Weekend general-interest events are frequent. In the Iowa City region, the geology is characterized by a layer of glacial drift on a largely Paleozoic sedimentary section a few hundred meters thick, overlaying a Precambrian crystalline basement. Marine and terrestrial fossil assemblages, extensive reefs, and unique goite sites are available within a few hours' drive. All four Paleozoic glaciations are represented in Iowa and each offers distinctive assemblage and fossil assemblages.
Spring recedes provide time for longer trips available to all geology students. In recent years students have traveled to the Grand Canyon, the Florida Keys, the southern Appalachians, the Big Bend Region of Texas, and the Ozarks. Advanced classes visit Colorado, Ontario, Kansas, Oklahoma, and California.

Courses

For Undergraduates

1209 Cooperative Internship in Geology

Practical experience in one or more phases of geology, will be noted on student's transcript. Prerequisite: C or better in 1205. Locate grade in average in geology, consent of instructor.

1210 Lectures in Earth History and Resources

Natural and modern environments on earth, and the processes by which they evolved, evolution of ecosystems. Material used to be noted on student's transcript. Prerequisite: C or better in 1205.

1211 Lectures in Introduction to Environmental Geology

Continuation of 1210. Not open to students who have taken 1210.

1212 Principles of Physical Geology

Introduction to physical processes and natural hazards. Not open to students who have taken 1210.

1213 Principles of Physical Geology

Introduction to physical processes and natural hazards. Not open to students who have taken 1210.

1214 Introduction to Geology

Lectures and laboratory work. Topics include rocks and minerals, weathering, soil, processes, landscapes, and earth's structure. Not open to students who have taken 1210.

1220 Field Geology

Lectures, laboratory, discussions, and field trips testing the classic and modern interpretation of the earth's natural perspective. Topics include origin of the earth, history of the earth, and the evolution of the earth's structure. This course is open to all students.

For Undergraduates and Graduates

1206 Geology Teaching Assignment

Practical experience in one or more phases of geology placement. Pre-requisite: 1220. 2.0 grade point average in geology, consent of instructor.

1207 Physical Geology

Lectures and laboratory work. Topics include principles and concepts, emphasis on useful geologic literature, and natural hazards. Not open to students who have taken 1210.

1221 Advanced Petrology

Lectures and laboratory work. Topics include principles and concepts, emphasis on useful geologic literature, and natural hazards. Not open to students who have taken 1210.

1222 Introduction to Structural Geology

Lectures and laboratory work. Topics include principles and concepts, emphasis on useful geologic literature, and natural hazards. Not open to students who have taken 1210.

1223 Introduction to Geobiology

Lectures and laboratory work. Topics include principles and concepts, emphasis on useful geologic literature, and natural hazards. Not open to students who have taken 1210.

1224 Introduction to Environmental Geology

Lectures and laboratory work. Topics include principles and concepts, emphasis on useful geologic literature, and natural hazards. Not open to students who have taken 1210.

1225 Geology Field Methods

Lectures and laboratory work. Topics include principles and concepts, emphasis on useful geologic literature, and natural hazards. Not open to students who have taken 1210.

1226 Environmental Petrology

Lectures and laboratory work. Topics include principles and concepts, emphasis on useful geologic literature, and natural hazards. Not open to students who have taken 1210.

1227 Field Geology

Lectures and laboratory work. Topics include principles and concepts, emphasis on useful geologic literature, and natural hazards. Not open to students who have taken 1210.

1228 Introduction to Geology

Lectures and laboratory work. Topics include principles and concepts, emphasis on useful geologic literature, and natural hazards. Not open to students who have taken 1210.

1229 Field Geology

Lectures and laboratory work. Topics include principles and concepts, emphasis on useful geologic literature, and natural hazards. Not open to students who have taken 1210.

1230 Field Geology

Lectures and laboratory work. Topics include principles and concepts, emphasis on useful geologic literature, and natural hazards. Not open to students who have taken 1210.

1231 Field Geology

Lectures and laboratory work. Topics include principles and concepts, emphasis on useful geologic literature, and natural hazards. Not open to students who have taken 1210.

1232 Field Geology

Lectures and laboratory work. Topics include principles and concepts, emphasis on useful geologic literature, and natural hazards. Not open to students who have taken 1210.
metamorphic rocks from foundations of thermodynamics, experimental information, and geologic observations. Offered fall semester of odd years. Prerequisites: 1121, 1231, and 1254, or consent of instructor.

1231 Regional Stratigraphy 3.0 ch
Seminar covering contemporary stratigraphic concepts and case histories, with emphasis on the application of modern methods and techniques to fining of clastic-depositional and related depositional analysis. Case studies of classic-stratigraphic research projects and new data. Prerequisites: 1231, 1232, and 1234, or consent of instructor.

1232 Economic Stratigraphy and Sedimentation 3.0 ch
Analysis of selected Mesozoic basins and strata stories worldwide, with emphasis on depositional systems and facies evolution. Offered fall semester of even years.

1233 Biogeography 3.0 ch
Invertebrates and vertebrates. Offered fall semester of odd years.

1234 Seminar in Geologic Remote Sensing May be repeated.

1291 Research: Geophysics and Paleoclimates May be repeated.

1298 Research: Economic Geology May be repeated.

1361 Research: Oceanology May be repeated.

1320 Research: Petroleum Geology May be repeated.

1381 Research in Geologic Remote Sensing May be repeated.

German

Department Chair: James P. Purcell
Faculty: Associate Professor Edward Overstreet; James P. Sandrock, Langley T. Singleton, Jr. A. A. H. Asaad; Professor Judith P. Aske; Wolfgang Ehr; Paul B. Patrick; Professor James P. Purcell, Ronald L. Hunsley; Geoffrey J. Watts; Associate professor emeritus of the Federal German Department offered: B.A., M.A. in F.G.

The primary emphasis of the Department of German is to transmit to interested American liberal arts students a knowledge of the language, literature, and culture traditionally designated as German, including west and east Germany, Austria, and Switzerland.

University graduates with degrees in German frequently enter the teaching profession. They may also find positions in government, foreign service, and commercial enterprises.

Undergraduate Program

Students majoring in German choose one of two major tracks: the humanities track or the applied German track.

The humanities track enlists the student to concentrate in German language, literature, and culture, both past and present. It is recommended for students who wish to explore the German world of ideas and their influence through the ages. This track is required for students who plan to pursue graduate study in German and those who plan to complete the undergraduate teaching major in German in conjunction with the College of Education.

The applied German track is designed to give the student practical skills and proficiency in the language for use in business and government. It is especially useful when combined with a business- or government-related course.

Each track normally requires 24 semester hours of coursework in the department, beyond the basic program. The following course sequences, or their equivalents, are required for each student to begin a major in German with no previous experience with the German language.
Basic Program
13.11 First-Semester German 4 s.h.
13.12 Second-Semester German 4 s.h.
13.21 Third-Semester German 3 s.h.
13.22 Fourth-Semester German 3 s.h.
13.31 Intermediate German: Elementary Composition and Conversation 3 s.h.

Humanities Track
Third Year
13.101 Introduction to Modern German Literature I 3 s.h.
13.102 Introduction to Modern German Literature II 3 s.h.
13.133 Intermediate Composition and Conversation 3 s.h.
13.134 Intermediate Composition and Conversation 3 s.h.

Fourth Year
13.103 Intermediate German: Advanced Composition and Conversation 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 3 s.h.

Students who intend to go on for an advanced degree are encouraged to add 13.117 German Phonology (3 semester hours) to the above.

Applied German Track
Third Year
13.103 Intermediate Composition and Conversation 3 s.h.
13.104 Intermediate Composition and Conversation 3 s.h.
13.106 Principles and Techniques of Translation 3 s.h.
13.107 Translation: Projects and Colloquium 2-4 s.h.
13.114 Business German or 3 s.h.
13.115 Contemporary German Civilization 3 s.h.

Fourth Year
13.110 Advanced Composition and Conversation 3 s.h.
13.114 Business German or 3 s.h.
13.115 Contemporary German Civilization 3 s.h.

The student in applied German must also complete at least one additional German literature or culture course at the 100-level or above.

German majors, graduate as well as undergraduate, are urged to supplement their degree programs with relevant courses in German history, philosophy, business, etc.

A student with native proficiency in German may, upon declaration, take German only as a second major, and is expected to complete a full first major in a subject in which he or she has no such obvious advantage over his or her peers.

Certification for Teaching Minor
In addition to the basic program requirements for the first and second year, a student must take the following courses or their equivalents for certification of the teaching minor in German:
13.104 Introduction to Modern German Literature I 3 s.h.
13.106 Introduction to Modern German Literature II 3 s.h.
13.108 Intermediate Composition and Conversation 3 s.h.
13.109 Intermediate Composition and Conversation 3 s.h.
13.116 Advanced Composition and Conversation 3 s.h.

Honors in German
This program is open to junior and senior students who are majoring in German and have grade-point averages of at least 3.2 overall and 3.5 in German. During the junior and senior years the honors student in German is expected to engage in extra readings and discussions, and to write a term paper (if feasible) for each of the courses in which he or she is enrolled. A senior essay, written under the supervision of a faculty member, and a comprehensive oral examination complete the program.

Special Facilities
Students have the opportunity to improve their comprehension and command of German by working with recorded materials in the Language Media Center. Students may also benefit from our Computer-Assisted Instruction program.

As an extensive collection of works and periodicals in the University Library facilitates research in major areas of German literature and Germanic studies at all levels of study, The Foreign Language House in Westview Residence Hall is available to undergraduate and graduate students as an on-campus housing option.

Foreign Study
The Department of German participates in the Regents Summer Program in Austria. Sponsored by the three Iowa regents universities, this program is open to students in all disciplines.

A three-week session is conducted at St. Radegund, near Graz, Austria.

Instruction in German language and culture is provided on appropriate levels. A second four-week session is held in Vienna, where faculty of the International University at the University of Vienna conduct morning classes daily, again on several levels. An independent travel period is scheduled during the program.

To participate, the student must be admitted to one of the three Iowa regents universities for the summer session. Applicants should have a good basic knowledge of German—normally two years of college-level German or the equivalent. Students with less than two years may be accepted with the approval of the German coordinator.

Graduate students are eligible to apply. All students are expected to speak only German while participating in the program. Program grants are available for qualified applicants.

For further information, write to the Department of German.

Master of Arts with Thesis
Graduate students of German who demonstrate an interest in and potential for productive scholarship and who plan to continue in the doctorate should elect the master's degree program with thesis. The thesis program requires a minimum of 30 semester hours, or equivalent, of graduate-level work, and fulfillment of other requirements of the Department of German and the Graduate College (see the "Graduate College" section of the catalog).

If the student has not completed major courses, or equivalents, in the department's undergraduate program, he or she may be required to complete the courses required for the Master of Arts. Under some circumstances, the candidate may qualify for graduate credit for such work.

With the graduate advisor's approval, some of the 30 semester hours required for the degree may be taken outside the department, in such related subjects as philosophy, history, linguistics, or other languages.

Normally, the student may receive two semester hours of credit for satisfactory completion of the thesis. The thesis topic may be either linguistic or literary, and is subject to the approval of the faculty.

Before the M.A. exam can be administered—after acceptance of the M.A. thesis—the candidate must demonstrate competence in a foreign language other than German, at a level equivalent to two years of college study or two years of high school study, with a grade of B or higher.

Master of Arts without Thesis
A graduate student preparing for secondary school teaching, government service, translation, etc., may elect the master's degree program without thesis. This program requires a minimum of 30 semester hours of course work and is considered a terminal degree.
Global Studies/LIBERAL ARTS

13.197 Contemporary German literature 3 s.h.

13.198 Contemporary literature of Africa and East Germany. 3 s.h.

13.199 Contemporary literature of Asia, Africa, and Latin America: For advanced undergraduates only. 3 s.h.

13.161 Human Nature and the Impact of Siberia 3 s.h.

13.176 Interdisciplinary discussion course moderated by two or more instructors. Studies the relationship of science to literature, history, philosophy, and art. Requires no knowledge of German. Same as 12.176.

13.177 Opera on Drama 3 s.h.

13.178 Musical and stage practices of autonomous and interdependent cultures. Requires prior knowledge of opera or drama to be in residence as 12.177.

13.202 Improvisation 3 s.h.

13.203 Improvisation and Expression in German Literature 3 s.h.

13.260 Special Topics in German Literature 3 s.h.

13.261 History of Modern German Literature 3 s.h.

13.262 History of Modern German Literature: The Eighteenth Century 3 s.h.

13.263 History of Modern German Literature: The Twentieth Century 3 s.h.

13.264 German Poetry of the Twentieth Century 3 s.h.

13.302 Theory of Literature 3 s.h.

13.303 M.D. Dissertation 3 s.h.

Language Courses for Graduate Nonmajors

13.196 Elementary German 4 s.h.

13.199 Intermediate German 4 s.h.

13.200 Advanced German 4 s.h.

13.201 Advanced German Literature 4 s.h.

For Graduates

13.206 Advanced Studies 4 s.h.

13.301 German Prospective 7 s.h.

13.302 Graduate-level course study, to equip German literature and Germanic linguistics, engaging bibliography, methods of research, literary theory, and writing, and other specific problems.

13.207 The Novel 4 s.h.

13.208 German Poetry 4 s.h.

13.209 German Drama 4 s.h.

13.210 German Writing 4 s.h.

13.211 History of the German Language 3 s.h.

13.213 Middle High German 3 s.h.

13.214 Middle High German Literature 3 s.h.

13.215 Old High German 3 s.h.

13.216 Gothic 3 s.h.

13.217 History of the Romance Languages 3 s.h.

13.219 German Literature 3 s.h.

13.221 German Literature in the Renaissance and the Baroque 3 s.h.

13.223 German Literature of the Eighteenth Century 3 s.h.

13.224 German Literature of the Nineteenth Century 3 s.h.

13.225 German Literature of the Twentieth Century 3 s.h.

13.226 Theory of Literature 3 s.h.

13.227 M.D. Dissertation 3 s.h.

Global Studies


The Global Studies Program at The University of Iowa is designed to provide undergraduate students multidisciplinary study of major contemporary, interrelated global problems concerned with war, peace, environmental concerns and global resources, and cross-cultural understanding.

Undergraduate majors, with the recommendation of the department of study, are eligible to enroll in the program. In addition, a student will complete all requirements for a departmental major and, in addition, the requirements of the Global Studies Program. Students completing the requirements of the program are awarded a certificate of Global Studies at the time they receive their bachelor's degree. Students pursuing the certificate in Global Studies may also specify Global Studies as their minor.

Candidates for the Bachelor of General Studies (B.G.S.) degree may also be admitted to the program. However, because B.G.S. candidates have no departmental concentration, they will require very close academic advising by the program's faculty committee.

All students enrolled in the program, including B.G.S. students, are required to complete (or have the equivalent of) two years of a foreign language and are encouraged to go beyond this minimal requirement.

Each student completing the program will be awarded a certificate, and the concentration in global studies will be noted on his or her transcript.

The Global Studies Program requires the completion, with at least a 2.0 grade- point average, of 24 semester hours of approved courses, distributed as follows:

Introductory Course

The student normally takes this course, 47.1 Global Interdependence and Human Security, in the Fall semester of the freshman or sophomore year. It is designed to provide an introduction to the basic problem areas of the Global Studies Program, basic information relevant to each of the problems, clarification of their interconnections, and identification of some current efforts to deal with them.

Multidisciplinary Senior Seminar

This course, 47.180 Global Studies Seminar, is offered at least one a year and is required of all students in the program, normally in their senior year. It is designed to provide an in-depth exploration of a particular global problem or geographic area. Course content will vary from year to year, but in any case the course will be multidisciplinary and will feature distinguished speakers from on and off campus.

Global Studies Courses

In addition to the introductory course and the Senior Seminar, the student elects one course (three semester hours) under each heading, and two additional courses (six semester hours) under one of the headings, for a total of six courses (18 semester hours). These courses are mainly, though not exclusively, offered by University departments, though several courses listed below are offered or listed by the Global Studies Program. (See the list of Global Studies courses below).

I. War, Peace, and Security

This component of the Global Studies Program deals with the use of armed force or the threat of political action on a continuing basis from potential global conflict to the individual act of terrorism. The various approaches will consider causes, effects, limitation, and resolution of violence in the contemporary setting.

All students must take either:

30.164 Military Affairs, or

16.149 War and Society

Students who elect to take courses in this area would, in addition, take one of the following:

III. Environmental Concerns and Global Resources

This component of the Global Studies Program is concerned with the availability, use, and disposal of global resources. Of special concern are the environmental problems arising from the transformation of these resources by humans using modern technology. All students must take either:

44:19 Contemporary Environmental Issues
44:124 Introduction to Global Environment

Students who elect to take three courses in this area would, in addition, take any two of the following courses:

44:19 Contemporary Environmental Issues
44:123 Geography of Natural Resources
44:124 Introduction to Global Environment
44:191 Energy in Contemporary Society
37:125 A Planet in Crisis (same as 12:125)
34:174 World Population Problems

IV. Cross-Cultural Understanding

Global issues will require for their analysis and solution persons educated to understand that perceptions, values, and beliefs vary among societies, that these differing values complicate the process of people communicating about and arranging possible solutions to global problems, and that it is risky to accept as absolute, without careful examination, the perceptions, values, and beliefs of any one society or culture.

The goals of this program component are to highlight cross-cultural differences themselves as a major contemporary global issue; to address some of the sources, dimensions, and policy implications of these value differences; to help foster the cross-cultural understanding and sensitivities required for dealing adequately with most global issues; and to encourage students to clarify their own values, as these bear on the analysis of global problems and proposals for their amelioration.

Two options are available for fulfilling the requirements of this program component:

Option 1
Students electing Option 1 must take:
113:23 Introduction to the Study of Culture and Society

Students who elect, though Option 1, to take three courses in this program component must also take two additional courses from the following list:

42:157 World Futures
30:165 Human Rights
81:193 Human Rights in the World Community: Problems of Law and Policy

(undergraduate credit only)

Option 2
Students electing Option 2 may fulfill the requirements of this program component by taking three courses in the history and culture of one of the principal world geographical areas. The selection of the three courses is subject to the approval of the program's faculty committee. It is especially desirable for students electing this option to fulfill the program's language requirement through the study of a language of the geographical area.

In addition to supervising its academic program, the Global Studies Committee organizes talks and conferences of interest to the general public as well as students.

Courses

47:121 International and Human Survival 3.00 h. Introduction to the four broad problem areas of the Global Studies Program; basic information relative to each of the problems as they relate to the United States and identification of current efforts to deal with them.

47:220 Contemporary World 3.00 h. The historical and political context of the contemporary world and identification of major problems.

47:305 The European Union 3.00 h. Interdisciplinary survey of the political, economic, and social development of the European Union.

47:310 Freshmen Seminar 3.00 h. Analysis of contemporary African affairs from an interdisciplinary perspective, using foreign newspapers and periodicals.

47:406 Global Studies Seminar 3.00 h. In-depth exploration of a particular global or geographic issue. Course content will vary from year to year, but in any case the approach will be interdisciplinary. Undergraduate credit only, with consent of the Global Studies Committee.
History

Department Chair: Verdie L. Rhodes

The purpose of the Department of History is to increase knowledge of human experience and to provide students with opportunities to gain information about and learn methods for understanding their world in the light of its past. In addition to offering these essential elements of liberal education, the department trains professional historians and teachers of history, serves those who require a knowledge of a period or aspect of history as background for their own specialized interests in other fields, and participates in several interdisciplinary programs such as American civilization, Afro-American studies, Asian studies, Latin American studies, and women's studies.

Undergraduate Program

Baccalaureate graduates in history go on to graduate school, law school, public service, or journalism. Many plan further training in history, law, religion, library science, business, or government. A major in history includes work in other fields which will illuminate and expand the meaning of history courses as well as introduce the undergraduate to different books of knowledge and approaches to understanding the ways societies and cultures work. It is, for example, strongly recommended that the College of Liberal Arts degree requirement in a foreign language be met by selecting a language which fits in with the major student's history interests.

The general major is for students with a general interest in history. The program requirements are:
- A minimum of 24 semester hours in courses offered by the Department of History numbered 16:50 or higher, of which at least 12 must be in non-U.S. history courses. This requirement is imposed to assure a balance with the history of at least one other discipline besides history.

Three semester hours in 16:51 Colloquium for History Majors. A colloquium consists of a small number of students collectively studying problems in ways which give training and experience in group discussion, analysis, and criticism. It is best taken after the student has finished a number of other History courses.

Of the 24 semester hours of history required for the major, 12 including three hours of colloquium must be taken in residence at the University of Iowa.

A minimum of 18 to 18 semester hours of course work in related areas, such as anthropology, economics, fine arts (excluding studio courses), geography, literature (including workshop courses), philosophy, political science, psychology, religion, and sociology, or 18 semester hours in one of these areas, Colloquiums taken to satisfy requirements in general education will not be counted toward the related-areas requirement.

Students majoring in history may waive three semester hours of the general education requirement in historical perspective. They may not receive credit towards this requirement by taking any of the following courses taught by members of the history faculty: 16:3-4 Problems in Human History, 16:1 Western Civilization to 1792, 16:2 Western Civilization since 1792, and 16:6-8 Civilizations of Asia. Nor may any of these courses be included in the 24 semester hours of history required for the general major in history.

Teacher Certification

Students majoring in history who wish to qualify for a teaching certificate must choose an area of concentration in history to meet these requirements:

American History Concentration
- Courses in U.S. History 30 s.h.
- Including 16:51 Colloquium for History Majors

Courses in related areas 24 s.h.

Students must take at least twelve hours of course work in each of two related areas chosen from among the following five: economics, geography, world history (non-U.S.), philosophy, and sociology.

Students must also meet a special requirement in early European history by taking one of: 16:1, 16:107, or 16:110 (three semester hours). This course may not count towards the related area requirement in world history if it is one of the two areas chosen.

World History Concentration
- Courses in non-U.S. History 30 s.h.
- Including 16:51 Colloquium for History Majors and one of 16:1, or 16:107, 16:110

Courses in related areas 24 s.h.

Students must select 12 semester hours of course work in each of two related areas chosen from among the following five: economics, geography, American history, political science, sociology. Students have been taken to satisfy the general education requirement in social science 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 major in history must also complete the professional courses in the College of Education which are required for teacher certification (a total of 27 semester hours). They should consult an advisor in social studies education (see the College of Education section of the Catalog).

Honors

The honors major is for students of superior ability who want a flexible program enabling them to pursue special interests and enjoy the experience of individual research. To undertake the honors major in history, the student must be admitted to the College of Liberal Arts Honors Program by the director of that program, and to the honors program in history by the department. Application should be made by the beginning of the junior year, but may be made earlier.

The honors major leads to the Bachelor of Arts degree with honors in history. Requirements are:

A minimum of 24 semester hours in courses offered by the Department of History of which at least 12 must be in U.S. history; minimum of 16 to 18 semester hours in related courses (see General major in History); at least nine semester hours in the department's honors offerings, which may include at least six semester hours of honors essay credit.

A defense of an honors essay is required.

Honors credits may be obtained in honors seminars-honors tutorial; and supervised research for honors students. (The honors seminar fulfills the colloquium requirement of the general major.)

The honors essays should be a 30 to 40 page paper based on some research in primary sources. A committee of three faculty members will hear a defense of the essay and in the 13th week of the student's last semester.
Graduate Programs

The graduate programs in history prepare students to teach in high schools or colleges, and for such occupations as publishing, commercial research, and government or other public service. With additional specialized training, students of history become qualified for careers in archival work, library work, or historical site preparation and display. Some students enter the profession with degrees in both law and history (see the "College of Law" section of the Catalog). Qualified graduate students are invited to apply for fellowships and assistantships. Inquiries should be directed to the departmental office.

Master of Arts

There are two M.A. programs in the history department. The first is for students who plan to work for the Ph.D. degree. It requires a minimum of 30 semester hours of credit, including the completion of a research essay. The candidate must earn at least 24 semester hours of credit in the history department, including at least two seminars or one seminar and one readings course. One seminar must be taken within the first two semesters of residence. Twelve semester hours must be in the area of the student's essay topic, and at least six semester hours must be in a second division, including either a seminar or a readings course.

The essay in the major division must be based on original research and should be in the vicinity of 10,000 to 15,000 words in length. Work on the essay will normally begin in the semester in the major division and be completed with 16:239 individual Study: Graduate, in which rewriting will be under the supervision of the supervisor. In exceptional cases where the essay completed in seminar is judged to be of outstanding quality, other courses may be substituted for 16:239.

Students who complete the M.A. under the alternative plan may not become candidates for the doctorate in history. The M.A. candidate must earn at least 30 semester hours of graduate credit, 24 semester hours of which must be in history. Of these, at least 12 must be in one division, and must include at least one seminar or seminar course.

The program must also include at least six semester hours in each of two other divisions in history, or as hours in one other division in history and 8 hours in a related department. These hours must include at least one seminar or seminar course in history.

After completing these requirements, or in the semester in which they are to be completed, the M.A. candidate must take an oral and written comprehensive examination in the major division.

Doctor of Philosophy

Students who earn the M.A. with research essay are admitted to the Ph.D. program upon the favorable recommendation of the examining committee. Students who earn an M.A. at another university must meet the general requirements for admission to the Graduate College (see the "Graduate College" section of the Catalog) and must submit a statement of their writing, such as a seminar paper or an M.A. thesis. They must take a research seminar during their first two semesters in residence at Iowa.

The candidate must earn at least 72 semester hours of credit, including credit for work aimed toward the master's degree. The 72 semester hours must include at least 32 semester hours (eight courses) in 200-level courses in history, apart from thesis credit. At least 20 of these 32 hours must be completed before the student takes the comprehensive examinations, 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 towards this 32-hour requirement. The candidate must also earn two semester hours of credit in the philosophy of history, historiography, or methods of historical research.

The department has no common language requirement for the Ph.D., but the supervisor may require the candidate to demonstrate a reading knowledge of one or more languages and proficiency in the use of other tools of study. The candidate may not complete the comprehensive examinations until these requirements have been met.

The comprehensive examinations and the dissertation examination will cover four distinct fields, each of which is at least three of the fields in history. The fields in history must be chosen from at least two of these divisions:

- The Ancient World
- Medieval Europe
- Europe, including Great Britain, 1500 to 1615
- Europe, including Great Britain, 1615 to present
- Russian and the Soviet Union
- United States History
- Latin American History
- History of China
- History of Japan
- History of India
- Economic History

The committee may define and delimit the individual fields for examination. It may also test, separately for each field, the character of the written portion of the comprehensive examination, which may take the form of a syllabus, a critical bibliography, a topical paper, or any other form or combination of these or other forms that the committee deems suitable. The oral portion of the examination will focus on issues and problems arising from the examination papers.

Graduate Admission

All applicants for admission, whether for the M.A. or the Ph.D. program, must meet the general requirements for admission to the Graduate College. In addition, they must submit a specimen of their writing—such as a seminar paper, or M.A. thesis— to the history department. Applications for graduate study are due February 10 for the succeeding year. Applications for admission are due April 10 and November 15 for the following semesters. An applicant must take the Graduate Record Examination (GRE) Aptitude Test in order to be considered for admission. An undergraduate history major is not required for admission to the graduate program.

Guide to Graduate Study

Further information on graduate study is contained in the department's guide to Graduate Study, sent to all applicants for admission. The Guide is revised every spring to include the latest changes in the courses, to be offered in the following year, and the research interests of the members of the faculty, as well as career requirements for study toward advanced degrees and other information of interest to prospective students.

Special Facilities

The University Library is strong in all aspects of U.S. history. Among the rare examples of the Henry A. Wallace papers and related collections are the other papers and materials. Among the others, the special strengths are in French and English materials. The Iowa State Historical Society in Iowa City and the Herbert Hoover Presidential Library in West Branch possess additional research materials of great value.

Courses

Courses numbered 16:1 through 16:6 are ordinarily by the freshmen to satisfy the General Education Requirements in Historical Perspectives, 16:65, 16:61, 16:62, 16:69, and 16:90 are open to freshmen, 16:51 and 16:99 are not open to freshmen. Other courses numbered below 20 are open to freshmen provided they have already satisfied the general education requirements in the same set of objectives. Most courses numbered below 200 are offered as regular courses. Courses numbered 200 and above are offered as occasion demands. 16:1 Western Civilisation to 1750 3 s.h.
Home Economics/LIBERAL ARTS

17:196 Seminar: Home Economics

Bachelor of Arts

Family Development

Students concentrating in family development are offered specialized training in individual and family life-span perspectives, child development and parent-child relations, adolescence in a family context, marital relationships, aging studies, and financial management. This program prepares students for careers with agencies and services concerned with the total family and its functioning, for family life education, and for the extension service. The following courses are required:

17:10 Growth and Development of the Young Child 3 s.h.
17:104 Adolescence and the Family 3 s.h.
17:108 Basic Aspects of Aging 3 s.h.
17:112 Personal Financial Management 3 s.h.
17:113 Marriage and Family Interaction 3 s.h.
17:114 Parent-Child Relationships 3 s.h.
17:115 Father-Child Relationships in the Exceptional Family 3 s.h.
17:119 Directed Studies in Family Development 3 s.h.
17:120 Maranapas and Methods in Family Life Education 3 s.h.
3:1 Elementary Psychology 3 s.h.
3:41 Introduction to Sociology: Principles 3 s.h.
3:419 The Family in Various Societies 3 s.h.
3:416 The American Family 3 s.h.

Electives from home economics, education, social work, economics, psychology, and sociology are recommended.

Food and Nutrition

This program includes a strong scientific base as well as the home economics core requirements and the College of Liberal Arts general education requirements which include two years of a foreign language. This program is designed to prepare a student for an entry level position as a nutritionist, test kitchen home economist, food service supervisor, assistant food service manager, educational materials writer, food columnist, or consumer information specialist. A concentration in food and nutrition requires:

17:131 Food Study 3 s.h.
17:132 Food Study Laboratory 2 s.h.
17:133 Meal Management 3 s.h.
17:134 Operational Food I 3 s.h.
17:135 Experimental Food II 3 s.h.
17:146 Nutrition Laboratory 2 s.h.
17:144 Human Nutrition 3 s.h.

Home Economics

Department chair, Sara C. Wolton
Faculty, professors Margaret H. Keesy, Susan S. Schott, assistant professors Margaret C. O'Keefe, Flo Eugene Whinbird, associate professors Elizabeth A. Konik, Helen T. Cary, Dian O. Ozoga, associate professors Laura E. Smith, assistant professors Patricia L. Mauk, Kathy A. Berkey, Patricia J. Conlin, Kathy A. Kelly, Geoffrey R. Lepp, associate professors Margaret A. W. Redman, Marlene H. Purdon, Helen A. Silverman; instructors Susan S. Fotland, Rachel L. Meyer; visitors and advisory staff, G. Somers.

The mission of the Department of Home Economics is to enhance the quality of life, with a program designed to develop a working understanding of the individual within his/her environment.

Through education, the department prepares professional home economists to work with individuals and families, or with businesses, agencies, and organizations providing goods, services, and programs which enhance the quality of life. It also contributes to the liberal and professional education of nonmajors.

Through research, the department creates new knowledge for and about individuals and families with their needs and problems.

Through extension, the department directly serves individuals and families with their needs and problems.

Home economics is a career offering a wide range of opportunities, teaching, dietetics, merchandising, interior and textile design, product development and quality control in textile and food industries, consumer relations, family life education and services, food service systems management, and service with community or government agencies.

The University of Iowa's home economics unit is accredited by the Council for Professional Development of the American Home Economics Association.

Undergraduate Program

The undergraduate program prepares students for a major in home economics or a minor emphasis for professional home economists, and also for advanced study.

Concentration in family development; food and nutrition; home economics education; interior design, textile design, housing, or textiles and clothing makes it possible for undergraduate majors to develop a specialization. The home economics core provides a central body of knowledge and a basic understanding of relationships among the various areas of specialization within home economics. Just programs can be arranged with other fields such as journalism, art, social work and education.

In meeting the general requirements for the B.A. or B.S. degree of the College of Liberal Arts, students majoring in home economics need to select courses in other departments which also are prerequisites for home economics courses.

All majors requiring in-home economics complete this core:
17:10 Human Development and the Family 3 s.h.
17:41 Food, Nutrition, and You 3 s.h.
17:50 Design for the Home 3 s.h.
17:50 Textiles for Consumers 3 s.h.
17:111 Management of Family Resources 3 p.m.
4:10-14 Principles of Chemistry I- 
I 6 s.h.

4:16 Principles of Chemistry Lab 
2 s.h.

4:121 Organic Chemistry I 
3 s.h.

4:141 Organic Chemistry Laboratory 
3 s.h.

6:115 General Microbiology 
4 s.h.

7:123 Human Physiology 
4 s.h.

9:99/110 Biochemistry 
3 s.h.

Electives should be selected from home economics and the natural sciences.

A concentration in nutrition with emphasis in food technology requires:

8:171 Food Study 
2 s.h.

17:132 Food Study Laboratory 
2 s.h.

17:133 Meat Management 
2 s.h.

17:134 Experimental Food I 
3 s.h.

17:136 Food Service Systems Management 
3 s.h.

17:137 Food Service Systems Administration 
3 s.h.

17:144 Human Nutrition 
3 s.h.

17:146 Nutrition Laboratory 
2 s.h.

17:147 Diet Therapy 
3 s.h.

4:19-14 Principles of Chemistry I-
II 6 s.h.

4:16 Principles of Chemistry Lab 
2 s.h.

4:121 Organic Chemistry I 
3 s.h.

59:110 Biochemistry 
3 s.h.

6:11 Principles of Economics 
4 s.h.

6:115 General Economics 
3 s.h.

7:135 Educational Psychology and Measurement 
3 s.h.

or

7:131 Educational Psychology 
3 s.h.

34:1 introduction to Sociology- 
Principles 
3 s.h.

or

31:1 Elementary Psychology 
3 s.h.

6:115 General Psychology 
3 s.h.

7:130 Human Physiology 
4 s.h.

11:3-2 Introduction to the Study of 
Culture and Society 
4 s.h.

Electives should be selected, according to the student's professional objective, from the natural sciences, business administration, psychology, computer science, statistics, education, home economics, journalism and mass communication, instructional design and technology, counseling, social work, anthropology, sociology, or physical education.

This program follows minimum academic requirements of the American Dietetic Association Plan IV. All students applying for internships should have their grades currently screened the first semester of the senior year.

Home Economics Education

This program leads to certification and vocational approval in home economics. Students are prepared with subject matter and professional competencies required for teaching home economics in vocational or occupational secondary schools, for working as educators with organizations, business, industry, the home economics extension service, and other agencies, for teaching in non-school settings, and for graduate study. Required courses for this concentration are:

17:31 Introductory Food Study 
2 s.h.

17:31-132 Food Study. Food Study Laboratory 
4 s.h.

17:110 Personal Financial Management 
3 s.h.

17:113 Marriage and Family Interaction 
3 s.h.

17:114 Parent-Child Relationships 
3 s.h.

17:121 Curriculum: Home Economics 
2 s.h.

17:128 Education: Home Economics 
2 s.h.

17:133 Meal Management 
2 s.h.

17:165 Housing: Planning and 
Structural Aspects 
3 s.h.

17:166 Housing: Social and Psychological Aspects 
3 s.h.

17:170 Custom and Contemporary Tailoring 
3 s.h.

17:171 Fitting Problems and Flat 
Pattern Design 
3 s.h.

18:1 Elements of Art 
2-3 s.h.

18:2 Elements of Art 
2-3 s.h.

6:11 Principles of Economics 
4 s.h.

6:115 General Economics 
3 s.h.

31:1 Elementary Psychology 
3 s.h.

34:1-4 introduction to Sociology: 
Principles 
3-4 s.h.

In addition, students must complete the course work generally required for teacher certification. The methodology course required in home economics education is 75:125 Methods: Home Economics (3 semester hours).

In addition to the general requirements to be eligible for student teaching (see the "College of Education" section of the Catalog), the student in home economics education must have an overall grade- point average of 2.5, must have completed 28 semester hours of home economics courses with a C grade- point average in that work, and must have received no grade less than "C" in the home economics courses required for home economics endorsement and vocational approval.

For the general requirements to be eligible for student teaching and for certification, see the "College of Education" and "Extramural Education" sections of the Catalog.

Students are required to have 400 hours of paid employment in a home economics-related occupation (for example, food service, day care center, retailing) for certification. This work experience can be through 17:00 Cooperative Education Internship or through verification of work experience.

Electives should be selected from education, journalism and mass communication, psychology, sociology, communication and theatre arts.

Interior Design, Textile Design, 
Housing

This program requires students to develop understanding and appreciation of concepts unique to design by drawing upon the humanities, the arts, and science.

A concentration in interior design, textile design, and housing prepares students to pursue careers in the following areas: residential and contract interior design, space planning, design consulting, merchandising, fabric design, and weaving. The requirements for this concentration are:

17:51 Interior Design 
Presentation 
2 s.h.

17:53 Design Drawing 
2 s.h.

17:54 Interior Design: Principles and Practices I 
3 s.h.

17:55 Survey of Historic Interiors 
4 s.h.

17:160 Textile Design: Printing 
and Dyeing 
3 s.h.

17:165 Housing: Planning and 
Structural Aspects 
3 s.h.

1H: Understanding the Visual Arts 
3 s.h.

1H:5 Western Art and Culture 
before 1400 
3 s.h.

1H:6 Western Art and Culture 
after 1400 
3 s.h.

1H:16 Introduction to Asian Art 
3 s.h.

1B:1 Elements of Art 
2-3 s.h.

1B:2 Elements of Art 
2-3 s.h.

An approved two-dimensional studio art course 
2 s.h.

An approved three-dimensional studio art course 
2 s.h.

6:11 Principles of Economics 
4 s.h.

6:2 Principles of Economics 
4 s.h.

One of the following, depending on program emphasis:

17:153 Interior Design: Principles and Practices II 
3 s.h.

17:162 Textile Design: Weaving 
3 s.h.

17:164 Textile Design: Forms 
and Fibers 
3 s.h.

17:166 Housing: Social and 
Psychological Aspects 
3 s.h.

Also, one other interior design, textile design, housing course 
(3-2 s.h.)

Electives from home economics, business administration, urban and regional planning, art history, studio art, social sciences, and theatre are recommended.
Textiles and Clothing
Students concentrating in textiles and clothing develop competencies in three areas: textiles, clothing, and merchandising.

This program prepares students for careers in merchandising and related areas. Concentration in fashion merchandising requires:

17:70 Introductory Clothing Construction 3 s.h.
17:72 Apparel, Fashion, and Selection 3 s.h.
17:170 Custom and Contemporary Tailoring 3 s.h.
11:171 Fitting Problems and Flat Pattern Design 3 s.h.
17:173 Fashion Merchandising 3 s.h.
17:114 Merchandising Communications 3 s.h.
A course in communications

17:180 Textile Technology and Analysis 3 s.h.
17:181 Textile Finishing, Dyeing, and Detergency 3 s.h.
17:183 Textiles and Apparel Economics 3 s.h.
4.7-8 General Chemistry-I/l 6 s.h.
A natural science-laboratory course 2-4 s.h.
6A.1 Introduction to Financial Accounting 3 s.h.
6E.1 Principles of Economics 4 s.h.
6E.2 Principles of Economics 4 s.h.
8M.100 Introduction to Marketing 4 s.h.
8E.100 Introductory Management 3 s.h.
8M.120 Consumer Behavior 3 s.h.
A course in computer science Courses in business administration, computer science, journalism and mass communication, communication and theater arts, and home economics are recommended as electives.

Concentration in textiles technology requires:

17:70 Introductory Clothing Construction 3 s.h.
17:72 Apparel, Fashion, and Selection 3 s.h.
17:180 Textile Technology and Analysis 3 s.h.
17:181 Textile Finishing, Dyeing, and Detergency 3 s.h.
17:183 Textiles and Apparel Economics 3 s.h.
17:170 Custom and Contemporary Tailoring 3 s.h.
17:185 Historic Textiles and Apparel 3 s.h.
4.7-8 General Chemistry-I/l 6 s.h.
A natural science-laboratory course 2-4 s.h.
6E.1 Principles of Economics 4 s.h.
4.7-8 Business Statistics 6 s.h.
A course in computer science
Electives from computer science, statistics, engineering, psychology, chemistry, economics, and home economics are recommended.

Bachelor of Science
The B.S. programs are for students who want deeper depth and breadth in the natural sciences, and for those interested in entry into research positions in colleges and universities or in industrial, government, or medical research laboratories.

Food and Nutrition
The natural science base of this program provides excellent preparation for graduate work in food and nutrition.

In addition to the requirements for the B.A. degree emphasis on food or nutrition, the B.S. degree requires the following courses:
22M.2 Physical Mathematics 5 s.h.
22M.20 Elementary Functions 3 s.h.
22M.25 Calculus-I 4 s.h.
29-11-12 College Physics 9 s.h.
4-130 Physical Chemistry for the Life Sciences 3 s.h.
or
99-140 Experimental Biochemistry 4 s.h.

For this program, enrollment in 99.120 and 99.130 is recommended in place of 99.110

Home Economics Education
Graduates can enter the careers described for the B.A. degree in home economics education. The B.S. program enables students to obtain greater depth and breadth in the natural and social sciences. In addition to the courses and work experience listed for the B.A. degree, the B.S. requires:
4-7-8 General Chemistry-I/l 6 s.h.
A course in statistics 3 s.h.
Two courses from the natural sciences 5-6 s.h.
and/or courses numbered 100 or above in anthropology, economics, psychology, or sociology

Textile Science
This program prepares students for positions in the textile industry and for graduate studies. In addition to courses for the B.A. degree in textiles technology, the following are required for the B.S. degree:
4:101 Elementary Quantitative Analysis 4 s.h.
4:121-122 Organic Chemistry-I/l 6 s.h.
22M.25 Calculus-I 4 s.h.
22M.25 Calculus-II 4 s.h.
29-11-12 College Physics 8 s.h.
Electives should be selected from chemistry, engineering, computer science, statistics, microbiology, and home economics.

Cooperative Education/Internship Program
The department participates in the University's Cooperative Education Program, which enables students to obtain work experience related to their professional goals and academic program. May 15 is the first day on which students may register for the cooperative education program. Students register for 17:000 Cooperative Education Internship at the time of their work experience and for 17:180 Home Economics Internship during the subsequent semester.

Honors
To be eligible for honors, the student must have junior standing, 30 semester hours in residence at the University, an overall cumulative grade-point average of 3.2 or above, a grade-point average of 3.2 in all home economics courses, and at least 12 semester hours completed in home economics. Honors work consists of 17:181 Honors Seminar, Home Economics, and 17:192 Honors Problems: Home Economics, in which students do creative work or a research project. A written report or honors thesis and an oral examination are required.

Graduate Programs
The demand for well-qualified professional home economists exceeds the number of graduates with advanced degrees. The master's degree may qualify for positions in colleges, secondary schools, business, industry, and government.

The graduate program enables students to obtain greater depth and breadth in the natural and social sciences, and at least 12 semester hours in one of the following subject areas: family, economics, and nutrition; home economics education; interior design, textiles, design, housing, and textiles and clothing.

The department offers both thesis and nonthesis options. The thesis option is recommended for students preparing for teaching and research in colleges and universities, for positions in industry, and for continued study beyond the master's degree. The thesis option permits more extensive experience in research procedures or the opportunity for extended creative work. The thesis may be undertaken in the department, or in cooperation with related departments or colleges.

To be admitted unconditionally, the student must have an overall grade-point average of 2.8, with a 3.0 in the area which is to be the major interest in graduate study. Conditional admission requires an overall grade-point average of 2.5 with 2.8 in the area of major interest in graduate study.
Master’s Programs

For either the Master of Arts or Master of Science degree, students must complete a minimum of 30 semester hours of graduate work with a thesis, or 28 semester hours of graduate work without a thesis, in addition to adequate prerequisites for courses selected. Approximately one-third of the student’s course work is offered in departments other than home economics; these courses must be taken for a letter grade. Students who lack background in some courses will be required to complete theses courses early in their programs; these courses will not apply to the student’s graduate program. The designation of the degree, M.A. or M.S., depends on the area of major work.

All students in the M.A. and M.S. programs are required to complete 17:290 Seminar: Home Economics Research. Those in the thesis option also complete 17:291 Thesis.

Family Development

The graduate student in this program gains both psychological and sociological perspectives in human development and family relationships. The plan of study may emphasize either human development, family relationships, aging studies, or family life education. Courses in education, psychology, sociology, and social work supplement offerings in home economics. The graduate student should have an adequate background in social science. Graduates with work agencies concerned with family living or programs for college and university teaching. Required courses for the family development concentration are:

- 17:211 Individual and Family Development (Life Cycle) 3 s.h.
- 17:212 Theory and Research in Family Living 3 s.h.
- 17:219 Research Problems in Family Living 3 s.h.
- 17:290 Seminar: Home Economics Research 2 s.h.
- One course in statistics 3 s.h.

A course from at least two of the following content areas:
- Child development
- Human sexuality
- Family economics/consumer issues
- Aging

Family and Nutrition

Graduate work in this program may emphasize food, nutrition, or nutrition education. Graduates qualify for positions in educational institutions. They also qualify for government, business, and industrial jobs that include such positions as nutritionist, dietitian, extension specialist, nutrition research specialist, food and service management specialist, test kitchen home economist, and food and nutrition educational material writer, food columnist, school lunch director, or food service manager.

Applicants need background courses in food, nutrition, food service systems, general and organic chemistry, mathematics, physiology, and microbiology.

Courses required for the M.S. degree with specialization in food are:

- 17:144-155 Experimental Food I-III 8 s.h.
- 17:238 Seminar: Food 2 s.h.
- 17:239 Research: Problems in Food and Nutrition 2-4 s.h.
- 17:241 Seminar: Nutrition 2 s.h.
- 17:250 Seminar: Home Economics Research 2 s.h.
- 17:259 The Chemistry of Biological Materials 3 s.h.
- 17:330 Metabolism 3 s.h.
- 81:157 General Microbiology 4 s.h.

A course in statistics 3 s.h.

Courses required for the M.S. degree with specialization in nutrition are:

- 17:134 Experimental Food I 3 s.h.
- 17:145 Advanced Nutrition 3 s.h.
- 17:146 Nutrition Laboratory 2 s.h.
- 17:238 Seminar: Food 2 s.h.
- 17:239 Research: Problems in Food and Nutrition 2-4 s.h.
- 17:241 Seminar: Nutrition 2 s.h.
- 17:250 Seminar: Home Economics Research 2 s.h.
- 81:203 The Chemistry of Biological Materials 3 s.h.
- 99:130 Metabolism 3 s.h.

A course in statistics 3 s.h.

Courses required for the M.A. degree with specialization in nutrition education are:

- 17:120 Methods: Home Economics 3 s.h.
- 17:121 Pupil Education 3 s.h.
- 17:124 Advanced Nutrition 3 s.h.
- 17:146 Nutrition Laboratory 2 s.h.
- 17:239 Research: Problems in Food and Nutrition 2-4 s.h.
- 17:241 Seminar: Nutrition 1 s.h.
- 17:250 Seminar: Home Economics Research 2 s.h.
- 99:120 The Chemistry of Biological Materials 3 s.h.

A course in statistics 3 s.h.

Home Economics Education

The graduate student in this program in Home economics education may be prepared for specialization in one area of home economics or for breadth in the whole of home economics. Graduates are prepared for positions in educational institutions at all levels, home economics extension service, social agencies, and business.

Applicants must have completed requirements for a bachelor’s certificate. At least two of the courses outside the department in the thesis option and three in the nonthesis option must be from the same department.

The program’s course requirements are:

- 17:203 Seminar: Readings in Home Economics Education 2 s.h.
- 17:209 Research: Problems in Home Economics Education 2 s.h.

17:290 Seminar: Home Economics Research 2 s.h.

A course in statistics 3 s.h.

A course at the 300-level home economics course 2-3 s.h.

Interior Design, Textile Design, Housing

Graduate study in interior design, textile design, housing, may be planned as a specialized program in interior design or textile design or as a more general program including a wider variety of courses. Applicants to this program must present a portfolio, which emphasizes the specialization the student intends to pursue, prior to admission. A variety of course opportunities is available to the M.A. graduate in interior design, textile design, housing. These include college teaching, interior design, textile design, historic preservation and restoration, and positions in business and industry. Required courses (depending on previous coursework) are:

- 17:290 Seminar: Design and Housing 0 s.h.
- 17:290 Seminar: Home Economics Research 2 s.h.

Courses for interior design specialization:

- 17:153 Interior Design: Principles and Practice I 3 s.h.
- 17:164 Interior Design: Principles and Practices II 3 s.h.
- 17:155 Survey of Historic Interiors 4 s.h.
- 17:156 Survey of Modern Interiors 2 s.h.
- 17:259 Research: Problems in Interior Design and Housing 2-4 s.h.

One course in art history 3 s.h.

One course in art history 3 s.h.

One course in studio art 3 s.h.

Courses in textiles or design 3 s.h.

Courses for textile design specialization:

- 17:156 Survey of Modern Interiors 2 s.h.
- 17:160 Historic Textiles and Apparel 3 s.h.

Textiles and Clothing

Graduate students in this program may specialize in textiles, clothing, or merchandising.

This program prepares students for careers in merchandising, textile research, teaching, extension service, and communication. Applicants need
background courses in textiles, clothing, and chemistry. Course requirements for the textiles and clothing concentration are:

1127/6 Research: Problems in Clothing
17:288 Research: Problems in Textiles
17:290 Seminar: Home Economics Research 2 s.h.
A course in statistics 3 s.h.

Additional courses in textiles and clothing are required, based upon the student's educational background, professional needs, and career goals.

Master of Arts in Teaching

The M.A.T. program is designed for students with an undergraduate degree in home economics who have had few or no professional education courses. The program is nonresidential and requires written and oral comprehensive examinations. Graduates obtain a home economics teacher's certificate with vocational approval.

Applicants must have a bachelor's degree in home economics and a 3.0 minimum undergraduate grade-point average, and must be admitted to the M.A.T. program in the College of Education. The program requires 23 semester hours of graduate course work in education and at least 12 semester hours of graduate work in home economics. In addition to the above requirements, the student must have completed at the undergraduate and/or graduate level a course in American politics or American government and two or more of the following: housing and interior design, family development, food and nutrition, family economics and home management, and textiles and clothing.

Other courses required for the M.A.T. program are:

17:121 Curriculum: Home Economics 3 s.h.
17:128 Evaluation: Home Economics 2 s.h.
TP 151 Educational Psychology 3 s.h.
TS 125 Methods: Home Economics 3 s.h.
TS 191-192 Observation and Laboratory Practice in the Secondary School 12 s.h.
17:107 History of Western Education 2 s.h.
or
17:117 Philosophies of Education 2 s.h.
17:109 Human Relations for the Classroom Teacher 3 s.h.

Certification-Only Program

Students with the B.A. or B.S. degree in home economics may enter the certification program in order to meet requirements for teaching home economics in secondary schools. Courses for this program are selected according to the student's background and professional goals. See the "College of Education" section of the Catalog.

Financial Awards

Several annual departmental awards recognize undergraduate students for their outstanding qualities and performance. The Adeline M. Hoffman Writing Award is given to recognize excellent written work completed by majors in home economics courses. The Faculty Book Award recognizes the sophomore home economics major with the highest grade-point average. The student in each class with the highest grade-point average, provided the grade-point average is at least 3.7, is awarded a grade-point average of outstanding Academic Achievement. The Margaret Foster Hoyt Award is a full-in-state tuition scholarship given to a student for his or her senior year. Four H. M. Chatterson Wolf Scholarship Awards are awarded to undergraduate majors with financial need. The Myra Lise Sprengele Memorial Award is given to an outstanding home economics senior. The Mary Goodnoy Bates Senior Scholastic Achievement Award is given to the senior with the highest grade-point average during the junior and senior years. Other undergraduate awards include the Stacy-Van Camp Award, given to a senior for outstanding achievement in food and nutrition, and the Retaining Student Award.

Four scholarships are for graduate students. The Mary Campbell Tow Scholarship is given to a student beginning graduate study. The Mary Goodnoy Bates Graduate Scholarship is available to the graduate student with the highest grade-point average during the graduate school years as a home economics major at The University of Iowa. The Home Economics Alumni Association provides the scholarship, and the Graduate School of Business. The Graduate Fellowship Award is for a graduate student majoring in textile design. Certificate of Outstanding Academic Achievement is given to graduate students who maintain a 4.0 grade-point average.

A limited number of assistantships are available to graduate students.

Courses

Primarily for Undergraduates

1074 Cooperative Education Internship 3 s.h.
1101 Human Development and the Family 3 s.h.
1108 Computer Education Internship 1 s.h.
1111 Human Development and the Family 6 s.h.
1131 Study of the Physical, Emotional, Social Development of the Young Child and the Relationships between Children and Families 3 s.h.
1132 Introductory Food Study 3 s.h.

Basic scientific principles in the preparation of standard food products, includes laboratory.

1181 Food, Nutrition, and Fm 3 s.h.
1182 Food, Nutrition, and Fm 3 s.h.
1183 Food, Nutrition, and Fm 3 s.h.
1184 Food, Nutrition, and Fm 3 s.h.
1185 Food, Nutrition, and Fm 3 s.h.
1186 Food, Nutrition, and Fm 3 s.h.
1187 Food, Nutrition, and Fm 3 s.h.
1188 Food, Nutrition, and Fm 3 s.h.
1189 Food, Nutrition, and Fm 3 s.h.
1190 Food, Nutrition, and Fm 3 s.h.
1191 Food, Nutrition, and Fm 3 s.h.
1192 Food, Nutrition, and Fm 3 s.h.
1193 Food, Nutrition, and Fm 3 s.h.
1194 Food, Nutrition, and Fm 3 s.h.
1195 Food, Nutrition, and Fm 3 s.h.
1196 Food, Nutrition, and Fm 3 s.h.
1197 Food, Nutrition, and Fm 3 s.h.
1198 Food, Nutrition, and Fm 3 s.h.
1199 Food, Nutrition, and Fm 3 s.h.
Primarily for Graduates

17:201 Individual and Multifamily Development Life Span
3 hrs. In-depth examination of multifamily household formation through life stages. Interpersonal and psychological implications of transitions throughout the life span. Selected issues of elderly.

17:202 Theory and Research in Family Sociology
3 hrs. Study of theoretical and research tools in the development of family sociology, with particular emphasis on topics of current importance.

17:203 Theory and Family Development
3 hrs. Development of families, the family life cycle, and the major changes common to families throughout the life span.

17:204 Research Problems in Family Studies
3 hrs. Research problems of advanced students. Prerequisites: 17:219 or consent of instructor.

17:402 Working in Home Economics Education
1.5 hrs. Recent developments in home economics education with discussion of the theories and research in which they are based. Offered summer sessions.

17:205 Seminar: Research in Home Economics Education
2 hrs. Critical review of current literature in home economics education. Prerequisites: consent of instructor.

17:206 Special Topics in Family and Consumer Services
2 hrs. Selected topics and issues in family and consumer services. May be repeated. Prerequisites: graduate standing or consent of instructor.

17:219 Research Problems in Home Economics Education
1.5 hrs. Individual research problems of advanced students. Prerequisites: 17:225 or consent of instructor.

17:226 Seminar: Food in the Family
3 hrs. Readings, reports, and development of health, nutrition, and food preparation in family settings. Prerequisites: 17:219 and 17:222, or consent of instructor.

17:227 Food Service Systems: Optimizing
3 hrs. Analysis of resource utilization in food service systems. Principles of menu design, cost control, labor, purchasing, and service management. Prerequisites: 17:219 and 17:222, or consent of instructor.

17:231 Research Problems in Food and Nutrition
2 hrs. Individual research problems of advanced students. Prerequisites: 17:226 or consent of instructor.

17:232 Seminar: Nutrition
3 hrs. Critical review of current periodical literature in nutrition. Prerequisites: 17:219, 17:226, and 17:222, or consent of instructor.

17:242 Seminar: Design and Nutrition
3 hrs. History and philosophy of interior design, techniques of food labeling, readings, reports, and discussion of current literature. Prerequisites: 17:219.

17:253 Research Problems in Interior Design and Architecture
1.5 hrs. Selected problems for advanced students. Prerequisites: 17:222 or consent of instructor.

17:261 Studio Workshop in Fiber
4 hrs. Focal point of the studio workshop is the learning of techniques with emphasis on aesthetic expression. Readings, discussions, and reviews of published work. Prerequisites: 17:226, followed by consent of instructor.

17:265 Advanced Studio Problems in Textile Design
2 hrs. Individual problems for advanced students. Prerequisites: 17:242 and 17:226, or consent of instructor.

Undergraduate Programs

The major objective of the Iowa undergraduate program is to prepare students for professional positions in journalism and for careers in the broad field of mass communication. Such positions vary widely and include newspaper reporting and editing, magazine writing and editing, public relations, broadcast journalism, organizational communication, book publishing, media graphics and design, media research, and photography. The lowa program emphasizes the basics of reporting, writing, and editing, but professional preparation also requires an introduction to and an understanding of the theoretical concepts. All courses are for an integration of practice and theory. The program offers a wide variety of courses.

To preserve a high quality program the School has a selective admissions policy. Thus, students with a declared interest in journalism are classified as "premajors." For admission to full major status, students must fulfill the following pre-major requirements:

Rhetoric

19:90 Social Scientific Foundations of Communication
19:91 Cultural and Historical Foundations of Communication.

Students may apply for admission to full major status after they have completed these requirements and have at least 55 semester hours or have completed that many during the semester they apply for admission. Applications and information on deadlines are available at the School of Journalism and Mass Communication.

The major criterion for admission to major status is overall academic performance on work done at Iowa. Other criteria considered by the undergraduate admissions committee are performance in the required pre-major courses, a statement of purpose intended for the student, and a statement on any extracurricular circumstances. The goal of this program is to admit the most qualified applicants. The number of students accepted each semester will depend on the number of students already in the program and available resources. A grade of B in journalism courses is not enough to meet graduation requirements.

To ensure students have a strong liberal arts background to go with their professional preparation, the School limits students to 36 semester hours in the School of Journalism and Mass Communication. Students are expected to take course work outside journalism in significant depth. Journalism majors may complete the major requirements of another department, or create their own areas of concentration by selecting related courses in several departments for a total of 24 semester hours of credit beyond the general education level. Pre-majors are encouraged to think strongly about a second major—a major which, pending the outcome of the application for admission to full major status, could be in addition to a pre-major at the journalism major. This work will provide valuable consultation with an advisor.

The lowa program offers undergraduate programs for study; news-editorial, mass communications, and mass communication inquiry. In addition to the two pre-major courses 19:90 and 19:91,
students in all sequences must fulfill the following School requirements:

19:100 Introduction to Journalism Writing 3 s.h.
19:101 Visual and Critical Issues in Communication 3 s.h.
19:195 Graphic Media and Problems in Mass Communication 1 s.h. (to be taken in senior's final semester before graduation)

After completing the six semester hours of pre-major courses (19:90 and 19:91) and in addition to the seven semester hours of School required courses (19:100, 19:102, and 19:199), students will take course listed in the sequence of their choice. Electives also are available. Students must take at least 30 semester hours in journalism but not more than 36.

News-Editorial Sequence
This sequence focuses on news reporting, writing, and editing. The student learns how to gather news and other information from public affairs sources and convert it into copy for newspapers and other publications. The student also learns how to edit news stories and write headlines, edit pictures and graphics, and lay out pages for publication. The three courses in the sequence take the student from the basics of the news story through the standard news story to the depth or feature article. Editing copy is introduced in the first course and editing and layout in the second. Along with learning technical aspects, the student is introduced to analytical-critical concepts of the principles and processes of the news profession through discussions and critiques of student work. The advanced reporting and editing course in some semesters may focus on such topics as public relations, economics, business, publicity, and editing. Career possibilities include daily and community newspapers, magazines, public relations, and other print media. The sequence is accredited by the Accrediting Council on Education in Journalism and Mass Communication (ACEJMC). These are the required journalism courses:

Pre-major Courses (19:90 and 19:91) 6 s.h.
19:100 School Required Courses 7 s.h.
19:101 Introduction to Visual Communication 3 s.h.
19:120 News Reporting and Editing 3 s.h.
19:170 Advanced Reporting and Editing 3 s.h.
Journalism electives 8 s.h.
Total 30 s.h.

Mass Communication Laboratory Sequence
This sequence offers students an opportunity to develop critical thinking and proficiency as professional communicators who can identify and analyze problems that need communication strategies and media products for solutions. The sequence is designed so that students can combine writing, reporting, production, and conceptual courses within the context of their intellectual, media, and career interests. Seniors in the 19:171 Mass Communication Lab work in teams to develop independent or client projects. These projects may include the development of slide-tape productions, brochures, newsletters, audio or video documentaries, or communication campaign plans. Students in the sequence can develop entry-level skills for a variety of careers including independent media production, public relations, advertising, public information, as well as broadcast or print journalism. These are the required journalism courses:

Pre-major Courses (19:90 and 19:91) 6 s.h.
School Required Courses 7 s.h.
19:101 Introduction to Visual Communication 3 s.h.
One reporting course, selected from:
19:120 News Reporting and Editing 3 s.h.
19:121 Broadcast Journalism Workshop 3 s.h.
19:131 Photojournalism I 3 s.h.
19:141 Introduction to Typography 3 s.h.
19:142 Graphic Design and Production 3 s.h.
19:171 Mass Communication Lab 3 s.h.
Total required 30 s.h.

Mass Communication Inquiry Sequence
This sequence emphasizes the development of knowledge about communication and concentrates on the study of communication as a way of comprehending society and human interaction. Students take courses which focus on historical, philosophical, and social scientific modes of understanding. Career possibilities for students in this sequence include public relations, media research and public opinion polling, or other related careers. Many students will continue with graduate studies in journalism or mass communication or other disciplines, including law. Enrollment in this sequence is strictly limited, and students will be admitted only by the permission of the sequence head. These are the required journalism courses:

Pre-major Courses (19:90 and 19:91) 6 s.h.
School Required Courses (19:100, 19:102, and 19:199) 7 s.h.
19:151 Communication Research Methods 3 s.h.
One course, selected from:
19:152 Mass Culture and Mass Communication 3 s.h.
19:153 Mass Media and Society 3 s.h.
19:172 Special Topics in Communication 3 s.h.
Journalism electives 8 s.h.
Total required 30 s.h.

Maximum journalism credits allowed toward graduation: 36 s.h.

Two Degree Programs: B.A. and B.S. Degrees
B.A. Requirements
Four semesters of a foreign language;
Pre-major Courses;
School Required Courses;
Sequence Courses;
Prerequisites for Graduation:
1. Fulfillment of the School's second area of concentration requirement in one of two ways:
A full B.A. major in another department;
A 24 semester hour concentration beyond the general education level;
The concentration should be designed by the student and the student's adviser.
B.S. Requirements
Two semesters of a foreign language;
Pre-major Courses;
School Required Courses;
Sequence Courses;
Six semester hours of social or natural science methods courses;
Fulfillment of the School's second area of concentration requirement in one of two ways:
A full B.S. major in a natural or social science;
A 24 semester hour concentration in the natural or social sciences, beyond general education level;
This concentration should be designed by the student and the student's adviser.

Honor
Freshmen and upperclassmen with outstanding academic records may participate in the Honors Program. They are urged to see the departmental Honors Program advisor as soon as possible. After admission to the Honors Program, a student must fulfill these requirements.
Carry out additional work under the guidance of an instructor in the context of one of the advanced conceptual courses in journalism or mass communication.

Enroll in 19-191 Honors Colloquium, 3 h.

Write an honors thesis under the supervision of a faculty member; Make a formal presentation of the honors thesis to a committee consisting of a faculty adviser, the coordinator of the Honors Program, and a third faculty member of the student’s choice.

Minor in Journalism

To meet the requirements for a minor in journalism and mass communication, a student must complete at least 16 semester hours in journalism and mass communication. The following courses are strongly recommended:

19-90 Social Scientific Foundations of Communication 3 s.h.
19-91 Cultural and Historical Foundations of Communication 3 s.h.
19-95 Media and Consumers 3 s.h.

The minor is not intended to be sufficient preparation for a career in journalism or mass communication. The minor should be regarded only as a preparatory introduction.

Transfer work in introductory courses will be considered toward the minor but must be approved by the School of Journalism and Mass Communication. No courses for the minor requirement may be taken pass-no-pass. All course work taken to fulfill the minor must carry at least C level grades. At the time students apply for a degree, they must inform the Office of the Registrar of their desire to have a minor listed on their transcript.

Transfer Students

All transfer students will be classified initially as pre-majors. They may apply for major status after earning at least 55 credit hours (excluding those from both the UI and other institutions) and completing 19-90 Social Scientific Foundations of Communication and 19-91 Cultural and Historical Foundations of Communication. Neither of these courses will be waived on the basis of work taken at other institutions. Thus, a transfer student will be a pre-major for at least one semester.

The school’s policy is to accept journalism transfer credits from another institution for up to, but not more than, 30 percent of the student’s total number of credits toward a major in journalism at Iowa. Other course work taken elsewhere might be accepted 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 approved by the student’s journalism adviser at Iowa.

Graduate Programs

Master of Arts

The School of Journalism and Mass Communication offers a Master of Arts program with three separate emphases: professional journalism, communication and mass communication, or development support communication. Applicants should indicate the emphasis to which they are seeking admission. Each emphasis requires 30 semester hours of approved course work, the completion of a master’s project or thesis, and the successful completion of the final examination. The specific requirements of each emphasis are listed below.

Professional Journalism Emphasis

This emphasis is intended for students seeking to improve their technical and analytical skills and broaden their understanding of the role and function of mass communication in contemporary society, but who do not plan to engage in Ph.D. work. There are programs for those who have experience in journalism and communication and for those who have none.

Program requirements for students with no academic or professional experience in journalism and communication:

19-220 Master’s Seminar 3 s.h.
19-223 News Reporting and Editing 3 s.h. (does not count toward M.A. degree)
19-232 News Principles and Practice 4 s.h.
19-233 Specialized Reporting or Editing 3 s.h. or
19-231 Mass Communication Lab 3 s.h. (19-231 option intended for students with special interest in public relations or organizational communication)

Electives 17 s.h.
19-299 Master’s Research 3 s.h.

Final examination, last period of enrollment

Program requirements for students with professional experience in journalism or communication:

19-220 Master’s Seminar 3 s.h.
Electives in the School (minimum requirement up to 15 s.h.)

19-299 Master’s Research 3 s.h.

Final examination, last period of enrollment

The student must complete a major professional project (19-298) under supervision of a graduate faculty member during the last period of enrollment. The student selects elective courses in the School and in other departments in consultation with his or her adviser.

Communication and Mass Communication Emphasis

This emphasis offers a specialization in the study of communication phenomena with special emphasis upon 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.

Program requirements:

19-220 Master’s Seminar (two courses) 2 s.h.
19-223 Approaches to the Study of Communication: Issues and Concepts 3 s.h.
19-440 Communication Research: Historical and Contemporary Approaches 3 s.h.
19-241 Communication Research: Behavioral Approaches 3 s.h.
Electives in communication and mass communication and in other departments 19 s.h.
19-291 Master’s Research 3 s.h.
Final examination, last period of enrollment

All students are expected to take coursework outside the School of Journalism and Mass Communication with the nature and extent of the work to be determined by the student and faculty adviser.

Development Support Communication

This program focuses upon problem-solving procedures aimed at activating and accelerating third world development. Students planning careers in this area develop the conceptual expertise to identify those development problems requiring communication solutions, and to develop the professional skills to design and test appropriate programs. This multidisciplinary program, involving the cooperation of the Departments of Geography and Political Science, offers two alternative tracks:

A professional track for development support communication students intending to terminate their studies at the M.A. level: Such students complete a major professional project (19-299) emphasizing the design, testing or evaluation of development-related communication strategies.

A philosophical track for students intending to pursue a Ph.D. program upon completion of their M.A. work. Such students complete a major professional project (19-299) emphasizing theory, research and/or critical analysis of development support communication.

Program requirements for students pursuing either alternative.
Photography, typology, audio, video, typing, and print production, including video display terminals and modern typesetting equipment. Many students use the newsroom and other facilities of the award-winning University student newspaper, the Daily. Iowa's lowest housed in the Communications Center. Special facilities within the Communications Center include the Leslie G. Moeller Seminar Room and the Merit Student Presentation Room. The School has its own Resource Center and provides accommodations for offices of the Iowa High School Press Association and the Quiz and Scroll Society. A display gallery is available for students and faculty photography and project displays.

Iowa Center for Communication Study

The center encourages and facilitates inquiry into communication problems by faculty members and students. The center also publishes the annual Journal of Communication Inquiry, which is student-edited and aims to explore different approaches to communication theory and research.

Financial Aid

In addition to research and teaching assistantships for graduate students, more than $25,000 in scholarship and financial aid is available to both undergraduate and graduate students. The School also has a program offering modest financial assistance to graduate students who have demonstrated exceptional promise and who are specifically required courses. Students must meet all the requirements of the journalism program's graduate student.

15.20 Introduction to Broadcasting and Film Production

A survey of the basic principles of television production, with an emphasis on the technical and aesthetic aspects of television production. Topics include editing, camera work, lighting, and sound. Students will also be introduced to the history and development of television as an art form.

15.66 Special Topics: Digital Imaging

This course focuses on the principles and techniques of digital imaging, including image capture, manipulation, and output. Students will learn to use software tools for editing and producing high-quality images for print and web applications.

Special Activities

The School engages in a variety of special activities for the enrichment of students, faculty, and the entire campus. Many visitors speak campus each year as part of John F. Murray Lectureship and the Leslie G. Moeller Lecture Series. Campus organizations for students include Kappa Tau Alpha, National Association of Black Journalists (NABJ), Public Relations Student Society of America (PRSSA), Society of Professional Journalists, Sigma Delta Chi (SPJ-SDX), and Women in Communication Incorporated (WCI). Each year, the Leslie G. Moeller Chapter of Kappa Tau Alpha sponsors the election of an outstanding contributor in the field of journalism to the School of Journalism and Mass Communication Hall of Fame.

Semester in London

Each academic year—during the spring semester—advanced undergraduates and M.A. professional students have an opportunity to study in England. The program involves a dozen students who carry a full load of credits, including some offered in conjunction with The City University of London. Courses of both a practical and theoretical nature are offered with courses in specialty reporting and the history of the British mass media available from The City University. In addition, internships are arranged with London news media.

Courses

All courses listed as 150 level or above require at least junior standing or major status and/or consent of instructor.

15.38 Cooperative Education Internship

A student works in a cooperative education position under the guidance of the Cooperative Education Office. Field is on a competitive basis by eligible students. Requirements include a minimum of 100 hours per semester. Students must meet a minimum of 100 hours per semester. Students must maintain a minimum average of 2.0 in the program.

15.39 Introduction to Communication Skills

A series of short courses stressing development of a variety of communication skills, e.g., for example, video, audio, graphics, photography, advertising, group decision making, and research methods. Each section will concentrate on a particular skill, such as writing a press release, editing an annual report, or preparing an oral presentation. M.S. and Ph.D. students may be required to complete a minimum of 40 semester hours. Topics may repeat to maximize the skills of non-communication professionals.

15.66 Special Topics: Digital Imaging

This course focuses on the principles and techniques of digital imaging, including image capture, manipulation, and output. Students will learn to use software tools for editing and producing high-quality images for print and web applications.

15.70 Social Scientific Foundations of Communication

Deals with the processes and processes of communication within and between social systems, including the role of communication in social control and social order. Topics include the relationship of communication to power, ideology, and social change.

15.66 Special Topics: Digital Imaging

This course focuses on the principles and techniques of digital imaging, including image capture, manipulation, and output. Students will learn to use software tools for editing and producing high-quality images for print and web applications.

15.68 Media and Consumer

Examines communication, media, and society, media and consumer behavior, and communication research, with an emphasis on the mass media and media effects.

15.68 Media and Consumer

Examines communication, media, and society, media and consumer behavior, and communication research, with an emphasis on the mass media and media effects.
Since 1947, The University of Iowa has cooperated with Iowa State University and the University of Northern Iowa in the lab program. Representatives of the three schools make up the advisory board which determines the scientific and educational policies of the lab.

The Iowa Lakeside Laboratory offers course work in two five-week terms during the summer session. Enrollment is limited to one course, for 5 semester hours of credit, per term.

The laboratory gives advanced undergraduate and graduate students the opportunity to study plant and animal life in its natural setting. Study supplements, and does not replace, regular course work given formally by accredited colleges. Students working for advanced degrees will find excellent opportunities for development of thesis projects at the laboratory.

Teaching and research facilities include five laboratories, a library, and a lecture hall. Living accommodations include cottages, dormitories, and a large mess hall.

Financial Aid

The University of Iowa has established several Thomas H. Macbride Scholarships in Natural Science for undergraduate and graduate students attending the laboratory. The scholarships cover Iowa Lakeside Laboratory tuition and up to 100 percent of scholarships applications close April 1.

Registration

Current or former students of The University of Iowa, the University of Northern Iowa, and Iowa State University should ask their registrars for particulars. Students from other institutions must apply for admission to one of the three cooperating universities; each has a provisional admission policy for students who wish to register for summer work only.

Early registration is advisable. All applications should be submitted before May 1 for the following summer session.

Courses

Permission of the instructor is required for all courses. Enrollment is limited to six students in all courses. Classes meet all day, every day. Courses vary from year to year (see annual Iowa Lakeside Laboratory bulletin), the following are representative.

Lith Feb 2

Lith Feb 5

Intensive field work in natural history of local plants, emphasizing the ecology of distribution, dispersal, breeding systems, alleles, genetics, morphology, and taxonomy. Field and laboratory work, reports reading and discussion. For students with at least one course in biology and interest in field experience.

Lith Feb 6

Aquatic Ecology

Local aquatic plants and animals, including analyses of interrelationships between plants and animals in such environments as streams, ponds, and lakes. Several laboratory periods are devoted to water chemistry and water analysis. A limited amount of equipment is held for use courses a year. One two-week technical laboratory for students, with special biological interests including some ecology, chemistry, and physics.

Lith Feb 8

Aquatic Ecology Projects

Individual project work.

Lith Feb 9

Fish Taxonomy

Basic principles of classification and identification of freshwater fish. Introductory nomenclature, distribution, and economic importance of fish in various regions. Field trips and laboratory study of local and imported fish species.

Lith Feb 10

Ecological and Environmental Science

For students interested in ecology, environmental science, and their application in the solution of environmental problems. The basis of the course will be a study of natural ecosystems in the field and laboratory using a problem-solving approach. The course will cover the major environmental problems facing humanity and will examine solutions to these problems. Course required for majors.

Latin

See "Classic."
students seeking the Certificate in Latin American Studies must earn at least 27 semester hours of credit in courses selected from the list below, including at least six semester hours in each of at least three of the following departments: anthropology, history, political science, and Spanish and Portuguese.

Courses which deal in part with Latin America may occasionally be used to satisfy the requirements for the Certificate as electives. It is the responsibility of the student to select the Latin American Studies Advisor.

Senior Seminar
Seminars in the program enroll in Latin American Studies Seminar (35.159, 38.153, or 113-120), a three-semester-hour intersessional course built around problems specifically pertaining to Latin America and often taught by two faculty members from the participating departments.

Overlapping Credits
While the certificate program requires 27 semester hours of course work, students mapping in any of the program's four participating departments may be able to count a significant number of the courses required for their maps toward the Certificate in Latin American Studies, and students mapping in other departments may be able to count a portion of their major requirements toward the certificate.

Minor
To earn a minor in Latin American Studies, students complete 16 semester hours of coursework. The list below outlines the course options available. To preserve the interdisciplinary character of the Latin American Studies minor, students pursuing a minor in any of the primary departments cannot count more than six semester hours from courses in their major department toward the minor.

Courses Approved for LASP Certificate
For full descriptions of each of the courses listed below, see the listings in the appropriate departmental sections of the Catalog.

Anthropology
113.115 Ethnology of South America
3 s.h.
113.116 Ethnology of Mesoamerica
3 s.h.
113.118 Social Anthropology of the Caribbean
3 s.h.
113.131 Latin American Economy and Society
3 s.h.
113.122 Latin American Studies Seminar
3 s.h.
113.136 Ethnology of Mesoamerica
3 s.h.

Art
111.105 Art of Pre-Columbian America
3 s.h.

History
18.659 Introduction to Colonial Latin America
3 s.h.
18.659 Introduction to Latin America
3 s.h.
18.193 The Mexican Revolution
3 s.h.

Political Science
36.144 Latin American Government
3 s.h.
36.145 Major States of Latin America
3 s.h.
36.163 Inter-American Relations
2-3 s.h.

Portuguese
38.103 Modern Brazilian Fiction I: Short Story
2 x 3.
38.104 Modern Brazilian Fiction II: Novel
2 x 3.
38.105 Brazilian Literature I
3 s.h.
38.106 Brazilian Literature II
3 s.h.
38.110 Nineteenth-Century Brazilian Fiction
3 s.h.
38.114 Culture and Civilization of the Portuguese-Speaking World
3 s.h.
(Taught in English)
38.199 Latin American Studies Seminar
3 s.h.

Spanish
35.6 Contemporary Latin American Narrative
3 s.h.
(Taught in English)
38.100 Readings in Hispanic Literature
3 s.h.
38.103 Contemporary Spanish American Fiction
3 s.h.
38.104 Spanish American Poetry
3 s.h.
38.104 The Mexican American Drama
3 s.h.
38.106 Short Story of Spanish America
3 s.h.
38.107 Spanish American Literature of Fantasy
3 s.h.
38.110 Survey of Pre-Twentieth-Century Spanish American Literature
3 s.h.
38.111 Literature of the Discovery and Conquest of Spanish America
3 s.h.
38.112 Contemporary Latin American Novel and Short Story
3 s.h.
38.115 Spanish American Civilization
3 s.h.
38.159 Latin American Studies Seminar
3 s.h.

Library and Information Science

Student: Carl Orman
Faculty: professor emeritus James J. Oprem
associate professor of Latin American studies
associate professor emeritus Elinor Brody
instructor of Latin American studies

Instructional Objectives
Upon completion of the program the student will be able to:

Demonstrate an understanding of the history and theory of librarianship sufficient to recognize their relationship to the role of the library in society's information needs, and the library's importance in the communication process.

Analyze a philosophy of librarianship which includes a commitment to intellectual freedom and to free dissemination of information, a professional attitude toward the librarian's role as facilitator between user and material, and a determination to improve the quality of library service in response to the needs of all segments of society.

Demonstrate mastery of the techniques and processes of effective information service (that is, the selection, acquisition, organization, storage, retrieval, and dissemination of information).

Demonstrate an appreciation for the contribution that reading, information, libraries, and lifelong learning can make to individual and group learning.
to the richness of life, and the ability to convey that appreciation to others, identity and use bibliographic techniques and sources of information in a broad range of fields and media formats..

Articulate an understanding of management theory sufficient to plan library and information services and perform the professional responsibilities of identifying needs, setting goals, analyzing problems, formulating programs and evaluating results;

Cite and evaluate research that helps in the advancement of the profession and cite and evaluate the contributions to librarianship made by related disciplines;

Plan for personal and professional career growth.

Research Objectives

To engage in research on library problems and areas related to library service which advances both the theoretical and practical knowledge of librarianship.

To give emphasis to research which directly supports the instructional program of the School of Library and Information Science or which may have special relevance to library service in the state of Iowa.

Public Service Objectives

To offer library paraprofessional and library trustees opportunities for continuing education, to advance and update their awareness of current developments in library operations and services.

To provide consulting services to individuals, libraries, and organizations in order to promote better library service for the citizens of Iowa and surrounding areas.

To participate in professional organizations at local, state, regional, and national levels in the pursuit of common goals within the profession.

Undergraduate Study

Although there is no undergraduate major in library science, juniors and seniors may enroll in the introductory library science courses (100-level). No courses numbered 100 or above may be taken by freshmen or sophomores. No courses numbered 200 or above may be taken by undergraduates. 21-90 Information Handling is open to all undergraduates.

Graduate Students Not Admitted to Master of Arts in Library and Information Science

Graduate students not yet admitted to the master's program may be accepted, upon request to the director, to take one course during the application process. This course may later apply to requirements for the degree.

Graduate students in other programs may take a course only with approval of the director and the instructor of the course. The student has access to courses, such as those in subject bibliography, which may be relevant to the student's major program.

Master of Arts

Professional preparation for careers in all types of libraries is provided by the school's Master of Arts program. The school also offers a nondegree graduate program for certification in school librarianship, as well as a certification program leading to the master's degree.

Its graduates hold positions in public, school, academic, and special libraries, serving in such roles as administrators, instructors, catalogers, reference specialists, information scientists, and children's librarians.

The Master of Arts degree in library and information science requires 33 semester hours of graduate credit with a minimum grade-point average of 2.0. In addition, the student must pass a comprehensive examination.

Basic Plan of Study

The program consists of a core of required courses basic to all areas of librarianship, an additional required course in a type of access, and electives. The student's plan of study should be carefully developed in relationship to career objectives. All courses to be applied to the 33-hour program must be approved by the adviser.

Core courses (required of all M.A. candidates)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>21:151 Reference</td>
<td>12 s.h.</td>
</tr>
<tr>
<td>21:152 Cataloging and Classification</td>
<td></td>
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<tr>
<td>21:153 Selection of Library Materials</td>
<td></td>
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<tr>
<td>21:201 Management of Libraries and Information Centers</td>
<td></td>
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</tbody>
</table>

Type-of-library course (one required)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>21:208 Special Libraries</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>21:231 The Public Library</td>
<td></td>
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<tr>
<td>21:232 The College and University Library</td>
<td></td>
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<tr>
<td>21:233 School Library Media Center Administration</td>
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</tbody>
</table>

Electives

It is strongly recommended that the student's electives include a bibliography course and a course in information science.

Elective courses in other departments of the University must be shown to be an integral part of the student's preparation for library and information science. Although many disciplines offer cultural and intellectual support to preparation for librarianship, they cannot be shown to warrant displacement of needed courses in a brief one-year program. Electives outside the department must be earned following admission to the School of Library and Information Science, and shall not exceed six semester hours for students having no previous courses in library science. Nine semester hours for those with such previous courses. Only courses taken for graduate credit may be counted towards the 33-hour requirement.

The thesis option is not intended to replace courses in a student's basic preparation. It is available if the student completes the full 33-hour program, but it may count as part of the 33 hours if a student comes to the program with extensive course work in library science. In either case, the thesis option may be taken during or after completion of the regular program as long as the student has completed 21:245 Research Methods, or the equivalent.

The purpose of the thesis option, then, is to provide the student with extensive preparation in library and information science. A maximum of nine semester hours of graduate credit may be accepted in library science applicable to the master's degree in library and information science at The University of Iowa.

The work was done at the graduate level in an A.A.-accredited program, and is not applied toward a previous degree.

The grade received was A or B; the student evaluates the elapsed time since the course work was done and determines the relevance of the work to the student's program.

An examination may be required on the subject matter as further evidence of competence in the course subject.

The program normally requires two semesters and one summer of resident study, or, in the case of student with library experience only, a minimum of four summer sessions. Maximum graduate course load is 15 semester hours in regular term, eight semester hours in summer sessions.
Public Library Work
Public funds support public libraries in order to provide informational, educational, and recreational circulating materials, and a wide range of services for a diversified clientele. Public libraries usually receive a majority of funding from local taxes, but are often organized on a regional or statewide cooperative basis. The variety of uses, services, materials, and organizational structures of public libraries makes the area of librarianship a changing one.

A major concern of public librarians is to design innovative service programs to reach those segments of the population now unserved, as well as to provide a full range of services to all members of the community. Management skills are often needed in these positions.

Required Courses
Core courses 12 s.h.
21:231 The Public Library 3 s.h.
Suggested Electives 18 s.h.
21:213 Library Services to Adults 3 s.h.
21:222 Multi-Media Concepts in Libraries 3 s.h.
21:246 Introduction to Information Science 3 s.h.
21:247 Information Storage and Retrieval 3 s.h.
21:248 Research Methods 3 s.h.
21:251 Advanced Reference 3 s.h.
21:252 Advanced Cataloging and Classification 3 s.h.
21:282 Practicum in Libraries 3 s.h.

Bibliography courses
Courses relating to service to children and young adults. 12 s.h.
21:123 Literature for Children I 3 s.h.
21:124 History of Books for Young People 3 s.h.
21:225 Literature and Storytelling for Children 3 s.h.
21:193 Literature for Adolescents 3 s.h.
21:234 Library Services to Children and Young Adults 3 s.h.
21:244 Bibliography of Library Materials for Children and Young Adults 3 s.h.
7E:204 Literature for Children II

College and University Library Work
The academic library, whether in a community college or a university, provides information, education, and resource services to students, faculty, and staff. Management or supervisory skill is often required. Special competencies such as a subject or language specialty or an activity specialty (classification and indexing, information systems, etc.) may be necessary.

Required Courses
Core courses 18 s.h.
21:332 The College and University Library 3 s.h.
Suggested Electives 3 s.h.
21:246 Introduction to Information Science 3 s.h.
21:247 Information Storage and Retrieval 3 s.h.
21:249 Research Methods 3 s.h.
21:251 Advanced Reference 3 s.h.
21:252 Advanced Cataloging and Classification 3 s.h.
21:255 Government Publications 3 s.h.
21:264 Medical Librarianship and Bibliography 3 s.h.
21:265 Law Librarianship, Bibliography, and Research Techniques 3 s.h.
21:282 Practicum in Libraries 3 s.h.
7E:171 The Community College (required for Iowa endorsement; 12 s.h. for work in community colleges)

Work in Special Libraries
Special librarianship includes careers in information centers serving banks, industrial firms, museums, historical societies, and law firms. The ability to design service suitable for the parent organization, and substantial subject knowledge in the relevant area are characteristics important in such a career. Indexing, abstracting, literature searching and analysis, design of information systems, translation, and current awareness services are more usually found in special library work than in more traditional libraries.

Required Courses
Core courses 12 s.h.
21:230 Special Libraries 3 s.h.
Suggested Electives 18 s.h.
21:232 The College and University Library 3 s.h.
21:246 Introduction to Information Science 3 s.h.
21:247 Information Storage and Retrieval 3 s.h.
21:249 Research Methods 3 s.h.
21:251 Advanced Reference 3 s.h.
21:252 Advanced Cataloging and Classification 3 s.h.
21:255 Government Publications 3 s.h.
21:264 Medical Librarianship and Bibliography 3 s.h.
21:265 Law Librarianship, Bibliography, and Research Techniques 3 s.h.
21:282 Practicum in Libraries 3 s.h.

School Library Media Work
The school library media center makes available to students and teachers a wide range of library and instructional materials in a variety of formats. The work of the media specialist includes such activities as providing instruction to students in the use of media, consulting with teachers about the use of media in the instructional program, procuring new materials, offering media training, and providing reference service.

To qualify as a school-library media specialist in the State of Iowa, students must hold a valid teaching certificate and the appropriate endorsement for school library work. School library media certification requirements, however, vary widely from state to state. The requirements set forth in this program are designed to meet Iowa endorsements for school-library work. Since the requirements for Iowa endorsements are relatively comprehensive, students who want to pursue school library media work but who do not plan — working in Iowa are encouraged to follow the program listed below. Students who do not hold a valid teaching certificate need to consult with their adviser before pursuing this program.

The program given below is designed to prepare students for Iowa endorsements, and courses are suggested that will prepare them to work both in elementary and secondary situations.

Required Courses
Core courses 12 s.h.
21:233 School Library Media Center Administration 3 s.h.
21:262 School Library Media Center Practicum 3 s.h.
Suggested Electives 12 s.h.
21:233 Literature for Children I 3 s.h.
21:234 History of Books for Young People 3 s.h.
21:235 Literature and Storytelling for Children 3 s.h.
21:236 Literature for Adolescents 3 s.h.
21:234 Library Services to Children and Young Adults 3 s.h.
21:244 Bibliography of Library Materials for Children and Young Adults

Iowa School Library Media Certification, K-12
The school offers approved programs for the Iowa state certification in these areas: school library for kindergarten through grade 12 (Iowa endorsement 34) and director of library services for kindergarten through grade 12 (Iowa endorsement 51). Since these are endorsements to the teaching certificate, students must hold a valid Iowa teaching certificate to qualify for these endorsements.

Students who complete an M.A. degree with the program listed under "School Library Media Work" will qualify for endorsements 34 and 51.

Endorsement 34 may be earned without the M.A. degree by combining 30 semester hours of undergraduate and graduate course work approved by the advisor. Twenty of these hours must be earned during the last 30 semester hours. Twenty of these hours must be earned at 21:151-152, 21:222, 21:223, and 21:226 or their equivalents as determined by the instructors teaching the courses. In order to pursue such a non-degree program, however, a student must be accepted for admission to the School of Library and Information Science.
Iowa Community College Certification

The school offers an approved program for the certification of education in an area vocational school or community college (Iowa endorsement 75). Students receive this endorsement upon completion of the M.A. degree with the program in education under "College and University Library Work" and 7H:171 The Community College as an elective.

Joint Degree Programs

Joint degree programs between the School of Library and Information Science and other units within the University 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.

Although there is a mechanism by which departments may approve a joint program on an ad hoc basis, the School of Library and Information Science has established formal programs with the College of Law and the College of Business Administration. The student enrolled in such a joint program will work with an advisor in the School of Library and Information Science to ensure the benefits of integration.

Objectives of a joint program will be consistent with the goals stated above, and as they will vary from student to student, will be a matter of negotiation. For instance, a student who seeks a career in law or business would require a different sequence of courses than one attempting to study the legal basis of librarianship or the management of the library as a complex organization. Yet another student might choose to study the benefits a joint program could offer in records management and management information systems.

To enroll in a joint program the student must apply to and be accepted by the School of Library and Information Science and the other unit chosen. Up to six semester hours of such study may be approved credit. A joint program in library and information science and up to nine toward the M.S.A. or twelve hours to the J.D.

In no case can a student receive two degrees with fewer than 68 hours of graduate work, and joint programs would usually require substantially more than this.

Facilities and Resources

The School of Library and Information Science is conveniently located in the south wing of the University’s Main Library, providing facilities for the varied instructional and research activities of the school.

Media Lab and Darkroom

A media lab contains equipment and space for slide-tape production, videodisc production, super-8mm filming, filmstrip production, 16mm film production, and simple film editing. A darkroom includes equipment for film developing, enlarging, and dry-mounting.

Computer Facilities

An online lab includes three CRT terminals, one printing terminal, one printer, and a personal computer. This equipment provides local computing access to the University’s Weeg Computing Center, and access to national bibliographic databases and Orbis. In various courses, students learn to write programs, design information systems, conduct database searches, and recall and manipulate bibliographic records in the Orbis database.

Statewide Reference Service

The school serves on one of a state network of academic and public libraries. Students provide back-up reference service to libraries throughout the state, using learned skills to perform bibliographic verification and to answer reference questions. The service helps students reinforce and integrate classroom instruction and provides reference experience.

Departmental Library

The library science library, one of 12 departmental branches of the Main Library, is located within the school’s quarters. The collection contains approximately ten thousand volumes and two hundred periodical titles related to the study or practice of library and information services, as well as current AV equipment for viewing library materials. Tables, chairs, and easy chairs allow a choice of study seating, and the atmosphere is casual and friendly.

University Libraries

All of the resources of the University Libraries are available to students and faculty of the school. The system contains more than two million volumes in the Main Library and 12 departmental branches. An average of 50,000-70,000 volumes is acquired annually. The serials collection is extensive, with more than 22,000 current subscriptions. The third floor of the Main Library houses the government publications map, and special collections rooms, as well as bound periodicals. The location of the School of Library and Information Science on this floor gives quick access to these frequently used collections.

Other Libraries

Students have access to a variety of libraries through field trips, practicum experience, and personal use of the State Historical Society Library in Iowa City; the Iowa City and Cedar Rapids public and school libraries, the Coe, Cornell, and Grinnell college libraries; and the Herbert 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 service philosophy and contemporary management practices provide students with an innovative public library model.

Other Resources

Lindquist Center, located across the street from the Main Library, houses the Learning Resources Center of the College of Education and the Weeg Computing Center. The resource center consists of the Video Lab, Computer Resource Lab, Audiovisual Production Unit, and the Learning Resources Lab. The Curriculum Resources Lab contains an extensive book collection and is especially valuable for students interested in school or public library work.

Weeg Computing Center provides instructional and research computing facilities and services for the University community. All University students, staff, and faculty may use the Center’s computer facilities, related research, thesis preparation, and classroom. Each graduate student is provided with a reserved account by the Graduate College.

Faculty Advising

The School of Library and Information Science has a low student-faculty ratio, a faculty committed to innovative teaching and an atmosphere of heavy student-faculty interaction. Adviser assignments are made when students enter the program, and students are encouraged to discuss career objectives and problems with other faculty members as well. The relatively small number of students in the school allows faculty members to get to know students personally and to take an interest in their professional development.
Student Activities
Students have a variety of activities available to them in their academic and professional development. Conferences, short courses, workshops, seminars, field trips, and recollections 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 (LJSSC) serves as a liaison between students and faculty, to promote student activities and concerns. A member attends faculty meetings as a student representative. The group also organizes social activities for both students and faculty.

Placement
The school provides active placement assistance to its graduates by means of bulletin board employment, seminars on resume writing and interviewing, and personal counseling. The University’s Vocational Placement Office issues a weekly listing of job openings and provides a credential file service. Iowa graduates find positions in all types of libraries. The placement distribution for the past five years was public libraries 39 percent, school libraries 27 percent, academic libraries 31 percent, and special libraries 12 percent. Iowa graduates also find employment in public, academic, and special libraries in 44 states. Strong personal and academic qualities are important factors in obtaining a position.

Admission
Scholastic requirements for admission to the M.A. program include:

A baccalaureate degree from an accredited college or university, with a minimum grade point average of 2.5 on a 4.0 scale, and at least 85 semester hours of study in the liberal arts and sciences;

A combined verbal/quantitative score of 950 on the Graduate Record Examination (GRE) Aptitude Test.

Personal qualifications and aptitude for library work are assessed by means of letters of recommendation and a personal interview with the director of the school or the director’s assistant, and another member of the faculty. In the case of extreme distance, an alternate interview may be provided near the applicant’s home. The school does not accept every applicant who meets minimum admission requirements, an admissions committee selects each class on a competitive basis.

Foreign students are encouraged to apply if they attain a score of 560 or higher on the Test of English as a Foreign Language (TOEFL). Persons with slightly lower TOEFL scores may be considered for conditional admission with the understanding that they receive remedial assistance in English at the University.

Applicants are requested to write to the School of Library and Information Science for a preliminary information form. If the information provided on the form indicates that the applicant satisfies the basic admission requirements, the school will schedule a personal interview. Prospective students are urged to begin application procedures early enough to complete all requirements by the deadlines given below. The applicant needs to allow more time if he or she has not already taken the Graduate Record Examination (GRE) Aptitude Test.

Completed applications should be received by the school by March 1 for fall-semester consideration, October 1 for the spring semester, or February 1 for the summer semester. Decisions of the admissions committee are announced two to three weeks after each deadline. Late applications will be considered if places are still available. Financial assistance, however, is often not available for late applicants.

Financial Assistance
The School of Library and Information Science awards partial-fellowship scholarships; as well as four-, five-, and six-quarter graduate assistantships. To be considered for a grant, an applicant must have at least a 3.0 undergraduate grade-point average and combined verbal-quantitative scores of 1100 on the GRE Aptitude Test. Those who do not meet these requirements when entering the program may apply for an assistantship after completing 12 semester-hours of graduate work and achieving a 3.0 grade-point average. Predoctoral students are urged to apply for these awards before March 1, 1980. For information or assistance, contact the Office of Student Financial Aid, Culver Hall.

Students interested in part-time employment should contact the libraries in the Iowa City area. Term positions are usually available in the university libraries.

Courses
2100 Information Retrievi 3.0
Designed to provide students with skills to effectively gather information and use information from a variety of sources.

2110 Literature for Children 1.5
Same as TE 122

2120 History of Books for Young People 3.0
Development of literature for children and young adults from oral tradition through the early bookmaking; trends in content and illustration; sharing of reading of past research projects with the impact of historical children’s or young adult books. Offered once a year.

2130 Literature and Storytelling for Children 3.0
Same as TE 125.

2151 School and Library Services 4.0
Landscape bibliographies and reference works covered to meet basic library needs. Enzymology, taxonomy, and fungi applied to periodical literature; acquisition and guides to periodical literature; promotion and advertising, experience in local public library.

2152 Cataloging and Classification 3.0
The major tools and applications of cataloging are described with an emphasis on effective information retrieval. Development of the Anglo-American classification. Sears and U.S. subject headings; aids and services, including DDC key and arrangements of cataloging.

2155 Selection of Library Materials 3.0
Introduction to the library and information professions; emphasis on key methods and tools used for collection development of library materials and resources in general and specific areas.

2161 Management of Library and Information Centers 3.0
Planning, managing, and operating reference centers; bibliographic instruction; relational services and information for a community; educational projects. Offered alternate terms.

2163 Multi-Code Concepts in Libraries 3.0
Nature and scope of library service beyond printed materials in public, academic, and special libraries. Utilization and basic production. Offered alternate terms.

2181 History of Books 3.0
Development of materials from the ancient to the present: materials, graphic methods, and techniques, effect of the book, publishing, paper, and typography.

2185 Special Libraries 3.0
History, history, and organization of libraries as service to specific institutions. Specialized libraries and information centers. Prerequisites: 2181 or consent of instructor.

2191 The Public Library 3.0
Historical development of the modern public library as a social agency in American society, shaping of libraries to suit local needs and conditions. The role of the public library in the community. Prerequisites: 2181 or consent of instructor.

2192 The College and University Library 3.0
Organization, planning, and procedures of university libraries; standards, problems, principles, and trends, offered alternate terms. Prerequisites: 2181 or consent of instructor.

2193 School Library Media Center Administration 3.0
Organization and supervision of school media centers; development of a philosophy, facilities design, personnel management, collection development, and program planning and evaluation. Offered alternate terms. Prerequisites: or consent of 2181 or 2191.

2194 Library Services to Children and Young Adults 3.0
Theories and practice of library service in schools, public libraries, and libraries for children and young adults. Offered alternate terms. Prerequisites: or consent of 2181 or 2191.

2195 Bibliography of the Humanities 3.0
Search for reference sources and selection aids in philosophy, religion, science, and related fields. Offered alternate terms. Prerequisites: or consent of 2181.

2196 Bibliography of the Social Sciences 3.0
Search for reference sources and selection aids in social science literature in the areas of political science, economics, geography, political science, psychology, sociology, and applied sociology. Offered alternate terms. Prerequisites: or consent of 2181.
Linguistics/LIBERAL ARTS

21.344 Bibliography of the Sciences 2 kwh
Science, the work of scientists, and the role of librarians and scholars in the care of information within the fields of science and to the public; the role of non-scientists in the development and care of scientific information; the role of government and the private sector. Offered alternate terms. Prerequisite: 21.151. 21.347 The Library at Library Week for Children 1 kwh and Young Adults
An appreciation of the role of libraries in the lives of young and public youth, children's literature and selection, storytelling, literacy and fiction, and children's materials and print and audiovisual tools; provide literature and nonfiction related to the importance of libraries for young people. Offered once a year.

21.349 Introduction to Information Science 2 kwh
Characteristics and technologies of information science concepts of information storage and retrieval, mechanical and electronic applications of automation in libraries.

21.347 Information Storage and Retrieval 2 kwh
Examination of the theory, tools, and strategies used to create, manage, and evaluate information retrieval systems. Special emphasis on online databases and database management systems in libraries. Offered alternate terms. Prerequisite: 21.345.

21.348 Research Methods 2 kwh
Concepts and techniques of research in library and information science; emphasis on conducting and analyzing research projects. Offered alternate terms. Prerequisite: 21.151.

21.351 Advanced Reference 2 kwh
Concepts in reference service: philosophy, communication, bibliographic instruction, evaluation, students' and subject-oriented reference services. May include an examination of business and industrial information services. Prerequisite: 21.151.

21.352 Advanced Cataloging and Classification 2 kwh
Special problems in cataloging in description of print, manuscript, and visual materials, cataloging hypertext, opposed imprints and templates, bibliographic standards, indexing, administration of bibliographic control services. Offered alternate terms. Prerequisite: 21.192.

21.355 Government Publications 2 kwh
Federal and state government publications, as well as United Nations publications, studied as information resources; special problems of organization and administration of government publications. Offered once a year.

21.356 School Library Media Career Practice 2 kwh
Supervised field experience for children at both elementary and secondary school levels; emphasis on school library development. Open only to students with library practice II and survey I. Limited to 20 students. Offered fall and spring semesters and occasional summers. Prerequisite: 21.151.

21.357 Medical Librarianship and Bibliography 2 kwh
Topics in health information and the characteristics of medical literature; selection and organization of library's medical collections; evaluation of data and sources of bibliographic citations: current awareness services. Offered spring semesters. Prerequisite: 21.192 and 21.201, or counsel of instructor.

21.358 Law Librarianship, Bibliography, and Research Techniques 2 kwh
The development and characteristics of legal bibliographic, select and organization of legal materials; research techniques; special problems of copyright and fair use. Only one of the following may be counted toward the requirement for a major in library science: Prerequisites: 21.192, 21.201, and 21.235.

21.372 Current Topics in Librarianship 2 kwh
Investigation and analysis of contemporary issues and problems in library and information services.

21.378 Marketing in Library Science 2 kwh
Salesmanship, library public relations and development and promotion.

21.395 Practice in Libraries 2 kwh
Supervised field experience in selected libraries, evaluation of library services and services of the librarian. Prerequisites: offered fall and spring semesters. Prerequisite: 12 semester hours in professional program. Offered fall and spring semesters.

21.395 Independent Study 2 kwh
Student may work in close contact with faculty member. Projects covering more than one semester hour require approval of director. Prerequisite: consent of instructor.

21.399 Thesis
Prerequisite: consent of director.

Linguistics


Linguistics is the science which studies the organizing principles underlying human language.

There are many indicators that such principles exist in language. Children normally learn to use their native language before they enter school, and without much direct instruction. People can speak and understand sentences they have never heard before. All languages have several ways of saying the same thing and all have emojis. All languages change through time. Damage to a particular part of the brain may be related to a particular type of linguistic problem, whatever the language. All languages are systems with some unique properties, some universal properties, and some properties shared with other languages which may or may not be historically related.

Linguists do not attempt to learn many languages. Rather, they consider the languages of the world as data to be analyzed by common principles.

Linguistics is a science with many subfields. One linguist’s laboratory may contain a library and pencil and paper. Another may work with acoustical equipment. Others work with computers. Some go into sexism-visited places to study, describe, and analyze little-known languages which may be in danger of extinction. Some go into their own communities to study the relationship between language and social structure, or race, or sex. Still others, interested in language change, spend time studying ancient languages.

Linguistics is not limited to scientific research for its own sake. Linguists may teach English as a foreign language. They may help design school programs which are relevant for Chicanoos, Blacks, and Native Americans. They may help intelligence-test and achievement-test makers avoid discrimination against those who are not middle-class while Americans, or work with speech clinicians to retain people with linguistic disabilities.

Undergraduate Program

High scores on verbal, analytic, and quantitative aptitude tests are indicators of success in linguistics. Although few aspects of the field deal with numbers, it is very important to be able to reason logically and explicitly, and to be able to deal with formulas and abstract symbols. Depending on their vocational goals, prospective linguistics students should consider pursuing their studies through the M.A. program, or through the doctorate; or they should take a second major. Appropriate companion fields include foreign language, English, anthropology, sociology, speech pathology, psychology, mathematics, computer science, philosophy, and ethnic and cultural history.

The Bachelor of Arts degree in linguistics prepares the student to do basic language analysis in syntax-semantics (sentence patterns and their relation to meanings) and phonology (sound patterns). Elective courses in a variety of subdisciplines enable students to tailor their program to their own interests. The major in linguistics requires 24 semester hours of work in the department. It includes a general introduction and courses in syntax, phonetics, phonology, and language history, as well as electives to be worked out in consultation with the undergraduate advisor.

Graduate Programs

Emphasis in all graduate programs is on theoretical study of human language as practiced in nonuniversity careers may also take advantage of a number of courses in applied linguistics and other fields, either in connection with linguistics or as an option of the M.A. program.

Master of Arts

All students take required set of core courses followed by comprehensive examinations in phonology and syntax-seman-

tics.

Students choosing to write a thesis take at least six semester hours of elective courses, exclusive of thesis hours, and may receive up to six semester hours of thesis credit for a total of 36 semester hours. Students choosing to take a degree without thesis must complete a focus area (consisting of 12 hours of course work) and take at least nine semester hours of elective courses. The focus may either be designed in advance by the student (subject to departmental approval), or be one of a set of predefined options (for example, teaching English as a foreign language). All electives must be approved by the student's advisor, or chosen from a list furnished by the department. Students should also be able to take at least 33 semester hours of course work and write a thesis, or to take at least 36 semester hours of course work. All students must
have a minimum of 30 semester hours of graduate credit to receive the degree, regardless of prior preparation.

Doctor of Philosophy

The aims of the Ph.D. program are to provide students with a strong foundation in theoretical linguistics and to develop the skills necessary for exploring the close relationship between linguistics and related disciplines. The core requirement for the program includes two upper-level syntax courses (e.g., 103.121 Syntactic Theory and either 103.212 Advanced Syntactic Theory or 103.214 Advanced Syntactic Analysis) and two upper-level phonology courses (e.g., 103.125 Phonological Theory and 103.211 Advanced Phonological Theory), and at least two seminars, for a total of 18 semester hours. An approved 18-semester-hour specialization area is also required, and students must achieve proficiency in at least two foreign languages (as specified by departmental regulations).

Comprehensive examinations cover phonological theory, syntactic theory, theory of language change (historical linguistics and sociolinguistics), and the specialty area. An oral defense of the dissertation and at least three years of residence are also required. In addition, all candidates are required to gain supervised experience in teaching and research.

Facilities

The Department of Linguistics has limited acoustic equipment, consisting of a sound spectrograph, a stereo-type tape recorder, and an audiometer channel. There is also a remote terminal connected to the University's computing center.

The departmental reading room functions to allow a close relationship between faculty and students, a considerable informal discussion of departmental and faculty, and a high degree of individual instruction. A large part of the student's education in linguistics is conducted informally through daily conversations, among students and faculty members.

Financial Aid

Teaching assistantships and research assistantships are available to qualified graduate students. Application should be made by March 1 for the following academic year. Students applying for financial aid and admission concurrently should submit their Graduate Record Exam scores and three letters of recommendation.

Courses

Special English Courses for Foreign Students

Iowa Intensive English Program (103.1, 103.2, 103.3, 103.4, 103.5) is a noncredit program consisting of 20 hours per week of English for foreign students, including conversation, pronunciation, listening comprehension, reading, vocabulary development, grammar, and writing. Prerequisite: permission of department.

103.1 Intensive English Communication Skills 5 s.h.

103.2 Intensive English Listening Comprehension 5 s.h.

103.3 Intensive English Reading 5 s.h.

103.4 Intensive English Grammar 5 s.h.

103.5 Intensive English Writing 5 s.h.

Prerequisite: permission of department.

103.6 Composition Skills for Foreign Students 5 s.h.

Practice in conversation, with the goal of communicative competence: basic syntax, vocabulary, and grammar.

103.7 Pronunciation and Oral Skills for Foreign Students 3 s.h.

Emphasis on the role, the fine and the operation of the pronunciation patterns and of the correct use of stress and intonation in daily speech and conversation.

103.8 Grammar for Foreign Students 5 s.h.

Practice in the patterns of English sentence structure.

103.9 Written English for Foreign Students 5 s.h.

Emphasis on complete complex paragraph constructions, discourse coherence, and the usage of formal vocabulary, practice in using various patterns of organization in writing.

103.10 Composition of Spoken English for Foreign Students 5 s.h.

Focus on learning to recognize English sound contrasts, grammatical structures, and word meanings, practice in learning to classroom situations and oral reading.

103.11 Composition of Written English for Foreign Students 5 s.h.

Focus on improving speed and comprehension of oral reading and writing once prepared by university students; practice in taking notes on reading materials.

103.12 Special Instruction in ESL for Foreign Teaching Assistants 3 s.h.

Instruction and practice in English skills, cross-cultural differences in educational systems, and experiences in teaching English as a second language, practice in simulated teaching situations.

Primarily for Undergraduates

103.11 Language and Society 3 s.h.

Considerations within sociolinguistic and cultural contexts for discovering and describing significant human language systems, their social and political implications of findings.

103.12 Language and Social Meaning 3 s.h.

Introduction to and development of linguistic anthropological research through the study of language use. Concepts of language and society will be explored from the perspectives of linguistic anthropology, cultural anthropology, and ethnography.

103.13 Special Project 3 s.h.

Independent research in a linguistic topic directed by member of staff.

For Undergraduates and Graduates

103.14 Introduction to Linguistics 3 s.h.

Variety of topics in general linguistics. Same as 40.14.

103.15 Language, Society, and Education 3 s.h.

Description of language use development of language acquisition, linguists' attitudes about institutionalized dialogue and society. Same as 40.15.

103.16 Teaching English as a Foreign Language 3 s.h.

Domain of classroom analysis, teaching foreign language; testing and sociolinguistics, concepts of a "standard" language and society. Prerequisites: 103.15, 103.22, 103.115, 103.125, 105.110.

103.17 Practice in Teaching Spoken English 3 s.h.

Practical problems in teaching speaking as a second or foreign language. Prerequisites: 103.15 and 105.110.

103.18 Foundation in Syntactic Theory 3 s.h.

Focus on main syntactic conceptions, conceptions of sentence structure and meaning, discussed and elaborated. Prerequisite: 103.11.

103.19 Syntactic Analysis 3 s.h.

Introduction to some generative theories dealing with a wide range of syntactic problems in natural languages. Prerequisite: 103.17.

103.20 Pragmatics 3 s.h.

Introduction to problems in pragmatic analysis in the framework of generative theory. Prerequisites: 103.19 and 103.22.

103.21 Logical Form Methods 3 s.h.

Gathering and collection of data as field, theory and technical problems. Practice in solving data from an informant. Prerequisites: 103.14 and 103.22.

103.22 Language Data Processing 3 s.h.

Introduction to computer use. Interactive text editing, use of existing programs, conversational vs. nonconversational language analysis. Same as 40.14.

103.23 Language Processing 3 s.h.

Introduction to language analysis techniques, computer text editing, use of existing programs, conversational vs. nonconversational language analysis. Same as 40.14.

103.24 Language and Social Relations 3 s.h.

Examination of sociolinguistic indicators as social, setting, and state; mother's role in language acquisition. Prerequisite: 103.22.

103.25 Elements of Phonetics 3 s.h.

Introduction to several aspects of phonetics, an adaptation of English phoneme analysis, an adaptation of Spanish, Portuguese, and Italian. Other languages taught if appropriate. Prerequisite: two years of foreign language for concurrent student. Same as 22.28.

103.26 Topology in Portuguese Linguistics 3 s.h.

Pursuit of phonological, syntactic, semantic, and second language acquisition, Portuguese-English linguistics, and the relationship of language and thought. Prerequisite: 103.22.

103.27 Introduction to Semiotics 3 s.h.

Principles of semiotics, the language of signs, semiotic systems, and typology. Prerequisites: 103.22 and 103.25.

103.28 Research in the History of English 3 s.h.

Examination of recent linguistic developments in English. Prerequisites: 103.22 or permission. Same as 40.28.
Courses in LSA are open to juniors, seniors, and graduate students from any department or college. Freshmen and sophomore students may occasionally be admitted by approval of the instructors.

Courses are conducted by round-table discussion, in a small group of students with two or more faculty representing different departments and disciplinary perspectives. The topics of these courses engage the special contributions of particular disciplines while they focus on important problems of value and judgment in our times. Reading lists are chosen from outstanding works of past and present.

The following are the specific requirements beyond the general education courses, for the B.A. in Literature, Science, and the Arts, LSA:

- Natural, social sciences: 12 s.h.
- Philosophy, religion, history: 12 s.h.
- Literature beyond general education requirements: 12 s.h.
- Fine arts: 3 s.h.
- Foreign language: 3 s.h.

One semester beyond second year. (Foreign language courses in the original language may also be used to satisfy the requirement in literature.)

Students considering an LSA major should consult with the chair before the end of the sophomore year.

Honors

Superior students who undertake a further program of independent study may earn the Bachelor of Arts degree "with honors." To be admitted as a candidate for honors, the student must have the endorsement of the chair of the Interdisciplinary Program in Literature, Science, and the Arts and meet College of Liberal Arts requirements for the Honors Program. An honors student submits an honors project and takes an examination on a personal honors reading list, during the semester before graduation.

Courses

- 210 Introduction to the Liberal Arts: 3 s.h.
- 211 The Poet's Requiem: 3 s.h.
- 215 Law in the Western World: 3 s.h.
- 216 Men and Ships: 3 s.h.
- 217 The Good Society: 3 s.h.
- 219 Divine Abstractions: 3 s.h.
- 220 The Importance of Politics: 3 s.h.
- 221 The Search for Law and Society: 3 s.h.
- 222 Private Lives and Public Institutions: 3 s.h.
- 223 Values in the Contemporary World: 3 s.h.
- 224 Human Nature and the Impact of Science: 3 s.h.
- 225 Farm and Mills in the Arts: 3 s.h.
- 226 Revolution in all spheres of culture: 3 s.h.
- 227 State and Society: 4 s.h.
- 228 Red Science and Anthropology: 4 s.h.
- 229 State and Society: 4 s.h.
- 230 State and Society: 4 s.h.

Honors Special Projects

Students may take at least seven additional approved courses from the division beyond one year of calculus (either 22M.25-26 Calculus III or 22M.35-36 Engineering Calculus III) or 22M.45-46 Accelerated Calculus I-II). Each of these seven courses must carry at least three semester hours of credit. Except for students electing the applied mathematical sciences option or those seeking a secondary teaching certification, at least two of these seven courses must be chosen from the following list:

- 22C.116 Operating Systems and Complex Programming
- 22C.122 Advanced Computer Organization and Architecture
- 22C.123 Programming Language Foundations

Bachelor of Arts

Students must take at least seven additional approved courses from the division beyond one year of calculus (either 22M.25-26 Calculus III or 22M.35-36 Engineering Calculus III) or 22M.45-46 Accelerated Calculus I-II). Each of these seven courses must carry at least three semester hours of credit. Except for students electing the applied mathematical sciences option or those seeking a secondary teaching certification, at least two of these seven courses must be chosen from the following list:

- 22C.116 Operating Systems and Complex Programming
- 22C.122 Advanced Computer Organization and Architecture
- 22C.123 Programming Language Foundations

- 22C.125 Data: Abstractions, Types and Structures
- 22C.145 Introduction to Computation Theory
- 22C.153 Artifical Intelligence I
- 22C.157 Design and Analysis of Algorithms
- 22C.167 Theory of Graphs
- 22M.100 Introduction to Ordinary Differential Equations
- 22M.101 Introduction to Partial Differential Equations
- 22M.102 Intermediate Differential Equations
- 22M.103 Foundations of Set Theory
- 22M.104 Foundations of Algebra
- 22M.109 Continuous Mathematical Models
- 22M.110 Elementary Topology I
- 22M.111 Elementary Topology II
- 22M.115 Introduction to Analysis I
- 22M.116 Introduction to Analysis II
- 22M.118 Complex Variables
- 22M.120 Abstract Algebra I
- 22M.121 Abstract Algebra II
- 22M.130 Optimization Techniques
- 22M.135 Matrix Theory
- 22M.151 Discrete Mathematical Models
- 22M.192 Theory of Graphs
- 22M.193 Linear Algebra
- 22M.194 Combinatorial Mathematics
- 22M.195 Linear Algebra
- 22M.196 Analytical and Linear Equations
- 22M.245 Division of Mathematical Sciences
- 22M.246 Introduction to Discrete Mathematics
- 22M.247 Introduction to Stochastic Processes
- 22M.251 Actuarial Theory I
- 22M.262 Actuarial Theory II

Some of the above courses require extensive prerequisites which the student should consider in planning his or her program.

Students should consult the divisional office or the adviser for any changes which may be applied toward the seven-course requirement. Students who complete the requirements for a secondary teaching certificate may take any two levels of Mathematical Sciences Division courses among their seven required courses in mathematics. See further requirements under "Mathematics Education".

Bachelor of Science

In addition to the requirements outlined above for the Bachelor of Arts degree, the Bachelor of Science degree requires two one-semester courses from the division, each carrying at least two semester hours of credit. The programs described below need not be followed exactly, rather, it is expected that the student and his or her adviser will work closely together to reflect the student's interests. The requirements are flexible enough to accommodate changes in students' interests.
Suggested Programs

General

Unless a student has a strong interest in a special area in mathematics, a general program is suggested. This type of program should include 22M:15 Introduction to Mathematics and also include a course such as 22M:50 Elements of Group Theory; 22M:55 Fundamental Properties of Spaces and Functions; or 22M:103 Foundations of Set Theory, and it should include at least a semester's work in statistics and probability.

The student should take additional work, in particular the required 100-level courses, in the area of mathematical sciences that is of most interest to the student. Students considering employment in government or industry upon completion of the B.A. degree should consider 22C:17 Programming Techniques and Data Structures and courses in numerical analysis, applied statistics, and operations research.

Actuarial Science

The student who plans to enter the actuarial profession should be guided in course selection by the program of education and examinations carried on by the principal actuarial organizations. Following a sequence in calculus and linear algebra (22M:25-26 Calculus I-II or 22M:45-46 Accelerated Calculus I-II, 22M:27 Introduction to Linear Algebra and 22M:28 Calculus III, or 22M:30-31 Introduction to Differential Equations for Engineers), the student should take 22C:133 Introduction to Probability, 225:154 Introduction to Mathematical Statistics, 225:125 Actuarial Principles of Life Insurance, 225:182-183 Actuarial Science I-II, 22S:177 Numerical Analysis for Actuaries, and a course in operations research.

Additional courses of direct professional interest to actuaries include 22S:183 Demography and Life Table Construction, 225:184 Risk Theory, and 22S:185 Theories of Pension Funding. Students are encouraged to take at least one or two courses in computer science and a substantial program of courses from the College of Business Administration. If a student is unable to complete such a program as an undergraduate, he or she may be advised to take a year of graduate work.

Applied Mathematics


Other general courses which may be of interest are 22M:50 Elements of Group Theory, 22M:55 Fundamental Properties of Spaces and Functions, 22M:105 Analysis for Applications, 22M:116 Introduction to Analysis II, 22M:126 Elementary Theory of Numbers, and 22M:150 Matrix Theory. Students in applied mathematics should be familiar with computer programming (22C:16 Introduction to Programming with Pascal and 22C:17 Programming Techniques and Data Structures, can be taken early along with calculus) and with the basic ideas of probability and statistics (the student should take 22S:153 Introduction to Probability and 22S:154 Introduction to Mathematical Statistics or 22S:193 Probability and Statistics if appropriate).

To acquire an understanding of how mathematics is used in other areas, it is recommended that the student take a set of courses involving mathematics. Significant ways, outside the Division of Mathematical Sciences, that students may plan to do graduate work in applied mathematics should take 22M:15 Introduction to Analysis I and 22M:116 Introduction to Advanced Calculus.

Mathematics Education

Mathematics courses required for students in mathematics education are 22M:25-26 Calculus I-II or 22M:45-46 Accelerated Calculus I-II, 22M:27 Introduction to Linear Algebra, 22M:50 Elements of Group Theory, 22M:55 Fundamental Properties of Spaces and Functions, and 22M:10 Foundations of Geometry. The student may substitute for any of these courses a 100-level course in the same subject area. This requirement (section 22M:70 must be satisfied before taking 75:135 Methods: Mathematics, a course required for teaching certification in mathematics (see the "College of Education" section of the Catalog for certification requirements) at least two 100-level courses (not cross listed with Education) in the Division of Mathematical Sciences must be completed, at least one statistics course is strongly recommended. Some suggested 100-level courses are: 22M:104 Foundations of Logic, 22M:106 An Introduction to Non-Euclidean Geometry, 22M:107 History of Mathematics, 22M:110-111 Elementary Topology I-II, 22M:115-116 Introduction to Analysis I-II, 22M:110-121 Abstract Algebra I-II, 22S:120 Probability and Statistics I, 22S:150 Methodology and Statistical Inference, and/or the sequence 22S:153 Introduction to Probability and 22S:154 Introduction to Mathematical Statistics. Students in mathematics education must have proficiency in one computer programming language; this requirement is usually met by completing 22C:16 Introduction to Programming with Pascal.

Pure Mathematics


Probability and Statistics

The basis for this program is the calculus sequence 22M:25-26 Calculus I-II or 22M:45-46 Accelerated Calculus I-II and 22M:27 Introduction to Linear Algebra, or 22M:25-26 Calculus I-II, 22M:27 Introduction to Linear Algebra, or 22S:177 Numerical Analysis for Actuaries; and a course in computer science (22C:16 Introduction to Programming with Pascal, 22C:17 Programming Techniques and Data Structures, or 22C:18 Computer Organization and Assembly Language Programming, and one or two courses in mathematical analysis from 22M:55 Fundamental Properties of Spaces and Functions, 22M:105 Analysis for Applications, and 22M:115 Introduction to Analysis I. Substantial work in one of the following conceptual, physical, or engineering sciences is also highly recommended.
Further courses in probability and statistics may be selected from courses in the Department of Statistics numbered 103 and above, excluding 225:101, 225:102, 225:105.


Applied Mathematical Sciences Option

This option is designed to reflect the increasing diversification of applications of mathematics and statistics to the social, biological, and physical sciences, and to management, business, ecology, linguistics, and engineering.

The student electing this option must include the following among the seven courses he or she takes beyond the first year of calculus:

- At least three Division of Mathematical Sciences courses numbered 22M:50 or above (excluding 22M:80:11 and including at least one course numbered 100 or above) or 22S:105 or above.
- At least three additional quantitative courses from some other department outside the division, or, at the adviser's discretion, from two closely related departments.

In addition to the above, the bachelor of Science degree requires two one-semester courses from the division, each carrying at least two semester hours of credit.

A student taking the option must include an area of concentration in his or her program, and must acquire some experience in the use of the computer.

Students electing this option are assigned specially-designated program advisors.

Transfer Students

Undergraduate transfer students in mathematics must earn at least nine semester hours of credit in Division of Mathematical Sciences courses beyond the first year of calculus or 225:102, Introduction to Programming with Pascal.

Minor

All students are required to take a year of calculus. The courses designated as upper level for the purposes of satisfying the minor field requirement in the Division of Mathematical Sciences are those that have been approved for the satisfaction of the seven-course requirement for a major in the Division of Mathematical Sciences. Students majoring in either Computer Science or Statistics and Actuarial Science may not use courses in their major department to satisfy the minor field requirement. Further information on the approved courses can be obtained from the divisional office.

Double Majors

See the divisional offices for information on double majors within the division.

M.B.A. Preparation

An undergraduate student majoring in mathematics and wishing to earn a Master of Business Administration degree in one year of graduate study should consult with his or her adviser and with the associate dean of the College of Business Administration prior to the senior year concerning business courses which should be included in the undergraduate program.

Applied Mathematical Sciences

Program chair: Harold W. Kehne

Faculty: Gerald J. Ackerman (Interim), Dennis S. Bobik (Systems Engineering), Cheng Jen Chen (Energy Engineering), John A. Cremonese (Electrical Engineering), Edward J. Dayhoff (Mathematics), Stephen P. Heuvel (Management), Tatsuo Ishii (Electronics), Wilfried Kirsch (Physics), George E. Krass (Physics), Karl E. Larson (Information Engineering), Vagn K. Olesen (Mathematics), Roger R. Shults (Computer Sciences), George Woodworth (Statistics)

Degree offered: Ph.D.

Applied mathematical scientists formulate scientific concepts and problems in mathematical terms; solve the resultant mathematical problems; discuss, interpret, and evaluate the solutions; and explore ideas for and areas of mathematical application; and develop mathematical theories in new areas.

Career opportunities include faculty positions in colleges and universities, research positions in industrial and governmental laboratories, and professional consulting positions.

The Program in Applied Mathematical Sciences at The University of Iowa is an autonomous, broadly based interdisciplinary program leading to the Doctor of Philosophy degree. The program seeks to help the student achieve a command of theoretical and applied aspects of a mathematical science (mathematics, statistics, or computer science) and obtain a basic knowledge at least one science (behavioral, biological, chemical, engineering, medical, or social). The program is flexible so that a student can concentrate on applied mathematics such as differential equations and numerical analysis or on other applicable techniques in mathematics, statistics, or computer science.

Applicants are expected to have a strong background in a mathematical science, together with a desire to apply a mathematical science to relevant scientific problems in another scientific field. Students may enter with either a bachelor's or master's degree.

The faculty members associated with the program again, each student in planning a course of study which is consistent with the student's background, interests, and goals. They also assist in selecting courses in a course of study which is consistent with the student's background, interests, and goals. They also assist in selecting courses and in the student's decision to apply for admission to the program. The study plan can be arranged so that a master's degree is obtained from a science or a mathematical science department after completion of part of the plan.

The Ph.D. comprehensive examinations for a student cover three areas: theoretical foundations in the mathematical sciences, methods of application in the chosen scientific area. An objective of the program is to have each student's dissertation research include many of the activities of an applied mathematical scientist. For example, this could involve formulation of a model, quantitative analysis of the model, interpretation of the results. Research and teaching assistantships are available to qualified students. Support for students as research assistants is available during the academic year. Applications for fall semester admission and for financial support should be completed by February 15. For application forms and further information about the academic program, write to the Chair, Program in Applied Mathematical Sciences, The University of Iowa, Iowa City, Iowa 52242.

Courses

125:208 Seminar in Applied Mathematical Sciences am
Prerequisites: consent of instructor

125:209 Reading and Research am
Prerequisites: consent of instructor

Computer Science

Department chair: Arthur C. Fleck

Faculty: professors Donald A. Alton, Donald L. Epkey, Arthur C. Fleck, professors James H. Belnap, V. S. Bhate, V. S. Bhate, Tejaswini, Tejaswini

Program in Applied Mathematical Sciences, Department of Mathematics
BACHELOR OF SCIENCE

For the B.S. degree, the student must complete the computer science requirements for the B.A. degree plus two additional one-semester courses (each having at least two semester hours of credit) from the list below. At least one course must be from the Department of Computer Science.

Computer Science courses
223:55 Elementary Numerical Analysis
223:95 Topics in Computer Science
223:115 Software Engineering
223:116 Operating Systems and Concurrent Programming
223:129 Advanced Computer Organization and Architecture
223:123 Programming Language Foundations
223:125 Data Abstractions, Types, and Structures
223:127 Compiler Construction
223:130 Introduction to Compilers Theory
223:145 Design of Information Systems
223:147 Artificial Intelligence
223:146 Computer Vision and Robotics
223:153 Design and Analysis of Algorithms
223:167 Theory of Graphs
223:178 Computer Communications
223:198 Individual Programming Projects

Mathematics courses
223:55 Elements of Group Theory
223:55 Fundamental Properties of Spaces and Functions
223:70 Foundations of Geometry any 100-level course except 223:120
Statistics courses
223:129 Probability and Statistics for the Engineering and Physical Sciences
223:120 Probability and Statistics
223:133 Introduction to Probability any course numbered above 223:153

These courses cannot be taken pass-fail.

Bachelor of Arts

Undergraduate students majoring in computer science need a strong background in mathematics and in programming languages and computer systems. For the B.A. degree, these core courses are:

223:25 Calculus I 4.0 s.h.
223:25 Calculus II 4.0 s.h.
223:27 Introduction to Linear Algebra 4.0 s.h.
223:16 Introduction to Programming with Pascal 4.0 s.h.
223:27 Programming Techniques and Data Structures 3.0 s.h.
223:18 Computer Organization and Assembly Language Programming 4.0 s.h.
223:19 Discrete Structures 3.0 s.h.
223:21 Digital Systems and Computer Architecture 3.0 s.h.
223:32 Introduction to Systems Software 3.0 s.h.
Total 38.0 s.h.
admitted to the graduate program. In such cases the student is required to complete these courses prior to admission to graduate courses.

Doctor of Philosophy

Doctoral students are expected to complete 50 to 90 semester hours of graduate work including a thesis. The student need not have a master's degree when beginning the Ph.D. program, and need not acquire one. Course requirements for the doctorate include:

- 22C:16 Operating Systems and Concurrent Programming (3 s.h.)
- 22C:18 Advanced Computer Organization and Architecture (3 s.h.)
- 22C:19 Programming Language Foundations (3 s.h.)
- 22C:15 Data Abstractions, Types, and Structures (3 s.h.)
- 22C:17 Compiler Construction (3 s.h.)
- 22C:13 Introduction to Computer Theory (3 s.h.)
- 22C:14 Design of Information Systems (3 s.h.)
- 22C:15 Artificial Intelligence I (3 s.h.)
- 22C:13 Design and Analysis of Algorithms I (3 s.h.)

The student must complete all at least 18 semester hours of 200-level computer science courses work in addition to 22C:399 Research for Graduates.

In addition to the coursework in computer science, the student must complete at least three courses, with grades of A or B, in one of these outside areas:

- Algebra
- Analysis
- Logic and set theory

Operations research

Numerical analysis

At least one of the courses in the outside area must be at the 300-level advanced level, except in statistics and probability, where the advanced course may be at the 200-level advanced level.

After the student passes the qualifying examination, the student selects a faculty advisor to direct his/her research, and the student's advisor selects the student's dissertation committee.

In consultation with the advisor and dissertation committee, the student prepares a plan of study and the specifications for a candidacy examination that will serve as its Ph.D. comprehensive examination. The dissertation committee administers the candidacy examination after the student has substantially completed the required coursework.

Examinations are described in the Graduate Handbook. The student prepares a written proposal for research and defends the proposal in an oral examination administered by the dissertation committee. The student must demonstrate expertise in the area of proposed research, and must justify the proposal in terms of originality and significance.

The student must make an oral defense of the dissertation. The department is highly selective in admitting doctoral students, and normally considers only applicants with a grade-point average above 3.3.

Graduate Service Courses

Competence and experience in the use of a digital computer as problem-solving is useful for and often prerequisite to advanced study and research in many disciplines. For most students, the two-semester sequence 22C:198 Introduction to Programming with Pascal and 22C:197 Programming Techniques and Data Structures is recommended. Students in fields in which other programming languages are heavily used may find 22C:190 Introduction to Computing with FORTRAN or 22C:198 Programming with COBOL more appropriate.

Courses for Undergraduates

22C:999 Cooperative Education Training Assignment (0 s.h.)

22C:1 Survey of Computing (3 s.h.)

The nature, limits, and possibilities of computers and computing as evidenced in a broad sample of computing techniques, including basic and interactive techniques, computer-oriented techniques, computing techniques utilizing numerical analysis, programming, computer-assisted instruction, information retrieval, the impact of computing technology on society.

22C:1 Introduction to Computing with FORTRAN (3 s.h.)

Basic concepts of computer structure and programming techniques, including elementary language programming, algorithms, data representations, subprograms, use of IF-THEN-ELSE, major emphasis on programming with FORTRAN.

22C:9 Programming with COBOL (3 s.h.)

Use of the business-oriented language COBOL, including file input and output, data derived from programming techniques, error handling, sorting, generation of reports, control files, maintenance of industrial and business data files, techniques for input and output, programming experience.

22C:10 Introduction to Programming with Pascal (3 s.h.)

Programming and problem design techniques using Pascal. Standard and advanced features, such as comments, expressions, structured control constructs, block structure and procedures, data types, debugging and error tracer types, data, records, files, and arrays.

22C:10 Programming Techniques (3 s.h.)

Structures

Introduction to 22C:10 uses, files, operators, sets, trees, stack, and stack structure; recursive; top-down design and structured programming; case studies of large programs; program documentation and maintenance.

22C:16 Computer Organizations and Assembly Language Programming

Introduction to hardware organization, memory addressing, and structure (CPU memory-I/O miss behavior, machine language vs. assembler language, addressing, loading, execution, and file systems) and implementation (assembler vs. machine language) and assembly language programming.

22C:16 Assembly Language (3 s.h.)

Basic, machine, examples, application to

modifying of data, graphics and their basic properties, trends, analysis of applications to models of systems, practical techniques with emphasis on education, development and design of problem-solving computer programs. Prerequisites: 22C:24, 22C:17, and 22C:16.

22C:2 Data Structures (3 s.h.)

Arrays, stacks, queues, lists, trees, tables, stacks, files, implementation techniques, dynamic memory management, algorithms for sorting, searching, and data structures, distance computations, database systems.

Prerequisites: 22C:10 and 22C:19.

22C:3 Programming Language Concepts (3 s.h.)

Syntax and semantics of programming languages, data types, standard symbols, language structures, language components block, functions, procedure and subprograms, operations and operators, loop and pattern matching, data access control, variance parameter passing, opportunities for research problems. Prerequisites: 22C:10 and 22C:19.

22C:1 Digital Systems and Computers

Review of digital systems and computer organization, components of digital computers, buses, instruction formats, instructions, code formats, instruction execution, pipelining concepts, control units, interrupt organization, microprocessor architecture and implementation, case studies of a minicomputer and a microcomputer.

22C:16 Introduction to Systems Software

Introduction to system programming concepts. Structure of language processors using examples from assembly language, macro processors, linkers, and loaders. Computer programs, operating systems, device drivers, disk input-output, computer harnessing, main memory management, storage allocation, operating system programming, software, reliability, error recovery, protection.

Prerequisites: 22C:17 and 22C:21.

22C:36 Operating System Concepts

Principles and paradigms of operating systems in computer science not available in other courses. Illustrates implementation of correct and complex systems concerning resource management. Prerequisite: consent of instructor.

Graduate Service Courses

22C:10 Introduction to Computing with FORTRAN (3 s.h.)

A programming course designed to provide the necessary background for effective use of FORTRAN BASIC computer structure, data representation, output, input, error, character set, and file organization.

22C:10 Introduction to Programming with Pascal (3 s.h.)

Programming and problem design techniques using Pascal. Standard and advanced features, such as comments, expressions, structured control constructs, block structure and procedures, data types, debugging and error tracer types, data, records, files, and arrays.

22C:10 Programming Techniques (3 s.h.)

Structures

Introduction to 22C:10 uses, files, operators, sets, trees, stack, stack structure; recursive; top-down design and structured programming; case studies of large programs; program documentation and maintenance.

22C:16 Computer Organizations and Assembly Language Programming

Introduction to hardware organization, memory addressing, and structure (CPU memory-I/O miss behavior, machine language vs. assembler language, addressing, loading, execution, and file systems) and implementation (assembler vs. machine language) and assembly language programming.

22C:16 Assembly Language (3 s.h.)

Basic, machine, examples, application to
Students are required to take two comprehensive examinations: one covering the content of ZM-179, ZM-171, and ZM-135; the other covering the content of ZM-101, ZM-102, and ZM-109. Two from the following.
2OM-150 Matrix Theory
2OM-151 Discrete Mathematical Models
2OM-152 Theory of Graphs
2OM-114 Operating Systems and Concurrent Programming
2OM-153 Design and Analysis of Algorithms
2OM-155 Introduction to Probability
2OM-154 Introduction to Mathematical Statistics
2OM-156 Introduction to Geometric Processes
or
2OM-167 Introduction to Mathematical Statistics
or
2OM-125 Introduction to Computing Theory
2OM-126 Introduction to Artificial Intelligence
Any 200-level course in computer science
2OM-153 Introduction to Proof in Mathematics
or
2OM-154 Introduction to Mathematical Statistics
or
2OM-167 Introduction to Stochastic Processes
or
Any statistics course having any of these three as a prerequisite.

Program II
This program is designed for secondary school teachers. The requirements are the same as those in Program I, except that two of the mathematics education courses are required.

Program III
This program is oriented toward applied mathematics. Students in this program must take these required courses.

2OM-151 Introduction to Linear Algebra
2OM-102 Intermediate Differential Equations
2OM-106 Continuous Mathematical Models
2OM-170 Numerical Techniques
2OM-171 Numerical Analysis: Differential Equations and Linear Algebra

These courses are not open to graduate students by special arrangement with the chair of the department.

2OM-101 Introduction to Linear Algebra
2OM-102 Intermediate Differential Equations
2OM-106 Continuous Mathematical Models
2OM-170 Numerical Techniques
2OM-171 Numerical Analysis: Differential Equations and Linear Algebra

Students are required to take two comprehensive examinations: one covering the content of ZM-179, ZM-171, and ZM-135; the other covering the content of ZM-101, ZM-102, and ZM-109.

Two from the following.
2OM-150 Matrix Theory
2OM-151 Discrete Mathematical Models
2OM-152 Theory of Graphs
2OM-114 Operating Systems and Concurrent Programming
2OM-153 Design and Analysis of Algorithms
2OM-155 Introduction to Probability
2OM-154 Introduction to Mathematical Statistics
2OM-156 Introduction to Geometric Processes

or
2OM-167 Introduction to Stochastic Processes
or
2OM-125 Introduction to Computing Theory
2OM-126 Introduction to Artificial Intelligence
Any 200-level course in computer science
2OM-153 Introduction to Proof in Mathematics
or
2OM-154 Introduction to Mathematical Statistics
or
2OM-167 Introduction to Stochastic Processes
or
Any statistics course having any of these three as a prerequisite.

Program II
This program is designed for secondary school teachers. The requirements are the same as those in Program I, except that two of the mathematics education courses are required.

Program III
This program is oriented toward applied mathematics. Students in this program must take these required courses.

2OM-101 Introduction to Linear Algebra
2OM-102 Intermediate Differential Equations
2OM-106 Continuous Mathematical Models
2OM-170 Numerical Techniques
2OM-171 Numerical Analysis: Differential Equations and Linear Algebra

These courses are not open to graduate students by special arrangement with the chair of the department.

2OM-101 Introduction to Linear Algebra
2OM-102 Intermediate Differential Equations
2OM-106 Continuous Mathematical Models
2OM-170 Numerical Techniques
2OM-171 Numerical Analysis: Differential Equations and Linear Algebra

Students are required to take two comprehensive examinations: one covering the content of ZM-179, ZM-171, and ZM-135; the other covering the content of ZM-101, ZM-102, and ZM-109.

Two from the following.
2OM-150 Matrix Theory
2OM-151 Discrete Mathematical Models
2OM-152 Theory of Graphs
2OM-114 Operating Systems and Concurrent Programming
2OM-153 Design and Analysis of Algorithms
2OM-155 Introduction to Probability
2OM-154 Introduction to Mathematical Statistics
2OM-156 Introduction to Geometric Processes

or
2OM-167 Introduction to Stochastic Processes
or
2OM-125 Introduction to Computing Theory
2OM-126 Introduction to Artificial Intelligence
Any 200-level course in computer science
2OM-153 Introduction to Proof in Mathematics
or
2OM-154 Introduction to Mathematical Statistics
or
2OM-167 Introduction to Stochastic Processes
or
Any statistics course having any of these three as a prerequisite.
Elementary Topics of General Interest

These courses are not open to graduate students except by special arrangement with the chair of the department.

2301 Elements of Group Theory
2302 Matrices
2303 Linear Algebra I
2304 Linear Algebra II
2305 Vector Spaces
2306 Vector Spaces II
2307 Vector Analysis
2308 General Topology
2309 Functions of a Real Variable

Elementary Differential Equations
2310 Ordinary Differential Equations
2311 Introduction to Ordinary Differential Equations

Partial Differential Equations
2312 Partial Differential Equations
2313 Partial Differential Equations I

Undergraduate: Upper Division

2331 Algebra
2332 Algebra
2333 Algebra
2334 Algebra

Mathematics/ Liberal Arts
Statistics and Actuarial Science

Department chair, John J. Beck
Faculty: professors Richard L. Dykstra, Robert V. Mogh,
Johannes Ledent, Russell V. Lenth, George G. Woodworth
associate professors William A. Kuyvenhoven, Charles P. Rothenberg
instructors Paul A. Muth, Steven R. Witten

Statistics and actuarial science build mathematical models for processes that involve random quantities, so that they may better understand and perhaps control these processes. For example, statisticians help design and analyze controlled experiments and scientific samples for industry, research, and government. Actuaries work in the insurance industry or as consultants dealing with the risk and uncertainty of potential financial losses. Statisticians and actuaries serve in academic institutions, not only in statistical teaching and research, but in medicine, social sciences, engineering, education, and other fields where modern research techniques are applicable.

Undergraduate Program

Also, see "Division of Mathematical Sciences." A student can earn a minor in statistics by taking 15 semester hours in statistics and actuarial science. This minor would be in courses numbered 225-105 and above.

The Bachelor of Science degree can be earned by taking one of the following three programs.

Actuarial Science

This program is designed to prepare students to enter the actuarial profession. The requirements are motivated by the education and examination programs of the principal actuarial organizations. Additional courses are specified to provide the students with a general knowledge of related business topics. The required courses in the program are:

220:7 Introduction to Computing with FORTRAN
220:16 Introduction to Programming with PASCAL
225:25-26 Calculus I-II
225:35-36 Engineering Calculus I-II
225:45-46 Accelerated Calculus I-II
225:27 Introduction to Linear Algebra
225:29 Calculus III
225:37 Engineering Calculus III
225:55 Fundamental Properties of Spaces and Functions
225:193 Introduction to Probability
225:154 Introduction to Mathematical Statistics
225:150 Methods of Statistical Inference
225:125 Actuarial Principles of Life Insurance
225:177 Numerical Analysis for Actuaries
225:180-182 Actuarial Theory I-II
66:1-2 Principles of Economics

At least two of the following:
6:1 Introduction to Financial Accounting
6:100 Introductory Financial Management
6:102 General Insurance
6:150 Introduction to Marketing
6:47 Introduction to Law
6:100 Administrative Management
Suggested additional courses:
225:26 Elementary Statistics and Inference
225:153 Introduction to Probability
225:183 Demography and Life Table Construction
225:184 Risk Theory
225:185 Theory of Pension Funding
6:121 Property and Liability insurance
6:122 Life and Health Insurance
6:275 Operations Research
56:170 Deterministic Operations Research
56:173 Stochastic Operations Research

It is recommended that the required and elective courses be taken in the following order. Students should note that in order to complete the program in four years, 225:153 Introduction to Probability must be taken no later than the fall semester of the junior year.

Freshmen: Fall
225:25 Calculus I
225:35 Engineering Calculus I
225:45 Accelerated Calculus I
225:15 Rhetoric

Freshmen: Spring
225:26 Calculus II
225:36 Engineering Calculus II
225:46 Accelerated Calculus II
225:26 Elementary Statistics and Inference
10:2 Rhetoric

Sophomore: Fall
225:27 Introduction to Linear Algebra
66:1 Principles of Economics
225:55 Fundamental Properties of Spaces and Functions

Sophomore: Spring
225:28 Calculus III
225:37 Engineering Calculus III
66:2 Principles of Economics
225:1 Introduction to Computing with FORTRAN
225:16 Introduction to Computing with PASCAL

Junior: Fall
225:153 Introduction to Probability
225:125 Actuarial Principles of Life Insurance
225:180 Actuarial Theory I

Junior: Spring
225:154 Introduction to Mathematical Statistics
225:185 Actuarial Theory II
6:275 Operations Research—MBA Business requirement
Senior: Fall
225:182 Actuarial Theory III
225:150 Methods of Statistical Inference
225:177 Numerical Analysis for Actuaries
Business requirement
Senior: Spring
225:183 Demography and Life Table Construction
225:184 Risk Theory
225:185 Theory of Pension Funding

Applied Statistics

This program is designed to prepare the student for a career in applied statistics or for graduate study in applied statistics or another discipline that incorporates statistical tools. The required courses in the program are:

220:7 Introduction to Computing with FORTRAN
220:16 Introduction to Programming with PASCAL
225:25-26 Calculus I-II
225:35-36 Engineering Calculus I-II
225:45-46 Accelerated Calculus I-II
225:27 Introduction to Linear Algebra
225:29 Calculus III
225:45 Accelerated Calculus I
225:154 Introduction to Mathematical Statistics
225:183 Analysis and Design of Experiments
225:173 Statistical Computation and Consulting

and at least two of the following:
63:163 Introduction to the Design of Sample Surveys
225:156 Applied Time Series Analysis
225:181 Application of Multivariate Statistical Techniques
225:183 Nonparametric Statistical Methods
225:25 Introduction to Stochastic Processes
225:158 Analysis and Design of Experiments
Students in this program are expected to take at least two non-introductory courses in some area in which statistics is applied, for example, geography, business, or science.

Mathematical Statistics
This program is designed to prepare students for graduate study in statistics. The required courses in the program are:
22M:25-26 Calculus I-II
22M:35-36 Engineering Calculus I-II
22M:45-46 Accelerated Calculus I-II
22M:57 Introduction to Linear Algebra
22M:38-39 Linear Algebra
22M:51 Fundamental Properties of Spaces and Functions
22M:111 Introduction to Analysis I
22M:153 Introduction to Probability
22M:154 Introduction to Mathematical Statistics

and at least three from the following:
22S:152 Regression Analysis
22S:158 Applied Time Series Analysis
22S:156 Analysis and Design of Experiments I
22S:154 Introduction to Discrete Probability Models
22S:187 Introduction to Stochastic Processes

Students are encouraged to learn a programming language and to take at least four courses in some area where statistics is an important tool, such as economics or psychology.

Master of Science
Each M.S. candidate will have a committee of three members, which will have the responsibility of recommending action on the candidate's degree. For nonthesis programs, the committee's first recommendation is usually based on two written examinations on topics covered in the required courses. For thesis programs, the committee's first recommendation is usually based upon an oral defense of the thesis, although it may be based upon a single written examination over the topics covered in the candidate's program of study. A student who chooses to earn the M.S. degree with thesis may sign up to six semester hours of 400-level credit for thesis preparation. Specific course requirements for the M.S. programs are given below. The minimum grade-point average required for each of these programs is 2.75.

Actuarial Science (with or without thesis)
22S:153 Introduction to Probability
22S:154 Introduction to Mathematical Statistics
22S:125 Methods of Statistical Inference
22S:125 Actuarial Principles of Life Insurance
22S:180-182 Actuarial Theory I-II
22S:177 Numerical Analysis for Actuaries

At least three courses from:
22S:183 Demography and Life Table Construction
22S:184 Risk Theory
22S:185 Theory of Pension Funding
An approved course in operations research
Students who have had the equivalent of 22S:153-154 at another institution may waive this requirement only if they have passed Part II of the Examinations of the Society of Actuaries.

Theoretical Statistics and Probability
(with or without thesis)
22S:113 Introduction to Analysis I
22S:153 Introduction to Probability
22S:154 Introduction to Mathematical Statistics
22S:187 Introduction to Stochastic Processes
22S:201 Theory of Statistics I
At least two of these:
22S:164 Introduction to Discrete Probability Models
22S:172 Topics in Statistics
22S:202 Theory of Statistics II
22S:230 Introduction to the Theory of Nonparametric Statistics
22S:253-254 Advanced Inference I-II
22S:255 Linear Models
22S:256 Multivariate Analysis
22S:264-265 Theory of Probability II

Applied Statistics (without thesis)
22S:153 Introduction to Probability
22S:154 Introduction to Mathematical Statistics
22S:156 Analysis and Design of Experiments I
22S:152 Regression Analysis
22S:173 Statistical Computation and Consulting

At least two of the following:
22S:156 Applied Time Series Analysis
22S:181 Application of Mathematical Statistical Techniques
22S:185 Analysis and Design of Experiments II

The remainder of the program will consist of at least two additional courses numbered 22S:133 or above, and other courses approved by the advisor. Experience in a computer language such as FORTRAN is required. If the student satisfies 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 a student may concentrate on an area of application in addition to the required statistics courses. The student should work closely with his or her advisor in developing a program of study tailored to the student's specific interests. If the student's interest in a particular areas application 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 sociostatistics (preventive medicine and environmental health).

Applied Statistics
(with thesis)
22S:153 Introduction to Probability
22S:154 Introduction to Mathematical Statistics

At least two of these:
22S:152 Regression Analysis
22S:156 Applied Time Series Analysis
22S:158 Analysis and Design of Experiments I
22S:181 Application of Multivariate Statistical Techniques
22S:188 Analysis and Design of Experiments II

The remainder of the program will consist of at least two additional courses numbered 22S:133 or above, and other courses approved by the advisor. With the advisor's approval, courses in other fields related to the thesis may be substituted.

Experience in a computer language such as FORTRAN is required. If the student satisfies the requirement by taking a course, that course may not be counted toward the M.S. semester-hour requirement.

The typical thesis would be 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 three semester hours of 22S:191 individual study for two semesters.

Doctor of Philosophy
To satisfy the course requirements for a Ph.D. in statistics, a student must successfully complete:
22M:211: Analysis II
22M:112: Regression Analysis
22S:158 Analysis and Design of Experiments I
22S:187 Introduction to Stochastic Processes
22S:173 Statistical Computation and Consulting
22S:253 Advanced Inference I
22S:255-256 Advanced Models
22S:264 Theory of Probability I

At least two semester hours of any combination of the following:
22S:201 Seminar: Mathematical Statistics
22S:203 Seminar: Probability
22S:205 Seminar: Applied Statistics

At least one of the following:
22S:156 Applied Time Series Analysis
225:181 Application of Multivariate Statistical Techniques 4 h. Statistical inference, linear models, and probability. These topics are generally covered in 225-201, 225-202, 225-250, and 225-264. This is followed by an individualized examination on a topic selected by the candidate and his or her committee. The purpose of the program is to permit the student to demonstrate an area of strength; the format is at the discretion of the student's committee. Study guides for the core examination are available from the departmental secretary.

Special Features
Because statistics are often learned with other disciplines in research projects, it is important that students gain experience in group efforts. In several courses, the department tries to provide this experience. In addition, the departmental houses the Statistical Consulting Center, which offers assistance to members of the University community in planning experiments and carrying out the analysis of experimental data. Under faculty supervision, graduate students participate in these activities as part of their training.

Although the majority of Statistical Consulting Center projects involve statistical problems arising in these departments, the center also seeks involvement in larger research projects and in the writing of proposals.

Courses
Primary for Undergraduates
225:110 Introductions to Probability 3 h.
225:120 Mathematical Statistics 3 h.
225:151 Numerical Analysis 3 h.
225:160 Introduction to Statistics 3 h.
225:165 Introduction to Statistical Computing 3 h.
225:170 Applied Statistics 3 h.
225:180 General Statistics 3 h.
225:200 Biological Statistics 3 h.
225:201 Biostatistics 3 h.
225:202 Business Statistics 3 h.
225:203 Categorical Data Analysis 3 h.
225:210 Descriptive Statistics 3 h.
225:220 Elementary Statistics 3 h.
225:225 Introduction to Probability and Statistics 3 h.
225:230 Mathematical Statistics 3 h.
225:241 Regression Analysis 3 h.
225:242 Time Series Analysis 3 h.
225:243 Nonparametric Statistics 3 h.
225:244 Survival Analysis 3 h.
225:250 Multivariate Analysis 3 h.
225:251 Introduction to Multivariate Analysis 3 h.
225:252 Computer Applications in Multivariate Analysis 3 h.
225:253 Introduction to Multivariate Analysis 3 h.
225:254 Computer Applications in Multivariate Analysis 3 h.
225:255 Introduction to Multivariate Analysis 3 h.
225:256 Computer Applications in Multivariate Analysis 3 h.
225:257 Introduction to Multivariate Analysis 3 h.
225:258 Computer Applications in Multivariate Analysis 3 h.
225:259 Introduction to Multivariate Analysis 3 h.
225:260 Computer Applications in Multivariate Analysis 3 h.
225:261 Introduction to Multivariate Analysis 3 h.
225:262 Computer Applications in Multivariate Analysis 3 h.
225:263 Introduction to Multivariate Analysis 3 h.
225:264 Computer Applications in Multivariate Analysis 3 h.
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225:270 Computer Applications in Multivariate Analysis 3 h.
225:271 Introduction to Multivariate Analysis 3 h.
225:272 Computer Applications in Multivariate Analysis 3 h.
225:273 Introduction to Multivariate Analysis 3 h.
225:274 Computer Applications in Multivariate Analysis 3 h.
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225:276 Computer Applications in Multivariate Analysis 3 h.
225:277 Introduction to Multivariate Analysis 3 h.
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225:296 Computer Applications in Multivariate Analysis 3 h.
225:297 Introduction to Multivariate Analysis 3 h.
225:298 Computer Applications in Multivariate Analysis 3 h.
225:299 Introduction to Multivariate Analysis 3 h.
225:300 Computer Applications in Multivariate Analysis 3 h.
225:301 Introduction to Multivariate Analysis 3 h.
225:302 Computer Applications in Multivariate Analysis 3 h.
225:303 Introduction to Multivariate Analysis 3 h.
225:304 Computer Applications in Multivariate Analysis 3 h.
225:305 Introduction to Multivariate Analysis 3 h.
225:306 Computer Applications in Multivariate Analysis 3 h.
microbes in stabilisation of the biosphere by recycling, and detoxifying waste products. The generalisation and regulation of the immune response, including identification, classification, and the detection of hybrid cell lines able to produce antibodies of single type (monoclonal antibodies).

Microbiology is an excellent major for undergraduate students who want a good general education with emphasis on an important and interesting branch of biology. For the graduate with a bachelor's degree in microbiology positions are available in government, hospitals, public health laboratories, research laboratories, and industrial laboratories (food, dairy, chemical, pharmaceutical, and genetic engineering companies).

Students who continue beyond the bachelor's degree have career opportunities in these same areas, plus college and university teaching, with greater responsibilities and commensurately higher salaries.

**Bachelor of Science**

An undergraduate student majoring in microbiology at The University of Iowa must meet general education requirements of the College of Liberal Arts. Students who become microbiology majors before the summer session of 1984 must complete a minimum of 14 semester hours of microbiology to obtain a B.S. degree. Students who become microbiology majors after spring 1984 must complete a minimum of 24 semester hours in microbiology to obtain a B.S. degree. In both cases, no more than two hours must be of 611-615.

Problems in Microbiology and one semester hour of 611-615 Seminar in Microbiology may count toward this requirement.

Students desiring to apply for certification by the National Registry of Microbiologists are required to earn 30 semester hours of credit in biology, or 20 semester hours of which must be in microbiology. Certification is required for employment or advancement in some areas (primarily in diagnostic microbiology).

Students are permitted to take microbiology courses more advanced than 611-615 General Microbiology if they receive a C or above in 611-615. Mathematics and science courses required by the department for the B.S. degree must be taken for letter grades.

Required courses other than microbiology courses for students who become microbiology majors prior to summer 1984 include the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:13</td>
<td>Principles of Chemistry I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>4:14</td>
<td>Principles of Chemistry II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>4:16</td>
<td>Principles of Chemistry Lab</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>4:101</td>
<td>Elementary Quantitative Analysis</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

**Honors Program**

Open to seniors with a grade-point average of at least 3.2 overall and a 3.5 in microbiology courses. The honors program in microbiology involves taking 25 semester hours of course work in microbiology, including six semester hours in 611-617 Honors Microbiology. These two courses constitute an introduction to experimental research. At the end of the research, the student prepares a written report. A student successfully completing these requirements qualifies the B.S. degree with honors.

**Graduate Study, Faculty Roster, Courses**

See "The College of Medicine" section of the Catalog.

**Military Science**

**Department Head:** Lieutenant Colonel Roger W. Larson. Faculty: Professor Roger W. Larson (Lieutenant Colonel). Assistant Professor Charles M. Hoeller (Major), Bruce J. Cassidy (Captain), Michael W. H. Capers (Captain), Barney C. Carpenter (Captain). Instructors: William W. Bailey (Maj), Richard A. Chorley (2dL)

The Department of Military Science is the academic unit authorizing the Army Reserve Officers' Training Corps (ROTC) program at The University of Iowa. Freshmen and sophomores who are interested in leadership and management may pursue this program. Opportunities in the program carry credit applicable toward a degree.

The ROTC Basic Course for freshmen and sophomores provides academic instruction on the fundamentals of leadership and management plus an introduction to military organizations. The American society and current military organization and capabilities, Military history is highlighted in tracing the development of military principles and doctrine utilized in modern military operations and organizations.

The ROTC Advanced Course for junior and senior students addresses the dynamics of organizational leadership from the small group level to large and diversified organizations. Practice instruction in developing individual leadership skills is emphasized. Between the junior and senior years, students attend a six-week, paid, advanced training camp at Fort Lewis, Washington. Selected students may also participate in active army training programs such as Ranger School, Air Assault School, Northern Warfare School, and Airborne Training.

Students who successfully complete the Advanced Course receive a commission as a second lieutenant in the U.S. Army Reserve. Students who qualify for admission to the National Guard of U.S. Army Reserve may remain in the ROTC program as a voluntary duty for a minimum of three years.

Students who have not taken the basic course may qualify for the advanced course by attending a basic camp during summer, all expenses paid, or by participating in an on-campus summer leadership course. Students who qualify may be admitted to the advanced course by taking 23 998 Fundamentals of Military Science and Operation.

**Credit for Prior Training**

Students with prior military training or experience may qualify for Basic Course credit and be allowed entrance into the Advanced Course. Prior service personnel are given advanced placement within the ROTC program and are eligible for a commission within two years.

Although the Army ROTC program normally spans four years, it can be completed in two, three, or four years, with departmental approval.

**Graduate School**

Students are admitted as lieutenants upon graduation from The University of Iowa only upon the refusal of an OAR for duty to attend graduate school. No
additional time is required on active duty for such delays. Duly executed for up to three years to attend medical, dental, and law schools are normally granted.

Special Programs
The Black Berets is a fraternal organization, engaging in intercollegiate military activities, and compete for individual local and national awards. In addition to the annual Black Beret, a formal dinner called Cadet Corps Dinner-in, and an awards ceremony.

Special Facilities
The department uses several areas near Iowa City for practical field problems and military skills instruction. It includes a variety of military equipment, such as helicopters and FM radios, in practical leadership exercises and in support of Field Training. Cadets visit Rock Island Arsenal, Rock Island Corps of Engineers District, and Camp Dodge, near Des Moines, to observe armament operations and review equipment. Cadets also use the Camp Dodge leadership reaction course, orienteering course, and rappelling facilities.

Financial Aid
Reserve Officers Training Corps scholarships, providing tuition, allowance for books, laboratory fees, and a $100- per-month tax-free subsistence allowance, are available to high school seniors and students enrolled in military science courses. Three- and two-year scholarships are also available. All cadets in the advanced course receive a full scholarship and a tax-free subsistence allowance. Cadets attending summer camp are entitled to receive travel allowances. Students are supplied with books for University classes taught by military faculty and uniforms for training exercises. Veterans continue to draw both the ROTC allowances plus any other benefits to which they are entitled. Non-scholarship advanced course students also may participate in the Simultaneous Membership Program (SMP) with the U.S. Army Reserve or National Guard. SMP cadets earn approximately $4,600.00 per year and serve as orderlies within the local area while attending the University.

Courses
2231 Introduction to the Military
2232 Introduction to the Army

Museum Training
Department chair and curator, George G. Shumway, presents the Tour of Duty to the Director, an associate professor in the history of science. Through the years, the Missouri Historical Society has served the University of Iowa with its instructional and research capabilities. The Missouri Historical Society offers courses which provide a fundamental background in the history, philosophy, and management of museums; their functions and operational procedures; and the conceptual, design, and technical aspects of exhibits. These courses have been offered continuously since 1919. The museum-instructional program at The University of Iowa is the oldest of more than 175 university- and college-based curricula in the United States. The museum field is expanding, and graduates of the University occupy positions of responsibility as directors, curators, and exhibit specialists in museums throughout the United States and Canada. A major in one of the natural science disciplines (biology, geology, or botany), anthropology, science education, art, or history is recommended for students preparing for museum careers. Courses are offered during the annual eight-week summer session as well as during the regular academic year. Those elective college courses count toward the B.A. or B.S. degree.

For graduate work, courses may be credited as a formal museum minor concentration on a master's degree in anthropology or science education, or a Ph.D. degree in science education. Inquiries regarding program details should be directed to the appropriate major department.

Courses

2231 Introduction to the Military
2232 Introduction to the Army

Museum Training
Department chair and curator, George G. Shumway, presents the Tour of Duty to the Director, an associate professor in the history of science. Through the years, the Missouri Historical Society has served the University of Iowa with its instructional and research capabilities. The Missouri Historical Society offers courses which provide a fundamental background in the history, philosophy, and management of museums; their functions and operational procedures; and the conceptual, design, and technical aspects of exhibits. These courses have been offered continuously since 1919. The museum-instructional program at The University of Iowa is the oldest of more than 175 university- and college-based curricula in the United States. The museum field is expanding, and graduates of the University occupy positions of responsibility as directors, curators, and exhibit specialists in museums throughout the United States and Canada. A major in one of the natural science disciplines (biology, geology, or botany), anthropology, science education, art, or history is recommended for students preparing for museum careers. Courses are offered during the annual eight-week summer session as well as during the regular academic year. Those elective college courses count toward the B.A. or B.S. degree.

For graduate work, courses may be credited as a formal museum minor concentration on a master's degree in anthropology or science education, or a Ph.D. degree in science education. Inquiries regarding program details should be directed to the appropriate major department.

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Music

School director: Marilyn Sonville

Associate director: John D. Hall


A primary element in a fine arts community of international repute, the University of Louisville has been recognized for many years as one of the most distinguished music schools in the United States. The school's on-campus enrollment of 600 students majoring in music is large enough to sustain strong programs in all areas of specialization, yet small enough to ensure the individual attention essential to each student's development.

The faculty consists of highly trained artist-teachers in each area of specialization. Faculty emeritus in residence include the Streadman String Quartet, Iowa Woodwind Quintet, Iowa Brass Quintet, Percussion Quartet, Vocal Quartet, and the Baroque Players.

In addition to the instruction that faculty members are offered in all band and orchestra instruments, the faculty advises and conducts annual music festivals, near or distant. At the undergraduate level, the school's curriculum offers all interested students an opportunity for further study of music toward either professional or avocational goals. The graduate curricula are designed primarily as preparation for teaching in secondary schools, colleges, and universities, and for careers in performance.

The school is the charter member of the National Association of Schools of Music.

Undergraduate Programs

The school offers the Bachelor of Arts and the Bachelor of Music. Cognates are the same for both, except that candidates for the B.M. degree may, and candidates for the B.A. may not, count more than 50 semester hours of course work in music toward the 124 semester hours required for graduation; and the foreign language requirement for the B.A. is one year of college-level study, while the performance requirement for the B.A. is two years. Areas of concentration offered in both programs are performance, music education, music therapy, composition, theory, and music history.

General Requirements

All undergraduate enrollments require School of Music approval. Entering undergraduate students planning to major in music are expected to audition either in person or by tape recording in advance of registration. All transfer students must audition either on the day of the advisory examination in music theory (see "Graduate Programs") below. Students with deficiencies in theory must register or 251-11 Review Theory.

At baccalaureate candidates in music must satisfy all College of Liberal Arts general requirements except the historical perspectives requirement (see the College of Liberal Arts section of the Catalog for these requirements). and the following course requirement of the School of Music:

251-12 Literature and Theory I
251-34 Aural Skills II
251-56 Literature and Theory II
251-74 Aural (HIS IV)
251-91 History of Music I
251-72 Aural (HIS IV)
251-92 History of Music II

An additional requirement for the Bachelor of Music will be the successful completion of proficiency exams I and II.

Recital Attendance (required of wind, percussion, string, and voice majors for seven semesters)

251-144 Senior Recital

Four semester hours of electives from the following:

251-15 Undergraduate Composition

251-117 Arranging for Band

or 251-101 Jazz Improvisation I

251-102 Jazz Improvisation II

251-157 Orchestration

251-157 Contrapuntal Forms

251-157 Tonal Analysis

251-148 Analysis of Music Literature

251-168 Analysis of Music Literature

251-151 Analysis of Music Literature

251-192 Present Music Literature

251-152 Analysis of Music Literature

251-192 Present Music Literature

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251-152 Analysis of Music Literature

251-192 Present Music Literature
String Majors

Instructor in performance 2 s.h.
(Violin and viola majors take one year of 25:23 Cello and violon majors take one year of 25:21 Violin)
25:100 Cello Strings 1-2 s.h. (Violinists take viola and bass; violists take viola and bass; cellists take viola and bass; clarinettists take viola and oboe; cornets take violin and bass)
75:143 Instrumental Techniques 2 s.h.
(2nd clarinet, 1st cornet)
25:107 Instrumental Conducting I 2 s.h.
25:108 Instrumental Conducting II 1 s.h.
75:200 String Methods and Materials 4 s.h.
7E:144 Methods and Materials: Elementary School Instrumental Music 2 s.h.
75:191 Observation and Laboratory Practice in the Elementary School 6 s.h.
7E:192 Laboratory Practice in the Elementary School 5 s.h.
7E:197 Seminar: Curriculum and Student Teaching 1 s.h.
Brass, Woodwind, or Percussion Majors

Brass, woodwind, and percussion majors in music education shall participate in a concert band each semester, and in marching bands for two fall semesters during the first two years at residence at the University. Students may substitute marching band program techniques for marching band, with permission of their adviser and the Director of Bands. Courses:

75:143 Instrumental Techniques 8 s.h.
25:197-198 Instrumental Conducting 3 s.h.
7E:144 Methods and Materials: Elementary School Instrumental Music 2 s.h.
75:136 Practice Band Instrument Care and Repair 1 s.h.
7E:140 Band Methods and Materials 3 s.h.
75:191 Observation and Laboratory Practice in the Secondary School 6 s.h.
7E:192 Laboratory Practice in the Elementary School 6 s.h.
7E:197 Seminar: Curriculum and Student Teaching 1 s.h.
Vocal and Keyboard Majors

75:187 Vocal Literature and Conducting 3 s.h.
25:115-116 Dictation for Singers I- II 4 s.h.
7E:145 Methods and Materials: Elementary School General Music 3 s.h.
75:142 Methods and Materials: Secondary School General Music 3 s.h.
7E:191 Laboratory Practice in the Secondary School 6 s.h.
7E:192 Laboratory Practice in the Elementary School 6 s.h.
7E:197 Seminar: Curriculum and Student Teaching 1 s.h.
Keyboard majors preparing for music teacher certification must pass the proficiency examination of 25:71-72 Group Instruction in Piano I-II. Keyboard majors lacking satisfactory competence in voice also must pass the Voice I and II.

Keyboard Majors (Nonvoice)

Keyboard majors who wish to specialize in the nonvoice area must complete the requirements in either the brass-woodwind-percussion or string areas, and pass the proficiency examination of 25:71-72 Group Instruction in Piano I-II.

Teaching Minor

A student qualifies for certification as an elementary school general music teacher by completing the approved certification program for elementary teachers, and 22-23 semester hours as follows:

7E:159 Beginning Guitar 3 s.h.
7E:145 Methods and Materials: Elementary School General Music 3 s.h.
7E:192 Laboratory Practice in the Elementary School 2-3 s.h.
Applied music (chorus, band, or orchestra) 2 s.h.
The following courses must be offered in addition to the above courses:

25:11 Literature and Theory I 3 s.h.
25:2 Literature and Theory II 3 s.h.
25:10 Fundamentals of Music 3 s.h.
25:13-14 Musicianship of Music 6 s.h.
A student who wishes to complete an area of specialization in music without teacher certification may substitute other courses for 7E:192 with the adviser's approval.

Music Therapy

Admission to the program in music therapy is based on demonstration minimum keyboard skills and successful completion of 25:11 Orientation to Music Therapy. The number of students admitted to the program is limited by the types and amounts of clinical experience available on campus. In addition to the specific courses in music therapy listed below, specific courses are required in biology, sociology, abnormal psychology, and social psychology.

A six-month internship is an approved off-campus clinical facility is required before the completion of the degree and certification as a registered music therapist (RMT). For more job opportunities, students also are strongly encouraged to complete the music

teacher certification requirements. Complete information on the program is available in the music education office. Course requirements for the major in music therapy are:

25:94 Music Therapy Techniques 1-3 s.h.
25:95 Recreational Music Techniques, approved by 2 s.h.
25:11 Orientation to Music Therapy 2 s.h.
7E:194 Psychology of Music 2 s.h.
7E:149 Behavioral Research in Music Therapy 2 s.h.
25:138 Music Therapy Techniques: Aphasia Children 3 s.h.
25:139 Music Therapy Techniques: Aphasia Children 3 s.h.
25:140 Internship in Music Therapy 2 s.h.

Composition/Theory Major

Students are not admitted to this program earlier than the end of the sophomore year. Upon application for admission to the program, the candidate will be assigned a faculty adviser, in consultation with whom a course of study leading to the degree will be determined. Admission is based on achievement in composition and/or theory. Keyboard proficiency and recital attendance requirements are those of the B.M. degree. Course requirements are those of the B.M. degree plus an additional eight semester hours or theory courses.

The thesis replaces the senior recital required of applied music majors, and consists of one or more original compositions. The student may take Composition/Theory faculty and perform on regularly scheduled School of Music recitals, and/or a faculty-approved scholarly paper dealing with theoretical issues.

Until admitted to the Composition/Theory Program, the student must take private lessons in voice or on his or her major instrument. Following admission, the student undertakes applied music study as recommended by the adviser.

Ensemble participation is that required of the B.M. candidate.

Honors

A student with junior or senior standing may undertake honors work in music with the approval of the director of the College of Liberal Arts Honors Program, and provided a School of Music faculty member sponsors the student a honors status and the student has maintained a minimum grade-point average of 3.2 on all previous work undertaken at the University.

A student maintaining the minimum a 2 average qualifies for graduation "with honors" by completing satisfactorily from six to eight semester tours in 25:97
Honors in Music. Types of honors projects for which credit is given is 25:97 and honors performances, solo and/or ensemble; honors composition, orchestrations, arrangements, and honors essays, research papers, editorials, translations, etc.; A combination of at least two of these types of projects is required. None of the projects may be of projects assigned in other courses or required for graduation, such as 25:144 Senior Recital.

Honors students in music are encouraged to take graduate-level courses. Advanced coursework work in music history, music theory, and languages is particularly recommended. An honors committee of at least three faculty members is appointed by the honors approval to evaluate the student's work.

Financial Aid
A number of music activity scholarships are available to qualified undergraduate music majors. For information, write to the School of Music.

Graduate Programs
The entering graduate student must take the School of Music advisory examination in music theory (harmony, ear training, form, and counterpoint), and history of literature, before his or her first registration. The advisory examination is given each session on the two days (excluding Sunday) before registration. A leaflet describing the general content of these tests may be obtained the Dean's Office, School of Music. For general graduate administration, degree, and examination requirements, see the Graduate College section of the catalog.

Theory Minor
Candidates for graduate degrees in music may elect a minor in music theory pedagogy by completing the following courses:
25:145 Contrapuntal Form 3 s.h.
25:147 Tonal Forms (unless excluded by advisory exam) 3 s.h.
25:234 Observation and Practice Teaching in Theory 1-2 s.h.
25:236 Method and Practice of Teacher's Basic Theory 3 s.h.
plus two courses from the following:
25:148 Analysis of Music Literature 1600-1750 3 s.h.
25:149 Analysis of Music Literature 1750-1829 3 s.h.
25:150 Analysis of Music Literature 1829-1890 3 s.h.
25:151 Analysis of Music Literature 1890-1932 3 s.h.
25:192 Analysis of Music Literature Special Topics 3 s.h.

Master of Arts
The Master of Arts with thesis is offered in the areas of performance (including conducting), composition, music theory, and musicology. The Master of Arts without thesis is offered in the areas of music education and instrumental or vocal pedagogy (including accompanying). Both require a minimum of 36 post-baccalaureate semester hours. Information about specific admission and curricular requirements for each degree is available from the School of Music. All pursuits must include the requirements listed below:
General
25:311 Introduction to Graduate Study in Music
Music Theory
25:240 Introduction to Contemporary Analysis and Theory 3 s.h.
One elective from:
25:11 Review Theory as determined by advisory exam.
Music History
25:301-302 Advanced History and Literature of Music I
or equivalent, or satisfactory advisory examination score.
Ensemble Participation
Students shall participate in a major ensemble each semester of residence (see previous list of the major ensemble). During the summer term, students shall be available for ensemble participation as needed. Ensemble assignments are made at the discretion of the major teacher, the ensemble director, and the major professor. All majors shall participate in a major ensemble, at their advisor's discretion. Theory, compositional, and music education majors may, with their advisor's permission, substitute other ensembles. Any requests for adjustment of the requirement must be submitted in writing to a reviewing committee consisting of the ensemble director, the major professor, and a representative from the School of Music. This committee will meet regularly at the end of each year participation period.
Admission
Before an applicant will be considered for admission, he or she must have submitted supporting materials in his or her indicated area of concentration, as follows:
Composition—representative musical scores
Theory—analysis or research papers
Music education—no materials required
Performance (including conducting)— audition
Musicology—research papers, thesis
Pedagogy—contact School of Music Information about specific admission and curricular requirements for each area is available from the director's office.

Master of Fine Arts
The M.F.A. is for students of superior ability in the fields of composition, instrumental/vocal performance, conducting, and opera theater directing. It requires a minimum of 48 post-baccalaureate semester hours.
In addition to the entrance and curricular requirements for the Master of Arts degree, the student must also present at least two full-length recitals or programs (25:403 M.F.A. Thesis), for which a maximum of eight semester hours of credit will be granted. The student may earn a Master of Arts degree while working toward the Master of Fine Arts degree, but all requirements for each degree must be met separately, including two full recitations, with a minimum combined total of 60 semester hours of graduate credit. (See the Graduate College section of the Catalog for further details.)

Doctoral Degrees
General Requirements
All doctoral study in music includes:
Minimum course requirements listed under the M.A. degree.
One or more additional electives from the analytical studies sequence 25:148-152 or equivalent.
One or more additional courses in the history of music chosen from those listed in the master's degree requirements.
25:295 Musical Acoustics or equivalent.
Reading proficiency in at least one foreign language (must be completed before comprehensive examination). Music education students may substitute subject courses in statistics for this requirement.

and Dissertation
Doctoral students shall be available for participation in major ensembles during each term of registration unless excused by their advisor (see previous list of major ensembles). During the summer term, students shall be available for ensemble participation as needed. Keyboard majors may substitute accompaniment in place of a major.
ensemble, at the discretion of their advisors.

**Doctor of Philosophy**

Areas of concentration for the Ph.D. inclue composition, musicology, music education, music theory, and music literature.

The music literature program is designed for students who have already achieved a professional level of musical performance. The student is required to audition in his or her major performance area.

Information about specific admission and curricular requirements for each area is available from the department's office.

**Doctor of Musical Arts**

Requirements for the D.M.A. degree in performance and pedagogy are the general doctoral requirements of the school, except that the D.M.A. dissertation consists of three full-length recitals or two recitals and a concerto performance with orchestra or other appropriate ensemble. Vocalists may substitute the execution of one or more major roles in a large-scale work for one of their recitals. Conductors will present two programs.

D.M.A. candidates must also give evidence of their ability to make a scholarly investigation of limited scope by means of a written essay.

**Admission**

Before an applicant will be considered for admission to a doctoral program, he or she must have submitted supporting materials in his or her indicated area of concentration, as follows:

- **Composition—representative musical scores**
- **Theoretical analyses or research papers**
- **Music education—research papers**
- **Music literature—research papers and audition**
- **Performance (including conducting)—audition**

**Facilities**

The University of Iowa Center for the Arts has one of the nation's finest facilities for teaching and performance in music. In addition to all university and seminar rooms, the Music Building includes 215 teaching studios, 75 practice rooms, a large library, two electronic music laboratories, ear training and testing facilities with 50 listening posts, four large rehearsal halls, ample solo and ensemble practice facilities, professional recording facilities, a fine arts computer studio with six terminals and five microcomputers, eight practice and recital organs, and the 720-seat Clapp Recital Hall. Harman Auditorium seats 2,880 people for concerts. 2,400 for operas and other stage productions.

**Graduate Awards**

Qualified graduate students are invited to apply for teaching and research assistantships. Information should be directed to the School of Music.

**Music for Nonmajors**

Courses particularly recommended for students who are not majoring in music but have an interest in music are included in the sequence 25:13-14:1.

**Courses**

**General**

- **25:15 Masterpieces of Music** 3 h.
- **25:16 Masterpieces of Music** 3 h.
- **Theory and Composition**
  - **25:1 Literature and Theory I** 3 h.
  - **25:2 Literature and Theory II** 3 h.
  - **25:3 Literature and Theory III** 3 h.

**Facilities**

The Center for the New Performance Arts is an interdisciplinary center linking the University's schools of Music and Art and its film, dance, theater, and creative writing areas. The center's basic purpose is to encourage talented youth, arts, to develop their creative skills through multimedia and interdisciplinary classes, projects, and performances.
Music Education

Other music education courses are offered by the divisions of Elementary Education and Secondary Education in the College of Education. See those sections of the Catalog for listings and descriptions. Where circumstances are indicated, students preparing for music teaching certification should register under the education number.

21.07 Group Instruction in Piano II 1.0 h.

21.10 Group Instruction in Orchestra 1.0 h.

21.19 Group Instruction in Voice 1.0 h.

21.21 Speech and Hearing Laboratory 0.5 h.

Honors Program

21.31 Honors in Music 1.0 h.

Music Education

Music Education courses are offered by the divisions of Elementary Education and Secondary Education in the College of Education. The Honors in Music Program is open to all students who demonstrate superior ability and are interested in pursuing work beyond the regular curriculum. All honors music classes are subject to the approval of the Department of Music. The Honors in Music Program is open to all students who demonstrate superior ability and are interested in pursuing work beyond the regular curriculum. All honors music classes are subject to the approval of the Department of Music.

21.32 Honors in Music 1.0 h.

21.33 Honors in Music 1.0 h.

21.34 Honors in Music 1.0 h.

21.35 Honors in Music 1.0 h.

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21.99 Honors in Music 1.0 h.

Applied Music

The student is charged a fee of $75 per semester for registration in all applied music courses in fees and major fields of performance. Course work consists of individual or group class lessons, at the option of the instructor. Lessons are given in one hour per week. Students may register for one to four hours as recommended by their adviser. Students electing two applied music courses in the same semester are assessed a fee of $115. All music majors are expected to attend seminars of the applied music courses for which they register.

Undergraduate Major

21.11 Advanced Choral Conducting IV 1.0 h.

21.12 Advanced Choral Conducting V 1.0 h.

21.13 Advanced Choral Conducting VI 1.0 h.

21.14 Advanced Choral Conducting VII 1.0 h.

21.15 Advanced Choral Conducting VIII 1.0 h.

21.16 Advanced Choral Conducting IX 1.0 h.

21.17 Advanced Choral Conducting X 1.0 h.

21.18 Advanced Choral Conducting XI 1.0 h.

21.19 Advanced Choral Conducting XII 1.0 h.

21.20 Advanced Choral Conducting XIII 1.0 h.

21.21 Advanced Choral Conducting XIV 1.0 h.

21.22 Advanced Choral Conducting XV 1.0 h.

21.23 Advanced Choral Conducting XVI 1.0 h.

21.24 Advanced Choral Conducting XVII 1.0 h.

21.25 Advanced Choral Conducting XVIII 1.0 h.

21.26 Advanced Choral Conducting XIX 1.0 h.

21.27 Advanced Choral Conducting XX 1.0 h.

21.28 Advanced Choral Conducting XXI 1.0 h.

21.29 Advanced Choral Conducting XXII 1.0 h.

21.30 Advanced Choral Conducting XXIII 1.0 h.

21.31 Advanced Choral Conducting XXIV 1.0 h.

21.32 Advanced Choral Conducting XXV 1.0 h.

21.33 Advanced Choral Conducting XXVI 1.0 h.

21.34 Advanced Choral Conducting XXVII 1.0 h.

21.35 Advanced Choral Conducting XXVIII 1.0 h.

21.36 Advanced Choral Conducting XXIX 1.0 h.

21.37 Advanced Choral Conducting XXX 1.0 h.

21.38 Advanced Choral Conducting XXXI 1.0 h.

21.39 Advanced Choral Conducting XXXII 1.0 h.

21.40 Advanced Choral Conducting XXXIII 1.0 h.

21.41 Advanced Choral Conducting XXXIV 1.0 h.

21.42 Advanced Choral Conducting XXXV 1.0 h.

21.43 Advanced Choral Conducting XXXVI 1.0 h.

21.44 Advanced Choral Conducting XXXVII 1.0 h.

21.45 Advanced Choral Conducting XXXVIII 1.0 h.

21.46 Advanced Choral Conducting XXXIX 1.0 h.

21.47 Advanced Choral Conducting XL 1.0 h.

21.48 Advanced Choral Conducting XLI 1.0 h.

21.49 Advanced Choral Conducting XLII 1.0 h.

21.50 Advanced Choral Conducting XLIII 1.0 h.

21.51 Advanced Choral Conducting XLIV 1.0 h.

21.52 Advanced Choral Conducting XLV 1.0 h.

21.53 Advanced Choral Conducting XLVI 1.0 h.

21.54 Advanced Choral Conducting XLVII 1.0 h.

21.55 Advanced Choral Conducting XLVIII 1.0 h.

21.56 Advanced Choral Conducting XLIX 1.0 h.

21.57 Advanced Choral Conducting L 1.0 h.

21.58 Advanced Choral Conducting LI 1.0 h.

21.59 Advanced Choral Conducting LII 1.0 h.

21.60 Advanced Choral Conducting LIII 1.0 h.

21.61 Advanced Choral Conducting LIV 1.0 h.

21.62 Advanced Choral Conducting LV 1.0 h.

21.63 Advanced Choral Conducting LX 1.0 h.

21.64 Advanced Choral Conducting LXI 1.0 h.

21.65 Advanced Choral Conducting LXII 1.0 h.

21.66 Advanced Choral Conducting LXIII 1.0 h.

21.67 Advanced Choral Conducting LXIV 1.0 h.

21.68 Advanced Choral Conducting LXV 1.0 h.

21.69 Advanced Choral Conducting LXVI 1.0 h.

21.70 Advanced Choral Conducting LXVII 1.0 h.

21.71 Advanced Choral Conducting LXVIII 1.0 h.

21.72 Advanced Choral Conducting LXIX 1.0 h.
Honors
The department administers an honors program for undergraduate students of superior ability. A grade-point average of at least 3.2 is required for admission to the program. A student who is interested in the program should consult the advisor for undergraduate majors in philosophy.

Graduate Program
The graduate program in philosophy 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 Master of Arts degree requires a minimum of 32 semester hours of graduate credit and may be taken without thesis. Requirements include courses in metaphysics and epistemology, history of philosophy, logic and philosophy of science, and ethics. The student must pass an oral final examination. There is no foreign language requirement.

Doctor of Philosophy
The Doctor of Philosophy degree requires a minimum of 72 semester hours of graduate credit by the time dissertation is finished. Candidacy for the doctoral program is determined by a faculty committee in the first year of residence, usually after the student has completed the minimum number of graduate credits in residence.

Requirements include courses in metaphysics and epistemology, history of philosophy, logic and philosophy of science, and ethics. The student must also pass a written 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.

Courses

Undergraduates Only

Undergraduate and Graduates

Graduate

Doctoral

Primary for Graduates

Philosophy

Philosophical Logic

Philosophy of Mind

Philosophy of Science

Philosophy of the Sciences

Philosophy of Mind

Philosophy of Science

Logic

Philosophy of Mind

Philosophy of Science

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Philosophy of Mind

Philosophy of Science

Logic
Physical Education

Department chair: Dave M. Aspyn

Professors: professors Dave M. Aspyn, Brandi R. Cassidy, Chris A. Gaudet, Japan S. Hay, Jerry A. Howard, Charles M. Yoder

associate professors: Greg T. Hansen, David K. Lebo, Richard R. Hafner, David D. Kolos, Dave McCready, Greg J. Wiseman


Undergraduate Programs

Programs for the Bachelor of Science degree prepare students for advanced study in physical education, teaching and coaching athletic teams, and careers in business and professional enterprises. In addition, the department has prepared a Bachelor of Science degree program in Exercise Science. Subject to approval by the Board of Regents, program requirements will be available.

Bachelor of Science in Physical Education

Core requirements include:

27:11 Orientation to Physical Education u.s.
27:15 Introduction to First Aid and Certification in Cardiopulmonary Resuscitation 2 s.
27:53 Human Anatomy 3 s.
27:180 Administration and Curriculum in Physical Education 3 s.
27:105 Physical Education for Special Students 3 s.
27:107 Biomechanics of Physical Education 3 s.
27:109 Psychology of Motor Skills 3 s.
27:109 Psychology and Social Dynamics of Sport 2 s.
27:110 Growth and Development 2 s.
27:120 Human Physiology 4 s.
28:147 Contemporary Issues of Health Education 3 s.

Skills required include:

A skill component in physical education of eight semester hours of course work.

The areas included within the skill component are aquatics, physical fitness, individual sports, racket sports, recreation sports, rhythm and dance, team sports, and outdoor activities.

The courses include:

27:21 Skill Component in Physical Education I 2 s.
27:22 Skill Component in Physical Education II 2 s.
27:23 Skill Component in Physical Education III 4 s.

Bachelor of Science in Teaching

Program requirements include:

Successful completion of the core requirements and the skill requirements listed for the Bachelor of Science in Physical Education and the courses required for teaching certification in physical education.

These include:

78:72 Methods and Materials in Elementary School Physical Education 2 s.
78:73 Educational Psychology and Measurement 3 s.
78:91 Introduction to Teaching 1-2 s.
78:92 Introduction to Micro-Computing for Teachers 1 s.
78:100 Issues in Education 2 s.
17:149 Methods of Teaching Secondary Physical Education 1 s.
78:113 Human Relations for the Classroom Teacher 3 s.
78:157 Seminar: Curriculum and Student Teaching 1-3 s.
78:192 Laboratory Practice in Elementary School 1 s.

Graduates in teaching who desire the coaching endorsement must take the following additional courses:

A course in Theory of Coaching

27:51 Introduction to Athletic Training 3 s.
27:137 Administration of Athletics 2 s.
35:198 Coaching Pracicum 2 s.

Bachelor of Science in Physical Education (Alternative Careers)

Program requirements include:

27:11 Orientation to Physical Education 0 s.
27:22.22.23 Skill Component in Physical Education 3 s.
27:53 Human Anatomy 2-3 s.
27:56 First Aid or Red Cross Standard First Aid Card Certification in Cardiopulmonary Resuscitation 2 s.
27:57 Introduction to Athletic Training 3 s.
27:58 Special Projects 3 s.
27:107 Biomechanics of Physical Education 3 s.
27:108 Teaching Motor Skills 3 s.
27:110 Growth and Development 2 s.
27:112 Physical Activity and Aged (or equivalent) 2 s.
27:141 Elementary Exercise Physiology 2 s.
27:149 Physical Education for Special Students 3 s.
27:147 Knowledge and Performance Tests in Physical Education 2 s.
28:26 Fitness and Weight 2 s.
28:132 Administration of Fitness/Wellness Programs 2-3 s.
28:142 Contemporary Issues of Health Science 3 s.
27:130 Child Development 3 s.
27:157 Psychology in Business and Industry 3 s.
27:157 Psychology in Management 3 s.
27:120 Drugs: Their Nature, Action, and Use 2 s.
19:155 Mass Media and Society 3 s.
19:146 Aging and Leisure 3 s.

The department also recommends that the student obtain the background for certification as an exercise leader by the American College of Sports Medicine.

Minor in Physical Education

The minor requires completion of 16 semester hours from the following courses:

27:58 Special Projects 3 s.
27:107 Biomechanics of Physical Education 3 s.
27:108 Teaching Motor Skills
27:137 Administration of Athletics
27:141 Elementary Exercise Physiology
27:148 Psychology of Sport

Endorsement for Coaching

The Iowa Department of Public Instruction has provided for the endorsement of certified teachers for the coaching of athletic teams in schools. This endorsement is intended for teachers who have major in subjects other than physical education but who wish to coach interscholastic athletic teams. The endorsement permits the teacher to teach physical education classes in public schools.

Certification for coaching athletic teams at the junior high and secondary school levels requires satisfactory completion of the following courses:

27:53 Human Anatomy
27:56 First Aid
27:57 Introduction to Athletic Training
27:108 Teaching Motor Skills
27:137 Administration of Athletics
27:141 Elementary Exercise Physiology
75:192 Observation and Lustratory Practice in the Secondary School

*May be waived on the basis of appropriate coaching experience.

Endorsement for Athletic Training

This endorsement is provided for students who want to be certified as trainers for athletic teams at the professional level, the secondary school level as a part of their regular teaching duties, or at the college and university level. The requirements designed to meet the standards for certification set by the National Athletic Trainers Association include:

17:41 Food, Nutrition, and You
31:11 Elementary Physiological Psychology
72:130 Human Psychology
28:140 Various issues of Health Education
27:53 Human Anatomy
27:56 First Aid (or equivalent)
Cardiopulmonary Resuscitation Certification
27:57 Introduction to Athletic Training
27:105 Physical Education for Special Students
27:107 Biomechanics of Physical Education
27:108 Teaching Motor Skills
27:137 Administration of Athletics

Graduate Programs

Master of Arts in Physical Education

The program leading to the M.A. degree in physical education is designed primarily as a first step in graduate study leading to the doctorate. Its secondary purpose is to provide advanced preparation for people who are teaching or intent to teach in undergraduate physical education programs at four-year colleges, but who do not plan to earn doctorates.

The thesis program for the M.A. degree in physical education puts particular emphasis on techniques of research and on problems relating to physical education and athletics. Students receive an introduction to the nature and extent of research in all areas of physical education, and have an opportunity for some specialization in an area of particular interest to them.

Because the M.A. degree with thesis is regarded as the first step toward the Ph.D. in one of nine areas of specialization, the graduate course work required for a particular candidate depends in large measure on the area in which the candidate intends to specialize for the Ph.D. Specific courses in mathematics, chemistry, physical, zoology, psychology, or sociology are required for certain areas of specialization. The selection of such courses must be approved by the professor in charge of the area of emphasis selected by the candidate, and by the Department of Physical Education.

Candidates who intend to terminate their graduate study with the M.A. degree with thesis are required for the M.A. degree with thesis:

Two courses outside the area of specialization, from the following:

17:153 Advanced Anatomy and Kinesiology
27:202 Physiology of Exercise Laboratory
31:12 Anatomy and Physiology of Exercise
27:256 Advanced Physical Education: Special Topics and Research
27:242 Supervision of Physical Education
27:257 Biomechanics of Human Motion
27:256 Advanced Measurement and Evaluation in Physical Education
27:308 Human Perception-Motor Performance

27:141 Elementary Exercise Physiology
27:171 Medical Supervision of Athletics
27:182 Clinical Sciences in Athletic Training
27:183 Clinical Sciences in Athletic Training II
27:184 A Seminar in Athletic Training

The curriculum also includes selected courses in mathematics, chemistry, physics, and the biological sciences.

27:308 Human Perception-Motor Performance
27:148 Psychology of Sport
27:57 The Qualitative Analysis of Human Motion
27:241 Scientific Principles of Physical Conditioning

Master of Arts with Thesis

The thesis program leading to the M.A. degree in physical education is designed primarily as a first step in graduate study leading to the doctorate. Its secondary purpose is to provide advanced preparation for people who are teaching or intent to teach in undergraduate physical education programs at four-year colleges, but who do not plan to earn doctorates.

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27:202 Physiology of Exercise Laboratory
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27:242 Supervision of Physical Education
27:257 Biomechanics of Human Motion
27:256 Advanced Measurement and Evaluation in Physical Education
27:308 Human Perception-Motor Performance

27:141 Elementary Exercise Physiology
27:171 Medical Supervision of Athletics
27:182 Clinical Sciences in Athletic Training
27:183 Clinical Sciences in Athletic Training II
27:184 A Seminar in Athletic Training

The curriculum also includes selected courses in mathematics, chemistry, physics, and the biological sciences.

27:308 Human Perception-Motor Performance
27:148 Psychology of Sport
27:57 The Qualitative Analysis of Human Motion
27:241 Scientific Principles of Physical Conditioning
27:337 Seminar: Research in Physical Education/LIBERAL ARTS 3 s.h.

These tools of research:

7P:143 Introduction to Statistical analysing 3 s.h.
or
63:161 Introduction to Biostatistics 3 s.h.
22C:100 Introduction to Computing with FORTRAN 3 s.h.
or
7P:246 Data Processing and Specialization area 3 s.h.
27:401 Seminar in Scientific Writing 1 s.h.
27:404 Thesis: M.A. 4 s.h.
Courses approved by advisor 5-7 s.h.
Electives 4-5 s.h.
Total 30 s.h.

Doctor of Philosophy

A Ph.D. candidate in physical education should have a general knowledge of all areas of physical education, a working knowledge of the research techniques applicable to problems in physical education and athletics, and knowledge in depth in at least one area of specialization in physical education.

The areas of specialization offered in physical education are adapted physical education, administration and supervision in physical education, anatomy, biomechanics, curriculum in physical education, exercise physiology, measurement and evaluation in physical education, motor behavior, and therapeutics.

The thesis program for the M.A. degree in physical education, together with the Ph.D. core courses, provide the required background for the Ph.D. candidate's specialization. The candidate must complete at least 30 semester hours of graduate study in the specialization of his or her major, write a thesis on a problem in that area, and must submit the thesis to an approved professional journal for publication.

Most of the courses in the areas of specialization are offered by departments other than the Department of Physical Education--Athletic Field House. Professors from these departments participate in writing and evaluating the comprehensive examinations, serve on thesis committees, and present their research on the proposed problem, and participate in the final examination in which the candidate defends his or her thesis.

In addition to writing a comprehensive examination in physical education, the candidate specializing in exercise physiology writes a comprehensive examination prepared and evaluated by faculty members of the Department of Physical Education and the College of Medicine. Such candidates graduate with minors in physiology.

The Ph.D. core requirements include:

27:405 Thesis: Ph.D. 12 s.h.
7P:246 Selected Applications of 3 s.h.
7P:243 Intermediate-Statistical 3 s.h.
Methods 4 s.h.
63:162 Design and Analysis of 3 s.h.
Experiments in Biomedical 3 s.h.
Sciences
27:202 Practicum in College 0 s.h.
Teaching

The foreign language requirement differs for each area of specialization. All candidates not required to demonstrate proficiency in a foreign language must satisfactorily complete 7P:246 Data Processing or 22C:100 introduction to Computing with FORTRAN.

The candidate must complete a minimum of 30 semester hours of required and elective courses in his or her area of specialization. The courses required by area of specialization are:

Adapted Physical Education
70:130 Exceptional Persons 3 s.h.
27:201 Research 3-6 s.h.
27:205 Adapted Physical Education: Special Topics 3-4 s.h.
and Research
60:108 Human Anatomy 4 s.h.
60:109 Human Anatomy and 4 s.h.
Neuroanatomy

Administration and Supervision in Physical Education
27:202 Division of Physical 3 s.h.
Education
7:301 Foundations of School 3 s.h.
Administration
27:201 Research 4 s.h.
27:207 Advanced Administration of 3 s.h.
Physical Education
27:207 Advanced Administration of 3 s.h.
Athletics

Anatomy
60:200 Gross Human Anatomy 3 s.h.
for Graduate Students
60:108 Human Anatomy 4 s.h.
and
60:109 Human Anatomy and 4 s.h.
Neuroanatomy

Biomechanics
58:160 Readings in Mechanical 5 s.h.
Engineering
57:112 Cell, Tissue, and Organ 6 s.h.
Biology
27:153 Advanced Anatomy and 5 s.h.
Kinesiology
27:205 Electromyography in 5 s.h.
Kinesiology and Biomechanics

Biomechanics
58:160 Readings in Mechanical 5 s.h.
Engineering
57:112 Cell, Tissue, and Organ 6 s.h.
Biology
27:153 Advanced Anatomy and 5 s.h.
Kinesiology
27:205 Electromyography in 5 s.h.
Kinesiology and Biomechanics
27:337 Research Techniques in 3 s.h.
Biomechanics

Curriculum in Physical Education
7E:300 Design and Organization 3 s.h.
of Curriculum
7S:291 Secondary School 3 s.h.
7P:181 Introduction to Theories 3 s.h.
of Learning
27:201 Research 2 s.h.
27:338 Seminar: Models and 2 s.h.
Theory in Curriculum
28:243 Philosophical Bases of 3 s.h.
Curriculum Construction

Exercise Physiology
37:112 Cell, Tissue, and Organ 5 s.h.
Biology
60:205 General Physiology for 3 s.h.
Graduate Students
37:115 Endocrinology 2 s.h.
71:105 Pharmacology for Health 5 s.h.
Sciences Medical
27:302 Physiology of Exercise 2 s.h.
Laboratory
72:212 Medical Design of 2 s.h.
Exercise Physiology
27:247 Exercise Physiology 2 s.h.
Seminar
27:303 Advanced Exercise 3 s.h.
Physiology Laboratory
99:130 Metabolism

Measurement and Evaluation
7P:246 Intermediate Statistical 3 s.h.
Methods

Motor Behavior and Learning
27:301 Research 6 s.h.
27:312 Selected Issues in Motor Control 3 s.h.
57:141 Seminar in Motor Behavior 2 s.h.
Research
60:110 Medical Neuroanatomy 3 s.h.
72:285 Central Nervous System 3 s.h.
Physiology
27:357 Evaluation of Selected 10 s.h.
Neurological Disorders
101:212 Medical Instrumentation 6 s.h.

These courses, one a graduate-level seminar, must be selected from the Department of Psychology in any combination of the following areas: memory, information processing, perception, neuropsychology, mathematical psychology, and child development.
Therapeutics
All Students
101:214 Advanced Seminar in Physical Therapy
arr.
101:326 Analysis of Scientific Literature
2 s.h.
101:337 Research in Therapeutics
3 s.h.
101:280 Teaching Practicum or 101:282 Clinical Educational Practicum
arr.
101:284 Practicum in Research
arr.
79:262 Facilitating Learning in Health Sciences Education
3 s.h.
101:214 Advanced Seminar in Physical Therapy
3 s.h.
101:327 Research in Therapeutics
3 s.h.
101:328 Analysis of Scientific Literature
2 s.h.
101:280 Teaching Practicum or 101:282 Clinical Educational Practicum
3 s.h.
or
101:284 Practicum in Research
79:262 Facilitating Learning in Health Sciences Education
3 s.h.
Cardiopulmonary Emphasis
72:215 Medical Physiology
2 s.h.
72:247 Exercise Physiology Seminar
2 s.h.
72:290 Special Topics
arr.
99:130 Metabolism
3 s.h.
and
99:120 The Chemistry of Nutrition
3 s.h.
and
99:163 Biochemistry for Medical Students
6 s.h.
Musculoskeletal Emphasis
37:181 Neurophysiology
3 s.h.
72:281 Physiology of Muscle
2 s.h.
101:263 Electromyography in Kinesiology and Biomechanics
3 s.h.
60:206 General Histology for Allied Health
5 s.h.
or
53:216 Research in Civil and Environmental Engineering
5 s.h.
Neuromuscular Emphasis
80:110 Medical Neuroanatomy
3 s.h.
72:262 Central Nervous System Physiology
2 s.h.
101:263 Electromyography in Kinesiology and Biomechanics
3 s.h.
37:136 Introduction to the Neurosciences
3 s.h.
37:181 Neurophysiology
3 s.h.
Admission
Admission to the Ph.D. program is based on the applicant's grade-point average on work completed for the M.A. or M.S. degree, and his or her score on the Graduate Record Examination (GRE) Aptitude Test. To be considered for admission, the student must have earned a grade-point average of 3.0 or higher on all graduate work undertaken.
For admission to the Ph.D. program in therapeutics, the applicant must be a graduate of an approved professional program in physical therapy, must hold a master's degree, and must have had calculus. (Note: The master's degree, need not be in physical therapy.) Program entry is limited to the fall semester. Deadlines for receipt of applications for admission are February 15 for notification by April 1 and May 15 for notification by July 1.
Facilities
The Recreation Building and Field House provide excellent facilities for use in the physical education skills program, in the undergraduate and graduate instructional programs, and for student participation in intramural sports, recreational activities, and athletics.
Research laboratories for physiology of exercise, stress, motor behavior, and biomechanics are located in the Field House and provide excellent facilities for instruction and research at both the undergraduate and graduate levels.
Because of our cooperative efforts with other departments to facilitate specialization, physical education students use additional special facilities in other departments on the campus.

Courses
Primarily for Undergraduates
37:18 Elective Physical Education
0 s.h.
37:22 Elective Physical Education
0 s.h.
37:24 Elective Physical Education
0 s.h.
37:26 Elective Physical Education
0 s.h.
37:28 Elective Physical Education
0 s.h.
37:30 Elective Physical Education
0 s.h.
37:32 Elective Physical Education
0 s.h.
37:34 Elective Physical Education
0 s.h.
37:36 Elective Physical Education
0 s.h.
37:38 Elective Physical Education
0 s.h.
37:40 Elective Physical Education
0 s.h.
37:42 Elective Physical Education
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37:44 Elective Physical Education
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37:46 Elective Physical Education
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37:48 Elective Physical Education
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37:50 Elective Physical Education
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37:64 Elective Physical Education
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37:88 Elective Physical Education
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37:90 Elective Physical Education
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37:92 Elective Physical Education
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37:94 Elective Physical Education
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37:96 Elective Physical Education
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37:98 Elective Physical Education
0 s.h.
37:610 Advanced Dance: a cultural and physical experience
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37:612 Advanced Dance: a cultural and physical experience
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37:614 Advanced Dance: a cultural and physical experience
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37:708 Advanced Dance: a cultural and physical experience
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37:710 Advanced Dance: a cultural and physical experience
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37:712 Advanced Dance: a cultural and physical experience
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37:714 Advanced Dance: a cultural and physical experience
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37:716 Advanced Dance: a cultural and physical experience
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37:718 Advanced Dance: a cultural and physical experience
0 s.h.
37:720 Advanced Dance: a cultural and physical experience
0 s.h.
27:137 Administration of Athletics 2 s.h.
Offered spring semesters.

27:141 Elementary Exercise Physiology 2 s.h.
Offered fall semesters. Prerequisite: 72:100.

27:147 Knowledge and Performance Tests in Physical Education 2 s.h.
Offered fall semesters.

27:148 Psychology of Sport 3 s.h.
Psychological principles and main application to sport. Offered summer sessions.

27:150 Advanced Anatomy and Kinesiology 2 s.h.
Emphasis and application for teaching anatomy and kinesiology at the undergraduate level. Offered spring semester. Prerequisite: 72:146.

27:156 Sports and Movement for Drones 1 s.h.
May be retook.

27:160 The Qualitative Analysis of Human Motion 3 s.h.
Prerequisite: 27:157. Offered summer sessions.

27:164 Physical Education for Elementary Schools 3 s.h.
Offered fall semesters. Same as 72:146.

27:165 Measurement and Evaluation in Physical Education 3 s.h.
Offered spring semesters. Prerequisite: 27:147.

27:171 Medical Supervision of Athletics 3 s.h.
Offered spring semesters.

27:175 Clinical Sciences in Athletic Training I 3 s.h.
Offered fall semesters. Prerequisite: 27:157.

27:176 Clinical Sciences in Athletic Training II 3 s.h.
Offered spring semesters. Prerequisite: 27:166.

27:181 Seminar in Athletic Training er.

27:200 Prerana ex.

27:201 Research ex.
Consult Full-Time Head before registering.

27:202 Pedagogy in College Teaching ex.

27:210 Applied Physical Education Special: Tests and Measurements 3-4 s.h.
Prerequisite: 27:150 and 27:162.

27:226 Tracking the Pioneers or the Mind 3 s.h.
Explores the advances in education given to lead students through a series of mind-stimulating activities.

27:237 Advanced Administration of Physical Education 3 s.h.
Offered fall semesters.

27:247 Advanced Administration of Athletics 3 s.h.
Offered fall semesters.

27:252 Principles of Physical Education 3 s.h.

27:272 Public School Curriculum in Physical Education 3 s.h.
Offered spring semesters. Same as 72:207, 72:240.

27:276 Professional Preparation in Physical Education 2 s.h.

27:278 Scientific Principles of Physical Conditioning 1-3 s.h.
Offered summer sessions. Prerequisite: 72:135 or 72:141.

27:292 Supervision of Physical Education 3 s.h.
Offered fall semesters. Same as 72:292, 72:240.

27:301 Laboratory in Advanced Anatomy 6 s.h.

27:302 Biomechanics of Human Motion 4 s.h.
Offered spring semesters. Prerequisite: 27:157.

27:304 Current Developments in Biomechanics 6 s.h.

27:307 Advanced Measurement and Evaluation in Physical Education 3 s.h.
Offered spring semesters.

27:307 Electromyography in Kinesiology and Biomechanics 3 s.h.
Introduction to electromyographic techniques for the study of muscle activity in human motion. Offered spring semesters. Same as 101:095.

27:308 Exercise Physiology of the Young Athlete 3-4 s.h.
Prerequisite: 27:162. Offered spring semesters.

27:310 Exercise Physiology Laboratory 2 s.h.
Offered spring semesters.

27:311 Exercise Physiology Laboratory 2 s.h.
Offered spring semesters.

27:316 Human Perception-Motor Performance 3-4 s.h.
Motor learning principles and practical applications for teaching. Offered fall semesters.

27:318 Education in Graduate Study 2 s.h.
Offered fall semesters.

27:325 Selective Topics in Information Processing and Motor Control 1 s.h.
Evaluation of research papers on major learning and teaching mechanisms. Offered spring semesters. Prerequisite: 27:308.

27:327 Seminar in Motor Development Research 2 s.h.
Offered spring semesters.

27:328 Seminar in Research in Physical Education Emphasize 1-3 s.h.
Students who have not completed 27:237 or equivalent must select 27:237. Offered fall semesters.

27:328 Seminar: Models and Theory in Curriculum 1-3 s.h.
Offered fall semesters.

27:329 Research Techniques in Biomechanics 1 s.h.
Offered spring semesters.

27:337 Seminar in Research Methodology and Evaluation in Physical Education er.

27:340 Seminar in Scientific Writing 1 s.h.
Offered fall semesters.

27:340 Research Methods in Physical Education 2 s.h.

27:341 Thesis M.A. 9-12 s.h.

27:341 Not to exceed 12 semester hours.

27:341 Research Methods in Physical Education 2 s.h.

Physical Education and Dance
Chair: N. Peggi Burke
Faulkner professor of physical education
provenance: emeritus Margaret G. Fox, M. Gladys Scott
professors: Judith A. Altim, Susan Stier.
Assistant: N. Peggi Burke, Deana L. Givin, Christine M. Scott, Francine M. Margioli, Jeananne L. Scott, Yvonne L. Sartelli.

The Department of Physical Education and Dance offers bachelor's degree programs in education teaching and non teaching majors, the coaching, of sports, the teaching of ances, dance performance, and sports communications.

It offers graduate programs leading to the Master of Arts and Doctor of Philosophy degrees in physical education.

Physical Education Undergraduate Programs
Each undergraduate student in physical education elects a wide range of courses and activities in preparation for careers in business and industry, sports journalism and broadcasting, fitness and health clubs, sport specialist and sports marketing, professional dance and theater, and public school teaching and coaching.

The student acquires theoretical background through anatomy, physiology, kinesiology, psychology, and health courses, with implications for the performance and teaching of movement skills

The undergraduate programs are also designed to prepare the graduate for work in physical education. (See "Graduate Programs" for areas of specialization.)

The student who plans to teach must meet certification requirements (see "College of Education" section of the Catalog, must maintain at least a 2.3 grade-point average, and must demonstrate competence for teaching and/or leadership roles.

The professional major in physical education may lead to either the Bachelor of Arts or Bachelor of Science degree.

The programs are as follows:

Teacher Education Program in Physical Education
Physical Education Requirements 28:19 Orientation to Physical Education or Dance 0-1 s.h.

27:11 Orientation to Physical Education 0-1 s.h.

27:27 Advanced First Aid and CPR (or Red Cross Certification) 2 s.h.

27:28 Anatomy 3 s.h.

27:29 Human Anatomy 3 s.h.

27:81 Kinesiology 3 s.h.

27:107 Biomechanics of Physical Education 3 s.h.

27:82 Measurement and Evaluation Knowledge and Performance Tests (or equivalent) 2 s.h.

27:147 Knowledge and Performance Tests in PE (or equivalent) 2 s.h.

28:106 Physiological Implications for Teaching Physical Education 3 s.h.

27:146 Elementary Exercise Physiology: Exercise Physiology 3 s.h.
28:107 Physical Education for the Handicapped 2-3 s.h.
27:105 Physical Education for Special Students 2-3 s.h.
28:120 Administration of Physical Education and Athletics 2 s.h.
27:103 Administration and Curriculum in PE 2-3 s.h.
28:142 Contemporary Issues of Health Education 3 s.h.

Skills: Requirements Techniques, Physical Education Majors must complete a minimum of one aquatic, two team, two individual/athletic, two rhythmic and one fitness activity at one semester hour each.


Therapeutic: 72:130 Human Physiology 4 s.h.

Students must complete all courses in option A or B

Option A: Physical Education and Athletic Emphasis

28:27 Teaching of Dance 2 s.h.
28:57 Teaching and Apparatus 2 s.h.
28:83 Phys-Soc-Social Dimensions of Sport 3 s.h.
28:41 Independent Study 1-2 s.h.
98:121 History of Philosophy of Physical Education 1 s.h.
Advanced level skill techniques 2 s.h.
Option B: Dance Emphasis

280:114 Dance History: Primitive Nineteenth Century 3 s.h.
280:115 Twentieth Century Dance 3 s.h.
280:73 Composition I 2 s.h.
280:74 Composition II 2 s.h.
280:25 Rhythmic Analysis of Dance 2 s.h.
280:26 Dance Production

76:125 Methods and Materials of Teaching Children's Dance 3-3 s.h.
28:120 Advanced Dance Technique and Composition 6 s.h.

Professional Education Requirements

7W:82 Introduction to Microcomputing for Teachers 1 s.h.

7E:72 Methods and Materials in Elementary Physical Education 2 s.h.
7P:73 Educational Psychology and Measurement 3 s.h.
7C:91 Introduction to Teaching 2 s.h.
7S:100 Issues in Education 2 s.h.
7S:146 Methods of Secondary Physical Education 3 s.h.
7S:150 Human Relations for the Classroom Teacher 3 s.h.
7S:197 Seminar: Curriculum Student Teaching 1 s.h.
7S:191 Observation and Lab Practice in Secondary School 6 s.h.
7S:192 Lab Practice in Elementary School 6 s.h.
7S:198 Coaching Practicum (optional) 2 s.h.

Physical Education and Sport (nonTeaching)

Physical Education Core Requirements

28:19 Orientation to Physical Education or Dance 1 s.h.
28:80 Anatomy 3 s.h.
28:91 Kinesiology 3 s.h.
28:106 Physiological Implications for Teaching Physical Education 3 s.h.
28:32 Measurement 2 s.h.
28:119 Matriculate: Secondary Physical Education 3 s.h.
28:120 Administration of Physical Education and Athletics 2 s.h.
28:121 History and Philosophy of Physical Education 2 s.h.
28:32 Psycho-Social Dimensions of Sport 3 s.h.
(Not required for dance majors)

Sport and Dance Activity Requirements

Seven beginning level skills and three intermediate or advanced level skills.

Fitness Specialist

28:85 Fitness and Weight Training 2 s.h.
28:73 Advanced First Aid and CPR 2 s.h.
28:105 Care of Athletic Injuries 2 s.h.
28:115 Methods of Secondary Physical Education 3 s.h.
28:71 Food, Nutrition, and You 3 s.h.
28:142 Contemporary Issues of Health Education 3 s.h.
28:71 Growth and Motor Development 2 s.h.
10:33 Physical Education Skills (Aerobic Dance) 1 s.h.
22:1 Survey of Computing 3 s.h.

Sport Specialist/Sports Administration

28:115 Methods of Secondary Physical Education 3 s.h.
28:88 Fitness and Weight Training I 2 s.h.
28:107 Physical Education for the Handicapped 3 s.h.
28:31 Advanced First Aid and CPR 2 s.h.
28:108 Care of Athletic Injuries 2 s.h.
28:14 Theory of Coaching 2 s.h.

28:71 Growth and Motor Development 2 s.h.
28:231 Survey of Computing 3 s.h.

Sports Marketing

28:58 Fitness and Weight Training I 2 s.h.
28:181 Sports Information 2 s.h.
17:80 Textiles for Consumers 3 s.h.
22:1 Survey of Computing 3 s.h.
28:106 Design and Production of Media for Instruction (Sec 1: Graphics, Sec 2: Video) 2 s.h.

Program Leading To Enrichment/For Coaching

Theory of Coaching 2 s.h.
28:14 Theory of Coaching 2 s.h.
28:18 Advanced Coaching 2 s.h.
28:110 Growth and Motor Development 2 s.h.
28:111 Growth and Motor Development 2 s.h.
28:106 Design and Production of Media for Instruction 2 s.h.

Anatomy

28:80 Anatomy 3 s.h.
27:53 Human Anatomy 3 s.h.

Exercise Physiology

28:106 Physiological Implications for Teaching Physical Education 3 s.h.
27:141 Elementary Exercise Physiology 3 s.h.

Advanced First Aid/CPR

28:31 Advanced First Aid and CPR 1-2 s.h.
27:56 First Aid 3 s.h.

Red Cross Certifications

Care and Prevention of Athletic Injuries (Should be taken following Anatomy and Physiology)
27:57 Introduction to Athletic Training 2 s.h.
28:105 Care of Athletic Injuries 3 s.h.
27:103 Administration and Curriculum in Physical Education 2-3 s.h.
28:120 Administration of Physical Education and Athletics 2 s.h.

Coaching Practicum 7S:198 Coaching Practicum 1-3 s.h.

35:198 Coaching Practicum 1-3 s.h.

Superior experience in coaching interscholastic teams under direction of certified secondary school coaches. Open only to students completing coaching certification programs. Prerequisite: consent of instructor.

Open only to graduate students.
Health Education Endorsement Program
The following sequence of courses meets the requirements for Iowa’s approved Area #102 for both the Elementary Education 10 and the secondary Endorsement 30. Students must complete a minimum of 30 semester hours to fulfill this approval area.

Required Courses
28.37 Advanced First Aid/ CPR 2 s.h.
or
27.56 First Aid 0 s.h.
or
Red Cross Certifications in First Aid and CPR
17.41 Food, Nutrition, and You 3 s.h.
7E.71 Growth and Motor Development 2 s.h.
or
17.10 Growth and Development of the Young Child 3 s.h.
or
7P.105 Child Development 3 s.h.
7C.112 Human Sexuality 3 s.h.
71.120 Drugs: Their Nature, Action, and Use 2 s.h.
or
46.56 Non-Prescription Drugs 2 s.h.
72.130 Human Physiology 4 s.h.
or
28.110 Physiological Implications for Teaching Physical Education 3 s.h.
28.142 Current Issues of Special Education 3 s.h.
7S.158 Methods and Materials for Special Education 3 s.h.
Prerequisites: 28.142

Honors
The Honors Program is designed to serve the interests of superior students. It gives the participant some research experience and a perspective on certain aspects of graduate work. The honors student in physical education takes 28.94 Honors Readings, completes a reading or research project under supervision of a physical education faculty member, and prepares a paper summarizing project results. To be eligible for honors study in physical education, the student must have at least a 3.2 grade-point average at the beginning of the junior or senior year, when the honors courses are taken. To qualify for the honors degree, the student must maintain at least a 3.2 average through the remainder of his or her degree work.

Graduate Programs
This department was one of the pioneers in providing graduate physical education programs for women, especially at the doctoral level. It has awarded over 400 master’s degrees and over 150 doctoral degrees during the past half century. These graduates have provided distinguished service through teaching, coaching, research, administration, and other leadership roles in physical education, dance, and athletics. This department’s proud heritage of producing leaders has been furthered by recent graduates, and we continue to encourage high aspirations of the young women and men we serve.

The curricula assume previous education in the respective fields. A program is planned with the individual with consideration given to his or her previous education and anticipated future career. Completion of the graduate degree usually leads to teaching, research, coaching, administration, or supervision in the schools or in a university.

The outstanding characteristics of the graduate programs are the flexibility of program planning for the individual student and the diversity of areas research available to the student. Attendance at summer sessions is helpful in obtaining full opportunities for diversity of instruction.

The graduate student works primarily in the Department of Physical Education and Dance, but the resources of the University are available as needed. Work outside the department provides a broader view and enrichment for the selected specialization of the master’s and doctoral candidate.

The most common areas of specialization have been adaptive physical education, administration of athletics and physical education, methods and supervision, coaching, measurement and evaluation, sociology of sport, psychology of sport, and sports communications. Internships are available in many areas and are strongly encouraged for specializations of interest, such as administration, supervision, coaching, and communications.

The graduate student group is cosmopolitan and international in character.

A research laboratory equipped for physiological, psychological, and motor learning research is available in the department. Other equipment needs may be met on an interdepartmental shared-use basis. Computer terminals are available in the department, and complete university computer services are available for research.

Master of Arts
The M.A. degree is awarded on completion of at least 24 semester hours of graduate work including thesis, or 36 hours of course work without thesis. The curriculum may include research, administration, supervision in the schools, coaching, certification, or preparation for advanced degree work. Students must demonstrate competency in the following seven areas: anatomy, kinesiology, measurement and evaluation or assessment; methods and administration of physical education; history and philosophy of physical education; and psychosocial dimensions of sport. Competency may be demonstrated by completion of a course or satisfactory performance on a written examination.

Required Courses
28.205 Techniques of Research 3 s.h.
28.302 Seminar: Perspectives in Human Movement 2 s.h.
28.401 Thesis 3 s.h.
(For students on thesis option)
Statistics 3 s.h.

Program Options
The M.A. student may elect either a general curriculum or a specialization in adaptive physical education, administration of athletics and physical education, coaching, dance, measurement and evaluation, anthropology and supervision, philosophy of sport/physical education, psychology of sport, or sport communication, or women in sport. Students desiring other specializations are encouraged to submit a course of study to the graduate committee for consideration.

Students in both the general curriculum and in an area of specialization work with an advisor in developing their program according to guidelines that have been set by the departmental graduate committee.

Doctor of Philosophy
All doctoral students must complete a minimum of 72 semester hours of graduate work in accordance with the requirements for the master’s degree and credit for the dissertation.

Preparation
Competency in the areas noted under the M.A. program is also required for doctoral programs. Any deficiencies in these areas must be remedied at the earliest possible time.

Tools of Research
All doctoral students are required to take a test in a free elective at an appropriate level at The University of Iowa. As their second course in literature, students may choose either a foreign language or computer science.

The language requirement may be satisfied by taking two semesters of a given language at a minimum grade of C, by passing a Graduate Record Examination (GRE) Aptitude Test in a given language, or by passing a Ph.D. language examination.

The computer test requirement option may be satisfied by taking three semester hours as approved by the departmental graduate committee.

Required Courses
28.300 Seminar in Research 0 s.h.
28.301 Seminar in Research 2 s.h.
28:302 Seminar: Perspectives in Human Movement 2 s.h.

Specialization
The student must complete a specialization of 30 semester hours, including dissertation. A student must also take approximately 20 semester hours in one or more departments other than physical education. The following specialization areas have been approved: administration of physical education and athletics, measurement and evaluation, psychology of sport, and sociology of sport. Students desiring an area not listed should submit a plan of study for consideration.

Comprehensive Examination
All doctoral students must pass a comprehensive examination focused on but not necessarily limited to their area of specialization. Part of the examination may be oral. The student and advisor set the date of the examination which is conducted according to the policies established by the departmental graduate committee. The program of study and dissertation topic must be filed and the requirements met prior to taking the comprehensive examination.

Dissertation
All doctoral students are required to complete a dissertation. A final examination is held with an appropriate committee.

Residency Requirement
Two semesters of at least nine semester hours in residence are required.

Dance

Bachelor of Arts

Required
28D:26 Dance Production 3 s.h.
28D:29 Rhythmic Analysis of Dance 2 s.h.
28D:73 Composition I 2 s.h.
28D:74 Composition II 2 s.h.
28D:80 Anatomy 3 s.h.
28B:81 Kinesiology 3 s.h.
28D:114 Dance History: Primitive Nineteenth Century 3 s.h.
28D:115 Twentieth-Century Dance 3 s.h.
28D:173 Composition III 2 s.h.
28D:174 Composition IV 2 s.h.
28D:177 Beginning Labanotation 3 s.h.
25:165 Opera Dance Theatre Production 8 s.h.

Electives
Twelve semester hours from the following:
28D:91 Independent Study arr.
28D:111 Methods and Materials of Teaching Children’s Dance 2-3 s.h.
28D:113 Ballet Pointe 1-2 s.h.
28D:117 Ballet Pedagogy 2 s.h.
28D:122 Workshop: Artists-in-Residence 1-4 s.h.
28D:130 Improvisation 2 s.h.
28D:133 Teaching of Modern Dance 2 s.h.
28D:170 Readings in Dance arr.
28D:175 Dance Theory 3 s.h.
28D:176 Criticism of Dance 3 s.h.
28D:178 Intermediate Labanotation 3 s.h.
28D:181 Dance Performance 0-1 s.h.
28D:191 Independent Choreography 1-4 s.h.

Technique Requirement
Dance majors must take a minimum of four semesters of study in both modern dance and ballet at the student’s appropriate technical level in each. Preference to this requirement will be fulfilled in the first two years as a declared major. 18 semester hours must be earned in dance technique classes from the following:
28D:3 Tap 1-2 s.h.
28D:5 Modern Dance 1-2 s.h.
28D:8 Modern Dance I 2 s.h.
28D:9 Jazz 1-2 s.h.
28D:10 Ballet 1-2 s.h.
28D:111 Major Ballet I 2 s.h.
28D:114 intensive training for the Main Dance 1-2 s.h.
28D:107 Modern Dance I 1-3 s.h.
28D:108 Modern Dance II 1-3 s.h.
28D:109 Major Ballet II 1-3 s.h.
28D:110 Major Ballet III 1-3 s.h.
Within the required 18 semester hours of dance technique, a minimum of two consecutive semesters must be taken from 28D:107, 28D:108, 28D:109, or 28D:110. Also required will be a minimum of one semester of tap and jazz technique.

Dance Education
See the B.S. in physical education (dance specialization) program.

Master of Arts (Dance Specialization)
The M.A. degree in physical education (dance specialization) is awarded on completion of at least 36 semester hours of graduate work including thesis. The curriculum may lead to teaching of dance or to further work toward a dance career.

Prerequisites
Acquition
28D:73-74 Composition I-II 4 s.h.
28B:80 Anatomy 3 s.h.
28B:81 Kinesiology 3 s.h.
28D:29 Rhythmic Analysis of Dance 2 s.h.
28D:28 Dance Production 3 s.h.
28D:114 Dance History: Primitive Nineteenth Century 3 s.h.

Required Courses
28D:113 Ballet Pointe 3 s.h.
28D:138 Teaching of Modern Dance 3 s.h.
28D:173 Composition III 2 s.h.
28D:174 Composition IV 2 s.h.
28D:177 Beginning Labanotation 3 s.h.
28D:115 Twentieth Century Dance 0 s.h.
28D:175 Dance Theory 0 s.h.
28D:176 Criticism of Dance 3 s.h.
28D:204 Seminar Dance 2 s.h.
28:302 Seminar: Perspectives in Human Movement 2 s.h.
28D:401 Thesis 3-4 s.h.
28D:107 Major Modern Dance I 2 s.h.
28D:108 Major Modern Dance II 2 s.h.
28D:109 Major Ballet I 2 s.h.
28D:110 Major Ballet III 2 s.h.
Total 28-29 s.h.
Elective courses may be taken in related fields of physical education, music, theater, and/or art with the consent of the adviser.

Faculty
The faculty represents diverse backgrounds and specializations and their abilities and interest are complementary. Most faculty members hold advanced degrees. Several bring educational backgrounds from abroad and all are experienced teachers.
Graduate faculty members are experienced in research and writing and are available for the guidance of graduate students in their areas of specialization. Many hold significant leadership positions and are frequently called upon for lectures, speeches, and research presentations.

Facilities
Gymnasiums, dance studios, special exercise rooms, and pools are used in the various programs at Harpys Gymnasium, North Hall, the Field House, the Recreation Building, and the Recreation Center at the Memorial Union. An area for outdoor sports is near Harry Recreation Gymnasium. The proximity of the river makes canoeing instruction feasible on a regular class schedule. The archery range is located along the river in a rustic setting; outdoor fields and a track are available between the Field House and the Recreation Building. The University golf course is used for some classes.

Courses

Physical Education

Primarily for Undergraduates
31:101 Rigorous Physical Education 1 s.h.
31:102 Rigorous Physical Education 1 A
31:103 Rigorous Physical Education 1 A
31:104 Theory of Teaching 2 s.h.
31:105 Theory of Teaching 2 s.h.
Value and nature of athletics, structuring the program.
problems, relations examined include the athlete, coach, administration, teacher.

18-161 Sports Information

2.4-4.2

18-161A Athletics Information研究中心, among game, game-statism, allows, education; and the need for methods and techniques to keep the news media informed about school athletics. Official letter signatures:

18-162 Sports Analysis

2.4-3.3

18-162A Sports Information

Through understanding of basic skills, strategies, rules, officiating, governing organizations, and competitive opportunities in specific sports.

18-163 Sport and the Media

2.4-3.3

18-164 History of Sport in the United States

An examination of the movement of sport by the media, including television, the press, fiction, film, biographies, and association fuses.

18-165 History of Sport in the United States

2.4-3.3

18-165A History of Sport in the United States

Ideal-outlets, opportunities for work, athletics, legs, employers, employers, improved, magazine, radio, television, and sports information directions.

18-166 The Child and the World

2.4-4.2

18-167 The Child and the World

Effect of organized competition in sports on the individual.

19-170 Motor Behavior of the Normal

Handicapped

2.4-3.3

19-170A Motor Behavior of the Normal

Handicapped

The motor demand of the motor-impaired individual with particular emphasis on physical characteristics, performance characteristics, sports skills, and physical fitness needs. Handicapped, athletic, and physical fitness needs.

19-171 Physical Education for the Physically

Handicapped

2.4-3.3

19-171A Physical Education for the Physically

Handicapped

An overview of selected physical impairments and their effect on motor skills, fitness, and activity.

19-172 Physical Education Learning Disabilities

2.4-3.3

19-172A Physical Education Learning Disabilities

An examination of research on learning disabilities and behavioral disorders with particular emphasis on motor plays and motor training.

19-174 The American Sport in its Cultural

Perspective

2.4-3.3

19-174A The American Sport in its Cultural

Perspective

Issues and problems and the sport boom in American and international culture and changing roles of the American athlete.

Primarily for Graduates

20-201 Problems

2.4-3.3

20-201A Problems

Prerequisite: consent of instructor.

20-203 Current Issues

2.4-3.3

20-203A Current Issues

Definition and analysis of issues, current questions, and contemporary behavior. Physical education, dance, and athletics will be discussed.

20-205 Techniques of Research

2.4-3.3

20-205A Techniques of Research

Introduction to design and interpretation of research.

20-213 Assessment of Motor Performance

2.4-3.3

20-213A Assessment of Motor Performance

Theory of measurement and criticism of selected tests of motor performance: test validity and reliability, assessment of motor tests, measures of health-related fitness.

20-216 Psychophysiological Responses to Exercise and

Training

2.4-3.3

20-216A Psychophysiological Responses to Exercise and

Training

Current practice and training on neuroendocrine, respiratory, and circulatory functioning, and energy systems in sports.

20-218 Advanced Coaching

2.4-3.3

20-218A Advanced Coaching

Reading and discussion concerning coaching and officiating procedures in light of research and recent developments in sports.

20-230 Motor Development of Children

2.4-3.3

20-230A Motor Development of Children

Development of movement abilities in the development of human motor behavior. Prerequisite: permission of instructor.

20-232 Seminar Health Concerns of Women

2.4-3.3

20-232A Seminar Health Concerns of Women

Seminar Health Concerns of Women.

20-245 Hospital Basis of Dance Science

2.4-3.3

20-245A Hospital Basis of Dance Science

Dance Science and Dance Science: Criminology of the analysis of the assessment and administration of a child's interpretative artistic program, deleted study of current issues and problems.

20-241 Thesis

2.4-3.3

20-241A Thesis

Prerequisite: consent of instructor.

Dance

Primarily for Undergraduates

20-259 Tap Dances

2.4-3.3

20-260 Modern Dance

2.4-3.3

20-259A Modern Dance

Introduction to modern dance techniques. May be repeated. Prerequisite: consent of instructor.

20-260A Modern Dance

2.4-3.3

20-260A Modern Dance

Introduction to modern dance techniques. May be repeated. Prerequisite: consent of instructor.

20-260A Modern Dance

2.4-3.3

20-260A Modern Dance

Introduction to modern dance techniques. May be repeated. Prerequisite: consent of instructor.

20-262 Ballet

2.4-3.3

20-262A Ballet

Introduction to modern dance techniques. May be repeated. Prerequisite: consent of instructor.

20-262A Ballet

2.4-3.3

20-262A Ballet

Introduction to modern dance techniques. May be repeated. Prerequisite: consent of instructor.

20-262A Ballet

2.4-3.3

20-262A Ballet

Introduction to modern dance techniques. May be repeated. Prerequisite: consent of instructor.

20-262A Ballet

2.4-3.3

20-262A Ballet

Introduction to modern dance techniques. May be repeated. Prerequisite: consent of instructor.

20-262A Ballet

2.4-3.3

20-262A Ballet

Introduction to modern dance techniques. May be repeated. Prerequisite: consent of instructor.

20-262A Ballet

2.4-3.3

20-262A Ballet

Introduction to modern dance techniques. May be repeated. Prerequisite: consent of instructor.

20-262A Ballet

2.4-3.3

20-262A Ballet

Introduction to modern dance techniques. May be repeated. Prerequisite: consent of instructor.
Undergraduate Major in Physics

The Bachelor of Science program provides preparation in physics and related sciences for employment in research laboratories. The Bachelor of Arts program is designed for students who wish to gain a considerable knowledge of physics but do not plan on a research-oriented career in physics. This degree is appropriate for those planning careers in medicine, law, science-related administration, business, technical writing, or secondary-school science teaching. The B.A. program requires fewer courses in mathematics and science than the B.S. program, and thus provides for a wider choice of electives.

Bachelor of Science

The following courses or their equivalents are required for the Bachelor of Science degree with a major in physics:

- 22M:25-26 Calculus I-II 8 s.h.
- 22M:27 Introduction to Linear Algebra 4 s.h.
- 22M:28 Calculus III 4 s.h.
- 22M:35-37 Engineering Calculus I-II 12 s.h.
- 22M:38 Differential Equations for Engineers 4 s.h.

Bachelor of Arts

The following courses or their equivalents are required for the Bachelor of Arts degree with a major in physics:

- 22M:25-26 Calculus I-II 8 s.h.
- 22M:27 Introduction to Linear Algebra 4 s.h.
- 22M:28 Calculus III 4 s.h.
- 22M:35-37 Engineering Calculus I-II 12 s.h.
- 22M:38 Differential Equations for Engineers 4 s.h.

Undergraduate Minor in Physics

A program of physics courses satisfying the 16 semester hours required by the college must include 12 semester hours of 100-level physics courses.

Undergraduate Major in Astronomy

A balanced and integrated program of astronomy, mathematics, and physics courses is required for the Bachelor of Science degree in astronomy. The
purpose of this program is to prepare the student for a career or advanced study in astrophysics, radio astronomy, or space astronomy.

The Bachelor of Arts degree program is designed for students who wish to gain a considerable knowledge of astronomy but who do not plan a research-oriented career in astronomy. This degree program is appropriate for those planning careers in secondary school science teaching, technical writing, and science-related administration. 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

The following courses or their equivalents are required for the Bachelor of Science degree with a major in astronomy:

22M:25-26 Calculus I-II 8 s.h.
22M:27 Introduction to Linear Algebra 4 s.h.
22M:28 Calculus III 4 s.h.
22M:30-31 Engineering Calculus I-II 12 s.h.
and
22M:38 Differential Equations 4 s.h.
29:17-19 Introduction to Physics I-II 12 s.h.
29:61-62 General Astronomy 8 s.h.
29:115 Intermediate Mechanics 3 s.h.
29:116 Introduction to Quantum Mechanics 3 s.h.
29:119-120 Introduction to Astrophysics I-II 6 s.h.
29:128-129 Electricity and Magnetism 6 s.h.
29:132 Intermediate Laboratory 2 s.h.
29:137 Astronomical Laboratory 2 s.h.
29:191 Atomic Physics 3 s.h.
or
29:194 Plasma Physics 3 s.h.
Undergraduate majors who plan to pursue graduate study are advised to go beyond the minimum requirements listed above to the greatest feasible extent, by taking one or more of the following courses:
29:117 Optics 3 s.h.
29:118 Statistical Physics 3 s.h.
29:121 Introduction to Astrophysics III 3 s.h.
29:137 Astronomical Laboratory (additional semester) 2 s.h.
29:177-172 Mathematical Methods of Physics 6 s.h.
29:195 Plasma Physics 3 s.h.

Bachelor of Arts

The following courses or their equivalents are required for the Bachelor of Arts degree with a major in astronomy:

22M:25-26 Calculus I-II 8 s.h.
22M:27 Introduction to Linear Algebra 4 s.h.
or
22M:30-37 Engineering Calculus I-II 12 s.h.
29:17-19 Introduction to Physics I-II 12 s.h.
or
29:112 College Physics 8 s.h.
and
29:119-120 Introduction to Astrophysics I-II 6 s.h.
29:126 Electronics 4 s.h.
or
29:129 Electricity and Magnetism 3 s.h.
29:130 Intermediate Laboratory 2 s.h.
29:137 Astronomical Laboratory 2 s.h.

Undergraduate Minor in Astronomy

The 16 semester hours of coursework required by the college include six semester hours selected from the following list of courses:
29:119-121 Introduction to Astrophysics I-II 6 s.h.
29:137 Astronomical Laboratory 2 s.h.
and an additional six semester hours of courses or of 100-level physics courses.

Double Major in Physics and Astronomy

It is possible to obtain a double major in physics and astronomy. Students who are interested in such a combination should consult with their advisor for general requirements of the College of Liberal Arts, see the "College of Liberal Arts" section of the Catalog.

Honors

Selected junior and senior majors may take six to eight semester hours of 29:99 Honors Seminar and conduct an investigation with the guidance of a faculty member as part of their programs for the Bachelor of Arts or Bachelor of Science with honors in physics or astronomy.

Graduate Program

Two advanced degrees are offered in physics, the Master of Science (with thesis or with a critical essay) and the Doctor of Philosophy, and in astronomy, the Master of Science (with thesis or with a critical essay). A student who wishes to pursue a program in astronomy beyond the M.S. level may qualify for a Doctor of Philosophy degree in physics with specialization and a dissertation in astronomy or astrophysics. An M.S. degree is not prerequisite to the Ph.D.

The Department of Physics and Astronomy participates in an interdisciplinary doctoral program with the Program in Applied Mathematical Sciences (see the "Graduate College" section of the Catalog). Each entering graduate student is assigned a faculty advisor who assists in preparing a plan of study and in guiding the student's progress. A graduate student becomes a candidate for an advanced degree in physics or astronomy only after passing a qualifying examination in all principal areas of physics at the level of advanced undergraduate work. The examination is given during the first week of the second semester each year and must be taken by all first-year graduate students. After a student has selected a research specialty, the appropriate thesis or essay advisor then becomes the candidate's general advisor and the chair of the final examination committee. Each candidate for an advanced degree is expected to serve as a graduate teaching assistant for at least one year.

Master of Science in Physics

The M.S. degree in physics is offered with either thesis or with a critical essay. Either degree may be a terminal degree or an intermediate step toward a Ph.D. degree. The final examination in either case is an oral one, conducted by a committee of three members of the graduate faculty appointed by the dean of the Graduate College.

The program for the M.S. degree with a thesis requires the successful completion of graduate work and a thesis based on an original experimental or theoretical investigation by the candidate. No more than four of the minimal 30 semester hours may be for the critical essay (29:220 Individual Critical Study).

Up to two-thirds of the graduate program may be in related scientific fields other than physics and mathematics—for example, chemistry, astronomy, geology, engineering, etc.

The candidate for either of the M.S. degrees must have satisfactorily completed the following courses or their equivalents as an undergraduate or a graduate:
29:115 Intermediate Mechanics 3 s.h.
29:116 Introduction to Quantum Mechanics 3 s.h.
or
29:191 Atomic Physics 3 s.h.
Physics and Astronomy/LIBERAL ARTS

29:118 Statistical Physics 3 s.h.
29:129-130 Electricity and Magnetism 6 s.h.
29:133 Advanced Laboratory Techniques 4 s.h.
29:171-172 Mathematical Methods 6 s.h.
29:191 Atomic Physics 3 s.h.

And two additional courses selected from:
29:192 Elementary Particles and Nuclear Physics 3 s.h.
29:193 Introductory Solid State Physics 3 s.h.
29:194 Plasma Physics 3 s.h.

The student's plan of study should provide for as much advanced work as aptitude and previous preparation permit.

Doctor of Philosophy in Physics

The program of study for the Ph.D. degree in physics has a major in physics that includes:

- Thorough course work in both classical and modern theoretical physics for all graduate students, whether their specialized research is to be in an experimental or a theoretical area.
- Comprehensive examinations.
- Participation in advanced seminars.
- Original research in experimental physics, theoretical physics, or astrophysics; and
- Preparation and defense of a written dissertation based on this work.

All candidates for the Ph.D. must take at least 27 semester hours of 200-level courses in the department, excluding 29:220, 29:281, 29:282, and seminars. The following minimum program is recommended as preparation for the comprehensive examinations:

- 29:192 Atomic Physics
- 29:193 Introductory Solid State Physics
- 29:194 Plasma Physics
- 29:232-233 Theoretical Astrophysics I-Il
- 29:234 Stellar Structure and Evolution
- 29:235 Special Topics in Astrophysics
- 29:263 Seminar: Astrophysics

Financial Assistance

Fellowships and teaching assistantships are awarded to promising graduate students. Financial assistance is available to all graduate students.

Research and Facilities

The department has an excellent library and a number of well-equipped laboratories and observatories. The associated facilities at the University's Weeg Computing Center are available for research by students in the department, and several other computing resources are available within the department. The central machine shop is fully equipped and staffed with skilled instrument makers and machinists, and there are several electronic and machine shops to provide for the use of advanced students and the research staff.

Experimental research is conducted in astronomy (optical and radio), low energy nuclear physics, plasma physics; solid state physics; magnetophysics; solar-terrestrial, interplanetary, and planetary phenomena; astrophysics; atomic and molecular physics; low temperature physics; laser physics; and acoustics of musical instruments.

A major experimental space physics program is conducted in the department. Extensive facilities are available for computation of models for satellites and spacecraft. The reception of satellite telemetry, and for computerized decoding and analysis of data.

An unusually versatile 6-Ci Van de Graaf accelerator, which has been modified for energies up to 1 MeV, is used in studies of nuclear reactions, induced by hydrogen, helium, lithium, and beryllium nuclides. Experiments on fundamental thermal, electrical, and magnetic properties of metals, alloys, and compounds are included in the experimental solid state program, as are surface studies of solids and semiconductors. Several experimental double plasma devices are used to study confinement, nonlinear waves, and turbulence effects in low-temperature, steady-state plasmas. A variety of laser spectroscopy and molecular beam studies is carried out at the Iowa Laser Facility.

The department is well equipped for research in observational astronomy. The primary optical entrance, a 24-inch reflector with a computer-controlled photocathode camera, and charge-coupled device system. Research programs in geophysics, geosciences, and astrophysical radioastronomy are carried out using an 18-kW solid-state klystron operated at the National Radio Astronomy Observatory, the Kitt Peak National Radio Observatory, and the Arielco Observatory.

Theoretical research is devoted to elementary particle, high-energy physics; plasma physics; astrophysics; atmospheric, space, and planetary physics; solid state physics, nuclear physics, and atomic and molecular physics.

Courses

Prerequisites and corequisites are specified as guides and may be waived by the instructor. An elementary course may not be repeated for credit or grade points if the student has already completed the course. The course of the department, or its equivalent, is a recommended prerequisite. Courses 29:9, 29:10, 29:12-13, 29:17-18, 29:50, and 29:61-62 are considered equivalent to the College of Liberal Arts general education in the natural sciences.
Teaching Major
Undergraduates planning to teach in the social sciences with an emphasis on political science must meet these requirements:

- Same political science course requirements as for the B.A. and B.S., except that the minimum requirement in political science courses numbered above 100 is 11 semester hours.
- Twelve semester hours of courses in each of two of these areas: American history, world history, economics, geography, and sociology. Twenty semester hours are required for psychology as a related field.
- Completion of the sequence of professional education courses leading to certification (see the "College of Education" section of the Catalog).

Honors
The department has a program leading to a B.A. degree with honors. It is open to a limited number of students with a minimum general grade-point average of 3.2. To graduate with honors, the student must maintain at least a 3.2 grade-point average in political science and a general grade-point average of at least 3.5. Honors students must take 30.180 Honors Introduction to Political Inquiry, and must complete at least two semesters of work in the 30.182-183 Honors Seminar, with a grade of B or better each semester. Students may substitute a single semester of 30.84 Honors Senior Research Project for one of the seminars of the advanced honors seminar. Students must consult with their advisors before making substitutions. Students interested in seeking a B.A. degree with honors should contact the departmental honors advisor prior to the beginning of the junior year.

Graduate Programs
At the graduate level, the department has a program leading to the Doctor of Philosophy degree in political science, which is particularly appropriate for students planning a scholarly academic career, and the Master of Arts in public affairs program, designed for students who wish to prepare for careers in government service, public affairs, or public education teaching in secondary schools or junior and community colleges. The general M.A. degree is normally pursued by persons whose ultimate degree objective is the Ph.D.

Master of Arts in Public Affairs
Although all students in the public affairs program must take the core courses indicated in the degree elective opportunities make possible several areas of specialization. Students are encouraged to take their electives in a single subfield (but not necessarily in a single department). Among those available are international relations, personnel management and labor relations, public policy analysis, and quantitative methods in management. Planning the elective program should be undertaken in consultation with the director of the M.A. in public affairs program.

The M.A. in public affairs is a nonthesis program. The student must complete at least 36 hours of course work with at least a 3.0 grade-point average, and must pass a written final examination. Although the work distributed below implies completion within a year, the program is sufficiently flexible to accommodate students who may require additional time to meet all degree requirements.

Fall Semester
- 30.224 Public Policy Analysis I 3 s.h.
- 30.223 Introduction to Administrative Computing 1 s.h.
- 30.229 Introduction to Social Research Methods 3 s.h.
- 66.119 Economics of the Government Sector 3 s.h.
- Electives 5 s.h.

Spring Semester
- 30.227 Administrative Theory and Public Policy 3 s.h.
- 30.221 Urban Administration 3 s.h.
- 30.223 Public Policy Analysis II 3 s.h.
- Electives 6 s.h.

Summer Session
- 30.391 Internship in Public Policy and Administration 3 s.h.
- 30.392 Practicum in Public Policy and Administration 3 s.h.
- Elective 3 s.h.
- Total 36 s.h.

Master of Arts with Thesis
except for the M.A. in public affairs and the M.A. offered under a joint program with the College of Law (see the "College of Law" section of the Catalog), the department normally offers the M.A. only as a preliminary step toward the Ph.D.

The student usually obtains the M.A. degree by completing at least 30 semester hours with a grade-point average of at least 3.5, submitting a thesis, and passing a final oral examination. No more than eight semester hours of credit for thesis preparation will be counted toward the 30-semester-hour minimum requirement for the general M.A.

The final oral examination covers both theses and course work.

Master of Arts without Thesis
If a student's first-year evaluation committee finds that his or her course work and research papers provide sufficient evidence of the research and writing skills ordinarily demonstrated in a master's thesis, it may recommend that he or she be allowed to proceed with a doctoral program without writing a 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 3.0, and review of the student's record by a final examination committee, which may waive the final oral examination.

The same requirements apply where a first-year evaluation committee finds the quality of a student's work inadequate for recommending continuation toward the Ph.D. but adequate for proceeding with the master's program, and recommends that the student be permitted to seek the nontechnical M.A. as a terminal degree.

Doctor of Philosophy
All doctoral students must acquire a level of competence in quantitative methods. This will require a thorough grounding in applied multivariate statistics, which is demonstrated by taking 30.221 Advanced Research Methods and conducting a research project. The student must also conduct dissertation research—e.g., foreign languages, econometrics, or experimental design—must be acquired by taking the required course in these areas.

Comprehensive Examination
Students must take the comprehensive examination after completing the sixth semester of residence, or in the first examination period following their attainment of 45 hours of graduate credit, whichever comes later.

Candidates for the Ph.D. must write an examination in three of these areas:
- American Politics
- Comparative Politics
- International Politics
- Political Theory

Before taking the written examinations, candidates must present a written dissertation proposal. They must justify and defend the proposal in an oral examination, which may be written with any matter relevant to the written examination.

Each Ph.D. candidate in political science must acquire at least four semesters of practical supervision in teaching and/or research. This instruction is
Undergraduate Programs

The B.A. and B.S. degree programs in psychology both are designed to contribute to a student's general liberal education and to provide a foundation for postbaccalaureate training not only in psychology and closely-related disciplines but also in other areas such as business, medicine, law, and communications. Students who intend to enter the job market immediately after completing an undergraduate degree are well-advised to complement their psychology major with substantial preparation in another program more closely linked to the world of work, e.g., education, social work, journalism, nursing, and should be understood that almost all vocational opportunities in psychology require advanced degrees.

The B.A. program is specifically intended for students planning to pursue advanced work in psychology or in a related field. It includes requirements for distinct courses in statistics and in experimental psychology, as well as some special requirements in mathematics and natural science. The B.A. program has somewhat fewer specific requirements and rather less formal emphasis on methodology. Both programs leave ample time for the student to combine work in psychology with work in another discipline or program. Students who shift to a psychology major after two years may graduate in a psychology major who may find they do not have the background for the B.S. program. Such a student who intends to pursue graduate work in psychology or in a related area may wish to enrich the B.A. program with courses in statistics and experimental psychology.

Students in either program begin with a general introductory course, followed by more or fewer courses in methodology and electives in several broad areas of psychology: animal learning and biopsychology, child and developmental, clinical, human experimental, and social. The department maintains excellent facilities to support teaching and research about human and animal behavior. All faculty members are actively engaged in research and they bring to their undergraduate teaching the excitement that such activity engenders. Many opportunities exist for interested and capable students to participate in research projects being carried on in the department.

Bachelor of Arts

The student must satisfy the general College of Liberal Arts requirements for the B.A. degree and must complete at least 28 semester hours in the major. At least 15 semester hours of the major must be completed in this department. Satisfactory completion of the psychology 311-412 introduction to psychology automatically satisfies three semester hours of the general education requirement in social science. The B.A. program must include the following courses, or equivalents: 311 Elementary Psychology or 313 General Psychology; 314 Experimental Psychology; one elective course from four of the five area groupings given below with at least two of these four areas electives being 100- level courses. The 314-413 requirement may be satisfied by a combination of 312-412 introduction to Statistics in Psychology and 312-10 Experimental Psychology or equivalents. This alternative is strongly recommended to students in the B.A. program who plan to pursue graduate work in psychology or a related area.

Bachelor of Science

The student must satisfy the general College of Liberal Arts requirements for the B.S. degree and must complete at least 28 semester hours of course credit in psychology. At least 15 semester hours of the major must be completed in this department.

The B.S. program must include the following courses, or equivalents: 313 General Psychology or 311 Elementary Psychology or 313 General Psychology; 314 Experimental Psychology; one elective course from each of the five area groupings given below, with at least four of these five areas electives being 100- level courses. Of chemistry and one semester of a special area of psychology; two semesters of a foreign language; one semester each of chemistry and physics. B.S. majors also must complete at least one semester of calculus. The student should consult with his or her advisor concerning specific courses which will satisfy these requirements.

Minor

A minor in psychology is an option which should be attractive to students from a variety of disciplines. At least 15 of the 15 semester hours for a minor in psychology must be in 100-level courses in this department. Departmental advisers can assist students in identifying sequences of courses for a minor that appropriately complement the student's major.

Area Electives

Area offerings vary somewhat from semester to semester. Prior to each registration period, students should
Student Development Program

The student development program in psychology is designed primarily for students seeking the Ph.D. degree. Except in very special circumstances, applications are considered only for that degree. For students entering without previous graduate work, it is a four-year program; those entering with previous graduate training will require at least two additional years in the department, depending on the nature of the earlier preparation.

The Ph.D. program has a strong emphasis on preparation for research, teaching, and scholarly endeavors, whether in academic settings or in industrial, government, or medical institutions. The intent is to produce graduates who are deeply committed to the study of behavior, familiar with fundamental knowledge about behavioral 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.

Prospective applicants should understand that the number of positions appropriate for graduates of this program is limited and that the competition for available openings is fairly intense. Graduate training is organized in five broad training areas: animal learning and biopsychology, child and developmental psychology, clinical psychology, human experimental psychology, and social psychology. Each entering student is expected to identify one of these areas as his or her specialty and to follow a program which develops through understanding of the core substantive material and which, at the same time, is central to that subdiscipline. While pursuing specialty training, all students also meet course requirements in statistics and research methods, in learning, and in areas outside the primary one.

The training area programs are sufficiently flexible to accommodate a student who wishes to do so to develop substantial competencies in the second training area. Several such joint programs have been formulated and others can be developed as student interest dictates. Joint programs involve a mix of course work in the two areas, and research supervision or co-supervision by faculty members from both areas. The department also is prepared to help students develop additional expertise in any of the following interest areas: human factors, behavioral medicine, aging, organizational and consumer behavior, communications, and neuropsychological science. Preparation in one of these interest areas will involve some special breadth seminars. In addition, the department, selected courses in other departments of the University, and participation in one or more research projects in the interest area.

Doctor of Philosophy

The Ph.D. degree requires satisfactory completion of at least 72 semester hours of graduate work in psychology, including at least 33 semester hours in this department. All students must satisfactorily, through one of several options, requirements in statistics and research methods, and in learning. A course in the history and the philosophy of psychology is strongly recommended. Each student also is expected to take sufficient course work outside the primary training area to develop a rationality broad background in the discipline of psychology as a whole. The nature of these requirements and their placement within the graduate program, varies somewhat among the training areas, and also depends on the individual student’s background and interests.

During each of the first three semesters, each graduate student ordinarily takes three courses, some of which are general core courses, some of which are courses in the training areas, and some of which are outside area electives. The student also becomes familiar with the literature, strategies, and special techniques in one or more research areas through engagement in individually-supervised research projects. This participation, which may be with one faculty member or with a different faculty member each semester, is designed to help the student develop by the end of the third semester a reasonably detailed plan for the masters research project.

Before the beginning of the fifth semester in the program a student is expected to complete the masters project and defend the thesis. A comprehensive examination covering material in the primary training area and in the secondary area, if any, is given early in the fifth semester.

Admission to Ph.D. candidacy is based on a faculty-wide review of the student’s overall record of performance on the M.A. program, the comprehensive examination, in course work taken prior to candidacy, and research service activities.

During the third year, while continuing selected course work in the training and interest areas, the student develops a prospectus for the dissertation research. The fourth year is devoted primarily to advanced seminars and to the completion of the Ph.D. study and the preparation of the dissertation. In the Ph.D. final examination the student offers an oral defense of the dissertation and exhibits an ability to relate the dissertation work to the relevant issues in the training and interest areas in which the student has chosen to specialize.

Master of Arts with Thesis

As indicated above, the department does not offer a separate M.A. program. The Master of Arts degree with thesis is a required step for students on the Ph.D. objectives. This degree requires:

Animal Learning and Biopsychology

31:17 Introduction to the Comparative Psychology 3 s.h.
31:123 Psychology of Learning 3 s.h.
31:126 Physiological Psychology and Psychopharmacology 3 s.h.
31:128 Introduction to Behavioral Pharmacology 3 s.h.
31:170 Biological Aspects of Behavior 3 s.h.
31:135 Principles of Behavioral Analysis 3 s.h.

Child and Developmental Psychology

31:14 Introduction to Child Psychology 3 s.h.
31:112 Development of Social Judgment 3 s.h.
31:114 Cognitive Development of Children 3 s.h.
31:115 Psychology of Sex Differences 3 s.h.
31:148 Individual Differences in Developmental Psychology 3 s.h.

Clinical Psychology

31:13 Introduction to Clinical Psychology 3 s.h.
31:105 Personality 3 s.h.
31:161 Schizophrenia 3 s.h.
31:162 Depression and Mania 3 s.h.
31:163 Abnormal Psychology 3 s.h.
31:166 Behavior Disorders in Children 3 s.h.
31:170 Behavior Modification 3 s.h.

Human Experimental Psychology

31:162 Methodology in Mortal Processes 3 s.h.
31:102 Psychology of Art and Science 3 s.h.
31:112 Learning and Motivation in Children 3 s.h.
31:118 Social Psychology 3 s.h.
31:119 Memory and Cognition 3 s.h.
31:132 Motivation 3 s.h.
31:133 Perception 3 s.h.

Social Psychology

31:15 Introduction to Social Psychology 3 s.h.
31:166 Development of Children's Social Behavior 3 s.h.
31:167 Social Change 3 s.h.
31:167 Environmental Stress 3 s.h.
31:168 Small Group Processes 3 s.h.

Honor Program

The department has an active honors program open to majors with at least a 3.3 grade-point average in psychology courses and at least 3.2 overall. The program includes research seminars and individual research collaboration with faculty members. Students ordinarily are selected to participate in the Honors Research Seminar in Psychology during the spring semester of the junior year. Interested majors should contact the department honors advisor early in the junior year.
satisfactory completion of at least 30 semester hours of graduate course work in psychology, including at least 18 semester hours in the area of specialization. The student must complete an acceptable scholarly thesis and conduct a successful oral defense of the thesis.

Master of Arts without Thesis

The Master of Arts degree without thesis is an option available to those few students who terminate their work in this department after four semesters. Awarding of this degree requires satisfactory completion of at least 38 semester hours of graduate credit in psychology, including at least 24 semester hours in this department. The course work must include a statistics sequence, a learning course, and at least one course outside the primary area. The student must also pass a written examination covering the area of specialization.

Graduate Training Areas

Animal Learning and Biopsychology

The focus of the program in animal learning and biopsychology is on the animal behavior area, primarily in nonhuman subjects, through the study of behavioral, physiological, and psychological principles. Special faculty strengths in this area are in operant conditioning, comparative psychology, motivation, neurotransmitter, neuroendocrinology, and endocrinology. Students in this program will have the opportunity to learn standard techniques in computer-controlled experimentation and electronic instrumentation, and modern analytic and laboratory methods in neurophysiology, histology, and biochemical assay.

Faculty members in the animal learning and biopsychology area interact extensively with colleagues from a number of basic science departments in the College of Medicine. Collaborative activities provide excellent research and training opportunities for students interested in such emerging interdisciplinary fields as behavioral medicine and neurobehavioral science.

Child and Developmental Psychology

Students in the clinical and developmental program are exposed to a breadth of understanding of children's development in the social, cognitive, and perceptual domains. As the training program proceeds students may focus their preparation in any of the subfields, or may choose to develop a more particular specialization in such areas as language development, learning and memory, the development of social judgment, sensory development, and abnormal development. Most of these specializations require substantial preparation in at least one of the other training areas in the department. The program does not have a specific time span, but a number of faculty members in the department are involved in research on aspects of aging and hence can provide some supervision for students interested in this area. Faculty members have close contacts with members from the Department of Speech Pathology and Audiology, the College of Education, and the Department of Psychiatry, and these relationships can be useful to students who wish to gain additional background in developmental aspects of communication or of behavioral medicine.

Clinical Psychology

The clinical training program, fully approved by the American Psychological Association, strongly emphasizes a scientific approach to the study of psychopathology. It is designed for students who are primarily interested in developing scholarly understanding of clinical phenomena and acquiring research skills necessary to the systematic investigation of such phenomena. Recognizing that students must become familiar with clinical material and competent in the application of clinical skills, the department closely integrates practice with research. Most of the course work in this area is supervised research experience.

Students in the clinical program may develop special competence in such areas as psychophysiology, personality, psychotherapy, aggression, the effective disorders, behavioral and cognitive therapies, sexual dysfunction, and childhood psychopathology. Faculty members are collaborating scientifically and collegially with colleagues from departments such as psychiatry, psychology, social work, biology, gynecology, and from agencies such as the Health Services, Research, and Training; the School of Social Work; the Social Program; and the National Area Education Agencies. Pivotal as a consequence of such collaboration, behavioral medicine and aging interest areas in which a number of clinical faculty members are prepared to offer research supervision. Within the department, joint training programs in clinical-counseling and developmental, and in clinical-human experimental, have been established, and similar joint programs combining clinical training with work in other training areas can be arranged.

Advanced students have opportunities for gaining 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 transcript must satisfactorily complete a one-year internship at an approved agency before receiving the doctorate degree. The internship ordinarily occurs after completion of all course work and of the dissertation project.

Human Experimental Psychology

Students affiliated with the human experimental program concentrate their training in the broad areas of cognition, information processing, and learning. Current faculty members specialize in the following areas: learning, memory, and problem solving in children; language, cognition, and neurolinguistics; mathematical psychology; mathematical scaling; and signal detection theory, cognitive effects of drugs, human judgment, decision making, information processing, and psycholinguistics.

Faculty members in the human experimental area are prepared to help students gain additional experience in a variety of interest areas, including human factors, communications, aging, organizational and consumer behavior, and behavioral medicine. Collaborative research is underway with faculty members from the College of Business Administration, from the Health Sciences Research Center, and from several departmental including industrial and management engineering, speech pathology and Audiology, Neurology and anesthesia.

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 the areas. The study of social psychophysiology, dealing with reciprocal neural, metabolic, endocrine, and immunological systems; social cognition, dealing with whether people are accurate about themselves and others, attribution and change, cognitive consistency, and social influence, including social learning, social development, imitation and conformity, and the social psychology of groups, dealing with communication and group decision processes, social facilitation, and leadership.

Students in the social psychology area also may acquire additional preparation for research and teaching in interest areas such as organizational and consumer behavior, communication, human factors, and behavioral medicine. Such preparation, which ordinarily will involve selected course work outside the department, e.g., in the College of Business Administration, and participation in departmental review projects, will broaden the student's employment prospects.
Graduate Admission

The graduate program in psychology is geared primarily to students seeking the Ph.D. degree; all applicants are considered on this basis. Occasionally a qualified applicant interested in advanced work only through the M.A. level may be admitted to pursue a joint graduate program involving psychology and another discipline or profession. An individual interested in such a program should contact the department chair before February 1.

The deadline for applications is February 1. For all materials to be on file by that date, the Graduate Record Examination (GRE) Aptitude Test should be taken in October, certainly no later than in December. 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 Aptitude Test, and the applicant's statement about background and purpose. Initial review of admission materials is done by faculty members in the training area in which the applicant expresses primary interest.

An undergraduate major in psychology, including a laboratory course in experimental psychology, a course in statistics, and additional work in the natural sciences, is desirable but not required. Students planning to be in a background but who are strongly qualified on other grounds may be admitted, but will be expected to remedy deficiencies through additional work or independent study prior to enrolling in the regular graduate program.

A student who has completed substantial graduate work at another institution at the time of admission to this program will be expected to present documents, such as syllabi, examinations, and projects, which reflect significant engagement in research and scholarly writing. This may make it difficult for persons who were recipients of previous graduate course work to be reviewed by the faculty members of the appropriate training area as a basis for placement in the graduate program. In some instances it will be a student's responsibility to complete substantial research or writing for a master's degree at another institution while a regular full-time student 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 the M.A. or the Ph.D. degree in psychology.

Financial Assistance

All students admitted to the graduate training program in psychology are automatically considered, on the basis of merit, for such financial support as may be available in the form of teaching assistantships, research assistantships, fellowships, tuition remissions, etc. No separate application for financial aid is required.

Faculty

National rankings of graduate psychology programs consistently have shown this department to be among the top 25 in the nation. The widely recognized curriculum of the faculty to research and scholarship is manifested in the publication of some 75 articles, books, reviews, and book chapters each year, and in the fact that many of the faculty members are active as editors, associate editors, and regular reviewers for editors of major psychology journals.

Facilities

The department's facilities for graduate training and research are among the finest in the country. The Kenneth W. Spence Laboratories of Psychology, and adjoining space in Seashore Hall, include three separate animal facilities, several surgeries, a histology laboratory, a number of small laboratory computers, automated data acquisition and reduction systems, observations units with remote audiovisual control and recording equipment, soundproofed rooms, closed-circuit TV systems, electrophysiological recording rooms, conditioning laboratories, the Carl E. Seashore Psychophysics, and well-equipped electronic, mechanical, and woodworking shops. Scientifically equipped research laboratories are available for use in studies conducted at schools and other locations.

The University's Weeg Computing Center has an IBM 3633, three Prime 850 and two Prime 750 computers. Students and faculty have ready access to these systems through terminals in the department and through a satellite computer facility in Seashore Hall. Office space for graduate students and faculty is provided in Seashore Hall, and the psychology branch of the University's Main Library is conveniently located in the west wing of Seashore Hall.

The research and teaching activities of the department are greatly benefited by the facilities and staff of other University and local agencies, including the University's Hospitals and Clinics Psychiatric Hospital, the University Administrative Medical Center, the University Counseling Service, the Child Development Clinic, the Wendell Snow and Hearing Clinic, the Health Sciences Research Center, and the School of Social Work Development Program. Courses

For Undergraduates

Either 31:1 or 31:2 or equivalent, is prerequisite to all other courses in psychology. Only one of these two courses may be taken for credit.

31:13, 31:14, 31:15, 31:16, 31:17, 31:19, and 31:43 are open to freshmen who have satisfactorily completed an introductory psychology course, e.g., 31:1 or 31:3.

31:1 Elementary Psychology

24 sh. Overview of psychology as a behavioral science. Examine in detail the various aspects of psychology as they relate to the study of human behavior as well as to the nature, organization, and functioning of the nervous system. A field trip through participation in demonstration-demonstrations and in actual research studies, or through preparation of research reports. May not be taken pass-fail.

31:2 General Psychology

24 sh. Same content as 31:1, but with additional emphasis or greater emphasis on experimental methods in the approach of behavioral research. Recommended for B.S. majors in psychology, open to all honors students, and to other qualified students with permission of instructor. May not be taken pass-fail.

31:33 Introduction to Clinical Psychology

3 sh. Survey of current and historical developments in clinical psychology, consideration of fundamental concepts and clinical applications in the areas of marital therapy, psychotherapy, group therapy, and other areas. Prerequisite: 31:1 or 31:3 or equivalent.

31:34 Introduction to Child Psychology

3 sh. Survey current research trends and theory in child psychology including child development, environment, parent-child interaction, learning, language acquisition, thinking, play, attention, associates, and emotional development. Prerequisites: 31:1 or 31:3 or equivalent.

31:37 Introduction to Social Psychology

3 sh. Research relating behavior of individual human organism to social situations. Topics include social perception, perception, attention, memory, language, learning, problem solving, decision making, and thought, considered from information-processing viewpoint. Prerequisites: 31:1 or 31:3 or equivalent.

31:39 Introduction to Mental Processes

3 sh. Survey of the study of individual human cognition: perception, attention, memory, language, learning, problem solving, decision making, and thought, considered from information-processing viewpoint. Prerequisites: 31:1 or 31:3 or equivalent.

31:3 Introduction to Comparative Psychology

3 sh. Consideration of the following topics: comparable human and nonhuman behavior, stimulus discrimination, attention, language, and consciousness. Perspectives of view will include the ethological, evolutionary, and neurophysiological. Prerequisites: 31:1 or 31:3 or equivalent.

31:99 Psychobiology in Business and Industry

3 sh. Application of psychological knowledge to the world of work; emphasis on personnel selection, training, attitude modification, and human relations. Prerequisite: 31:1 or 31:3 or equivalent.

31:49 Evaluating Psychological Research

2 sh. Development of skills required to critically evaluates the professional and public literature dealing with the scientific study of behavior. Includes sections on the scientific approach to the study of behavior, the nature of scientific research, the use of research, and research methodology, and the role of the role of statistical inference, and ethical issues in psychological research.

Students interested in graduate work must register for at least four semester hours. Prerequisites: 31:1 or 31:3 or equivalent.
Internship Opportunities
The recreation education program places special emphasis on practical experience and student involvement with the profession and practitioners. Students are encouraged to attend local and national professional conferences, and every class in the professional core includes lectures by working professionals, as well as opportunities for paid experience related to course content.

The practical experience is climaxd by a professional internship for a full semester in an agency and setting at the student's selection. The internship is designed to lead to post-graduation employment.

Honors
Admission to the honors program in recreation education requires a formal application, completion of at least 30 semester hours of course work at the University, completion of at least 9 of the 32 semester hours of required major course work, and an overall grade-point average of 3.0 or above, on all college work, attempted and on all work attempted in recreation education.

To graduate with honors in recreation education, the student must successfully complete an honors thesis, which should be a substantial portion of his or her honors committee's work. The student may take at least three semester hours of honors work a semester.

Master of Arts
The master's program is designed to prepare students for administrative, supervisory, and teaching positions in recreation administration.

Therapeutic Recreation Administration
This area focuses on the development and administration of therapeutic recreation programs in such settings as hospitals, psychological centers, schools, and other institutions.

Facilities
Students majoring in recreation education have the opportunity to gain extensive experience, paid or voluntary, through independent research in these and other locations.

Courses

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<td>Master of Arts</td>
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For Undergraduates

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graduate work in religion may be transferred into the program, on the recommendation of the student's committee and with the approval of the director.

Students in either program will be required to earn 24 of their required semester hours in their designated major area, fifteen hours in the minor area, and three additional semester hours. Those whose major and minor areas are both in Western religion will be required to take one of the following three courses in Asian Religion as the three additional hours: Religion in India, Religion in China, Religion in Japan.

Requirements for languages and other research tools are to be determined by the student's committee.

All M.A. students must pass that part of the Ph.D. qualifying examination (see below) in their major area.

Master of Arts in Religion and Health

Study of the role of religion in health and illness requires a combination of theoretical and clinical investigation. The University Hospitals and Clinics provide the setting for research and training in this program.

Candidates for the Master of Arts in religion and health must complete 30 semester hours of course work. Four may be earned in the summer. A maximum of six semester hours may be taken from another accredited graduate or professional school.

The program includes required courses in religion and health and in related fields of ethics, religion in America, and other relevant studies outside the School of Religion. The student appropriately takes the comprehensive examination before writing the thesis. Knowledge of a foreign language, statistics, or another research tool may be required, at the discretion of the student's advisory committee.

In addition to the general requirements for admission outlined below, the student generally requires an on-campus interview of applicants to the M.A. program in religion and health; however, the interview may be conducted off-campus by an accredited member of the Association for Clinical Pastoral Education.

Doctor of Philosophy

Candidates for the doctorate must complete a minimum of 72 semester hours of graduate course work. A maximum of 12 semester hours will be allowed for the dissertation. The student may select one of two options for doctoral study.

In the first option, in consultation with the School of Religion faculty, the student develops a broad program which will give him or her a knowledge of three of the five areas in which the school offers graduate study:

- Qualifying examinations, covering course work and readings in each of the three areas, provide an initial examination of the student's progress. Students entering with a master's degree or its equivalent must take qualifying examinations within two years of beginning doctoral work; other students must take them within three years. Students must demonstrate competence in either French or German before taking the qualifying examinations. Competence in both languages must be demonstrated at least twelve months before beginning the comprehensive examination. For faculty approval, another language may be substituted for either French or German. In some areas, however, there are special additional language requirements.

- Doctoral students prepare for the oral and written comprehensive examinations under the supervision of a thesis-member faculty committee. The committee will determine three subjects for the comprehensive examination, including one subject closely related to the student's dissertation topic. The doctoral candidate must pass an oral examination on the dissertation.

A student choosing the second option pursues all of six separate programs: Judaism and Christianity in the Hellenistic world, History of theology and religious thought in the West, Contemporary theology and religious thought, Studies relating theology and other academic disciplines, History of Asian religions, Interdisciplinary program in religion and personality.

Application for admission to these programs may be made before or after enlisting for graduate study. The student is expected to have passed the doctoral language requirements at least twelve months before having the comprehensive examination. Each of the programs is supervised by a faculty committee. Beginning with the third semester of graduate work and continuing up to the student's examination, the student must submit to the supervising faculty the paper best representing his or her work that semester. Depending on the student's program, the comprehensive examination will cover three or four fields. One field will be directly pertinent to the student's dissertation subject.

More detailed information on degree requirements and graduate study policies of the School of Religion is provided in information for Graduate Students, which is made available to all applicants. It is regularly updated and contains details about any of the programs may be made to the director of the school.

Facilities

The University Hospitals and Clinics provide clinical opportunities for students in religion and personality, particularly in clinical pastoral education and 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.

Graduate Financial Aid

The School of Religion has available three types of departmental financial aid: a teaching-research fellowship, a teaching assistantship, and research assistantship. Awards are made annually on a competitive basis. Full-time students are ordinarily appointed only as research assistants.

Graduate Admissions

All applicants for admission to graduate study must meet the general requirements of the Graduate College. In addition, the School of Religion ordinarily requires a combined verbal-quantitative score of 1100 on the Graduate Record Examination (GRE) Aptitude Test and a 3.0 grade-point average for admission to the M.A. program, and a combined verbal-quantitative score of 1200 on the GRE Aptitude Test and a grade-point average of 3.2 for admission to the Ph.D. program. Also, three letters of recommendation and the submission of a significant writing sample are required.

Courses

121 John Chrysostom Tradition

Study of the nature of religion and analysis of the influence of culture and Judaism as well as the New Testament and Christianity.

122 Religion and Society

Students study the various expressions of religion, using lectures, films.

123 Baptist Theology

Explores the Baptist tradition, including the creeds and confessions used by the Baptist denomination.

131 Baptist Theology: The West

Study of French-Catholic and Reformed influences including the influence of John Calvin and Martin Luther.

133 Latin American Theology

Study of Latin American religion and missions in the Americas.

135 Course in Religion Studies

Introduction to the study of religion through an examination of various schools in which religion has been studied, including historical or social."
However, it is to help students clarify their own thinking and improve their own communication.

Satisfactory proficiency in rhetoric is a requirement for baccalaureate graduation from the College of Liberal Arts (see the "College of Liberal Arts" section of the Catalog). The Rhetoric Program's reading and writing tips and pointers for ALL University students, on a voluntary basis (see the "Services for Students" section of the Catalog).

Courses
151 Rhetoric
4 s.h.
Instruction and practice in speaking, writing, and critical thinking, with an emphasis on composition, analysis, organization, and style. Emphasis on improving analytical and critical thinking skills using library resources for analyzing and supporting ideas, adapting rhetoric to readers and listeners.

152 Rhetoric
4 s.h.
Continued instruction and practice in oral and written communication with the focus on critical thinking, research, and argumentation; develops competence in research procedures leading to organizing, analyzing and identifying the main points of view, analyzing and synthesizing evidence; written communication in controlled context, supported by analysis and supported by analysis, evidence, and research projects.

153 Rhetoric
4 s.h.
Instruction and practice in speaking, writing, and critical thinking with an emphasis on advanced undergraduate research and writing. Develops competence in research procedures, analyzing evidence and evaluating sources of evidence, reasoning and argumentation, developing and defending research projects. Open to students not enrolled in another rhetoric course.

153 Rhetoric
2 s.h.
After an initial sequence of writing, instruction focuses on developing skills for writing research papers. Open to students not enrolled in another rhetoric course.

Russian
Department Chair: Ray J. Parrett, Jr.
Faculty Professors: Norm L. Laughlin, Harry R. Mutz, L. Merle Shmidt
Associate Professor: W. P. Taylor, Jr., Christopher A. Whiting, Andrew R. Yost
Instructor: Karen J. Gottlieb
Degrees offered: B.A., M.A.

The purposes of the Russian program is to give students training in both the written and spoken Russian language and in Russian literature. An important secondary objective of the program is to provide students with an understanding and appreciation of Russian civilization and culture. A knowledge of Russian is seldom an end in itself but rather a complement to some other vocation. Accordingly, the department encourages all of its students to pursue a joint major and to develop their interests in related or complementary fields.

With the increasing importance of Russian as a language of science and commerce, many students find training in the language is an important asset to careers in the natural and physical sciences, engineering, medicine, and business. Students of journalism, library science, and the social and military sciences also have strengthened their career preparation through the study of Russian. Some students major in Russian before going into international relations, or another profession; others study Russian as preparation for graduate work in Slavic languages and literatures, comparative literature, English, or other humanistic disciplines.

Russian majors with the B.A. and the required education courses occasionally seek teaching careers in secondary schools. A number of governmental agencies annually interview job candidates who have advanced training in Russian; these agencies give preference to applicants who couple strong language proficiency with a well-rounded background in a number of subjects. Students who develop an exceptional facility with the language may pursue careers in literary and technical translation and interpretation.

Bachelor of Arts
Students who major in Russian must meet the general College of Liberal Arts degree requirements (see the "College of Liberal Arts" section of the Catalog) and earn at least 28 semester hours of credit in Russian courses. Required courses are:

111:109 Introductory Conversation 3 s.h.
111:110 Introductory Conversation 3 s.h.
111:112 Elementary Russian I 6 s.h.
111:113-114 Fourth-Year Russian I-II 8 s.h.

Three of the following:
111:151 Russian Literature in Translation 1860-1880 3 s.h.
111:152 Russian Literature in Translation 1880-1917 3 s.h.
111:151 Tsygoly and Dostoevsky 3 s.h.
111:181 Soviet Literature 3 s.h.
111:181 Russian Culture 3 s.h.
111:181 Russian Civilization 3 s.h.

Students majoring in Russian are strongly urged to include related courses in economics, geography, history, or political science among their electives. Nearly every avenue of professional training and employment available requires a solid background in Russian area studies. For example, a recent statement on the criteria for U.S. Government employment cites as requisite a "substantive knowledge of the area in history, economics, political science, sociological disciplines, scientific specialties, demography, military related skills, and some basic cultural and religious background," moreover, an "in-depth knowledge of literature or science without other substantive background may be viewed as over-specialization in a field of limited practical use."

For minor in Russian the student must complete a minimum of 12 semester hours in the department beyond the second year, including the two-semester sequence 411:111-112.

Honors
Russian majors of junior or senior standing with a grade-point average at least 3.2 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 these semester hours. Students may take up to nine semester hours in honors in Russian.

Summer and Study Abroad Programs
The department vigorously encourages undergraduate and graduate students to participate in the languages study groups in summer and spring training programs during all summer and academic semesters. Students are available for the summer session at a number of universities at home and abroad, and for study at any other accredited University during the summer. Some of these programs and requirements are available for the summer.

Master of Arts
Offered with or without thesis, the M.A. program in Russian offers two major emphases, in literary or in language studies.

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 encouraged to analyze writers' styles, perceive literary techniques, recognize literary themes, and develop the ability for sound criticism of form, content, and language of works in all genres.
Students seeking an emphasis on language studies focus on the historical development of Russian, and its advanced study of contemporary phonology, morphology, syntax, and stylistics.

Candidates for the master’s degree must have completed the equivalent of the undergraduate major in Russian. Deficiencies in previous training may be made up by taking appropriate courses.

Candidates for the master’s degree are required to complete a minimum of 30 semester hours of graduate work, with or without thesis. The program should include courses in related fields such as comparative literature, history, political science, philosophy, and other languages. A student in the thesis program may earn from four to eight semester hours of credit for thesis preparation. Prior to scheduling their M.A. written or oral examinations, or to submitting their theses, candidates must pass a comprehensive Russian language examination; they also must demonstrate a reading knowledge of either French or German.

Financial Aid

Aid is available to graduate students in the form of tuition scholarships. University fellowships, and one-quarter


teaching and research assistantships; is awarded annually on a competitive basis. The assistantships are awarded to first-year students. Teaching assistantships are awarded to second-year and third-year students. The exceptions are made on the basis of first-year grade point averages. Students are considered only from students who have been admitted to the Graduate College. Inquiries should be addressed to the department office.

Course Work for Nonmajors

The department offers a special, two-semester sequence of courses (411-105-106) designed primarily for students who need to develop a reading proficiency in Russian for research purposes in the natural, physical, social, and military sciences. The sequence is open to students in the humanities as well. The course is registered in the Soviet Press. It is designed especially for the student who wishes to develop a reading proficiency geared toward the daily and periodical press. A number of Russian classes are open to all university students and are offered in English. These include survey courses in Russian and Soviet literature, history, and civilization, and a monograph course on Trotsky and Dostoevsky.

Special Activities

Each year the department presents several guest lecturers and sponsored films. Students occasionally put on Russian plays. The student organization Russian Circle is open to both undergraduates and graduates. It meets regularly for informal and planned social and educational activities and provides students with a valuable opportunity to develop their conversational skills and to share experiences with other members of the University community. Participation in the Foreign Language House in Westview Residence Hall is much encouraged by the staff and serves as a focal point for many Circle functions, including weekly meals with faculty and guest speakers. A number of outstanding students are inducted annually into Dobro Slavon, the National Slavic Honor Society, and feasted to a commemorative dinner.

Language Media Center

The University’s Media Center provides facilities for language learning, teaching, and research. Equipment in the lab includes standard and short wave radios, tape and cassette recorders, record players, soundproof recording rooms, drill rooms, and video facilities. An electronic classroom, a soundproof workroom, and a library of tape, disk, and cassette recordings are also available.

Courses

For Undergraduates and Graduates

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Science Education

Coordinator: James A. Smyrnov

Family psychology: Vincent R. Lettieri, John E. Fongert, James A. Smyrnov, Robert B. Young


192 LIBERAL ARTS/Science Education
Science Education is a discipline concerned with the interface between science and society. The academic programs in science education therefore include preparation in more than one discipline of science, a consideration of science from a philosophical, historical, and sociological perspective, an introduction to applied science (technology), and a sequence in education.

Because science education is transdisciplinary, program planning requires the cooperation and involvement of a variety of University departments and colleges. Most of the formal requirements are drawn from courses offered in a variety of departments. The Science Education Program has attracted national and international attention. The program has received over $6 million in federal support since 1963. This support has helped establish a specific program for gifted and talented secondary school students, model teacher education programs, an extensive program of instruction and services for in-service teachers across Iowa, a skills program for assigning undergraduates in their studies of basic science, a history and philosophy of science sequence at the undergraduate and graduate levels, a program evaluation component, and a variety of special longitudinal research programs.

Undergraduate Programs

The undergraduate program in science education represents a transdisciplinary major in which all students, while providing an appropriate option for students interested in education as it pertains to science teaching, the medical professions, allied health fields, or such areas as scientific journalism and law.

The science education major is not intended to prepare students for advanced study in one area of science. When the student decides to pursue a graduate Education Program elect to pursue graduate studies in a single area of science, it is often necessary for them to complete additional courses in that discipline after admission to the Graduate College.

All of the emphasis areas in science education have the following characteristics:

Depth in a general area of science, equivalent to three or six semester hours of graduate study.

Preparation in a second area of pure science, equivalent to two years or four semester hours of graduate study: Introduction to two other fields of science.

A specified proficiency in mathematics as a tool of science (more mathematics is required for the physical science emphasis than the biological ones):

A view of science from a historical/philosophical/cultural perspective:

Experience with the application of scientific knowledge in a technological sense.

Outlines for the five areas of emphasis offered in science education are as follows:

**Biology Emphasis**
2-1 Introduction to Botany 4.5 s.h.
37.3 Principles of Animal Biology 5.0 s.h.
Electives in botany, microbiology, or zoology, including ecology, and physiology 14.0 s.h.

**Chemistry Emphasis**
11.6 Principles of Chemistry Lab I 6.0 s.h.
12.1 Organic Chemistry I 3.0 s.h.
Chemistry Electives 5.0 s.h.
12.3 Principles of Physical Geology 2.0 s.h.

**Geology Emphasis**
12.4 Principles of Historical Geology 2.0 s.h.
29-11 College Physics 4.0 s.h.
Mathematics course at the level of 22M.11 or 22S.8 or higher 3.4 s.h.

**Sociology Emphasis**
97.103 Societal and Educational Applications of Biological Concepts 3.0 s.h.

**Application of Science**
One approved course chosen with the advisor's assistance; a wide variety of transfer courses from such areas as engineering, agriculture, and technical schools will satisfy this requirement.

**History/Philosophy/Sociology of Science**
97-128 Meaning of Science 2.3 s.h.
97-130 Science in Historical Perspective 2.3 s.h.

At least 25 semester hours of the following must be earned in 100-level courses:

**Environmental Studies Emphasis**
4-15-14 Principles of Chemistry I-III 6.0 s.h.
4-16 Principles of Chemistry Lab I-III 2.0 s.h.
2-1 Introduction to Botany 4.0 s.h.
37.3 Principles of Animal Biology 5.0 s.h.
37-128 Fundamental Genetics 3.0 s.h.
37-132 Ecology 4.0 s.h.
Electives in Biology 7.0 s.h.

**Chemical Emphasis**
97-140 Principles in Integrating the Teaching of Environmental Science 3.0 s.h.
Electives in geography, geology, environmental engineering, and environmental health courses 15.5 s.h.

Mathematics course at the level of 22M.11 or 22S.8 or higher 3.4 s.h.

**Chemistry Emphasis**
One approved course chosen with the advisor's assistance; a wide variety of transfer courses from such applied areas as engineering, agriculture, and technical schools will satisfy this requirement.

**History/Philosophy/Sociology of Science**
97-128 Meaning of Science 2.3 s.h.
97-130 Science in Historical Perspective 2.3 s.h.

At least 25 semester hours of the following must be earned in 100-level courses:

**Chemistry Emphasis**
4-13-14 Principles of Chemistry I-III 6.0 s.h.
4-16 Principles of Chemistry Lab I-III 2.0 s.h.
4-121 Organic Chemistry I 3.0 s.h.
4-131 Physical Chemistry I 3.0 s.h.
4-141 Organic Chemistry Laboratory 2.0 s.h.
Chemistry Electives 6 s.h.
28:11-12 College Physics 8 s.h.
Physical and Earth Science Electives 8 s.h.
22M:35-36 Engineering Calculus I-II 4 s.h.
97:106 Societal and Educational Applications of Chemistry 3 s.h.

Application of Science
One approved course chosen with the adviser’s assistance; a wide variety of transfer courses from such applied areas as engineering, agriculture, and technical schools will satisfy this requirement.

History/Philosophy/Sociology of Science
97:128 Meaning of Science 2-3 s.h.
97:130 Science in Historical Perspective 2-3 s.h.
At least 25 semester hours of the sequence just outlined must be earned in 100-level courses.

Physics Emphasis
28:11-12 College Physics 8 s.h.
28:17-18 Introduction Physics I-II 8 s.h.
28:19 Introductory Physics I 4 s.h.
Physics Electives 6 s.h.
22M:35-36 Engineering Calculus I-II 8 s.h.
4:13-14 Principles of Chemistry I-II 6 s.h.
4:14 Principles of Chemistry Lab 2 s.h.
4:121 Organic Chemistry I 3 s.h.
4:131 Physical Chemistry I 3 s.h.
Physical and Earth Science Electives 4 s.h.
97:106 Societal and Educational Applications of Selected Concepts of Physics 3 s.h.

Application of Science
One approved course chosen with the adviser’s assistance; a wide variety of transfer courses from such applied areas as engineering, agriculture, and technical schools will satisfy this requirement.

History/Philosophy/Sociology of Science
97:128 Meaning of Science 2-3 s.h.
97:130 Science in Historical Perspective 2-3 s.h.
At least 25 semester hours of the sequence just outlined must be earned in 100-level courses.

Educational Course Work Required for Teacher Certification
To qualify for a secondary teaching certificate with endorsement to teach science, students must complete all College of Liberal Arts General Education requirements, the requirements for a Science Education major, and the following professional education courses:

Chemistry
4:13-14 Principles of Chemistry I-II 6 s.h.
4:16 Principles of Chemistry Lab 2 s.h.
97:106 Societal and Educational Applications of Chemical Concepts 3 s.h.

Physics
28:11-12 College Physics 8 s.h.
97:106 Societal and Educational Applications of Selected Concepts of Physics 3 s.h.

General Science I
2:1 Introduction to Botany 4 s.h.
28:61 General Astronomy 4 s.h.
12:3 Principles of Physical Geology 2 s.h.

General Science II
(Enrollment Studies Emphasis)
2:1 Introduction to Botany 4 s.h.
37:3 Principles of Animal Biology 5 s.h.
37:102 Ecology 3 s.h.
4:13 Principles of Chemistry I 3 s.h.

Earth Science
12:3 Principles of Physical Geology 2 s.h.
12:4 Principles of Historical Geology 2 s.h.
28:61 General Astronomy 5 s.h.
97:102 Societal and Educational Applications of Earth Science Concepts and Topics 10 s.h.

Special Rules
Since the Science Education Program involves large numbers of students heading for a variety of professional and graduate areas, large numbers of faculty advisors, and several colleges and departments, some special rules and regulations have been approved by the Science Education Advisory Committee of the College of Liberal Arts (consisting of the department executive officers of biochemistry, botany, chemistry, geography, physics-astronomy, microbiology, zoology, and science education). These special rules include:
At least ten semester hours of graded credit in science must be earned at The University of Iowa.
Transfer students using any of the
Graduate Programs

The Science Education Program offers graduate studies leading to the degrees Master of Arts in Teaching, Master of Science, Education Specialist, and Doctor of Philosophy. The M.A.T. program is designed for persons who have had strong undergraduate preparation in science and have decided after receiving the bachelor's degree that they wish to teach science in secondary schools. The other graduate programs in science education are for persons desiring additional preparation in science and education for K-12 teaching, for persons interested in supervisory and/or administrative positions in schools, for persons interested in educational evaluation, for persons wishing to teach science and/or science education at the college level, and for persons interested in developing instruction programs in health, industrial, and/or related settings. The graduate programs in science education continue the philosophy and pattern of the undergraduate programs outlined above. Specific components of each of the graduate programs are as follows:

Master of Arts in Teaching

Education 28 s.h.
Science Specialization 12 s.h.
Minimum Total 40 s.h.

Master of Science Without Thesis

Science Education 8 s.h.
Science Specialization 20-25 s.h.
Correlate Studies 3-6 s.h.
Minimum Total 34 s.h.

Master of Science With Thesis

Science Education 9 s.h.
Science Specialization 20-25 s.h.
Correlate Studies 3-6 s.h.
Minimum Total 32 s.h.

Doctor of Philosophy

Advanced Science Education 24 s.h.
Research Distinction 10 s.h.
Science Specialization 28 s.h.
Correlate Studies 8 s.h.
Minimum Total (beyond master's degree) 70 s.h.
*Includes intensified science preparation, enriched science preparation, enriched professional preparation, integrative studies)

Admission

Requirements for admission to graduate study in science education are identical with those of the Graduate College. The admission process is coordinated with the College of Education.

Special Programs

Iowa-ASSIST

Iowa-ASSIST is a special program in science education which involves in-service teachers in special curriculum revision and implementation efforts. Summer and academic year workshops provide the basic modes of operation for the program. Associated with Iowa-ASSIST is an Interactive Curriculum which provides printed and workshop materials for awareness conferences and workshops.

In addition, Iowa-ASSIST administers a fall Science and Education Conference that attracts more than 300 teachers and students from Iowa schools; sponsors a spring Science and Humanities Symposium, jointly with the U.S. Army Research Branch, for about 400 high-ability students and their teachers; sponsors several conferences for the improvement of science teaching and public awareness of science-society issues; and each summer sponsors special workshops utilizing national authorities and enlisting 200 teachers, supervisors, and administrators.

Research

Each faculty member in science education is responsible for one or more lines of research. Major areas of faculty and graduate student research include: Philosophy and sociology of science Values education in science Science curriculum development Educational technology Computer-assisted learning Simulation systems Classroom interaction studies Teacher effectiveness Pattern analysis of development psychology Cross-cultural experiences Health education Instructional psychology Teacher behavior Mathematics activity Inquiry processes Instructional models Concept formation Aptitude X Treatment Interaction (ATI) Attitudinal and other affective outcomes of instruction Classroom sociometrics and climate
International Programs

Another dimension of the Science Education Center is its emphasis upon international programs. A sizable number of foreign students are enrolled. The faculty has been involved for extended periods in international programs and projects as well.

Facilities

The physical facilities for science education programs at The University of Iowa are exemplary. The Science Education Center is located in the midtown Van Allen Hall near the center of the University campus.

Facilities on the fourth floor include the main office of the Science Education Center, a photographic laboratory, a departmental conference room, a office for coordinating IN-ASSIST, a model in-service program for assisting schools in implementing new national curriculum programs in Iowa schools; a suite of offices for student program activities; space for the elementary school focus of the program; laboratory for the elementary school methods course; and two large teaching laboratories.

The seventh floor includes central offices for the history and philosophy of science facet of the science education and secondary school teacher education programs; a self-instructional laboratory in the nature of a science education and technology laboratory; a large seminar room used for the colloquium series of the secondary teacher education sessions, including many facets of the Iowa UPSET* model, multiple offices for graduate assistants; a common area for small group discussions and individual work; and two large areas for small group and committee work.

Courses

The following are special courses offered by the Science Education Program to supplement the undergraduate emphasis areas in science education and to provide science options for elementary and special education majors.

Primarily for Undergraduates

1976 Cooperative Education Internship 3 s.h.
1977 Fundamentals of Science Lecture 3 s.h.
1977 Investigative Science Laboratory 4 s.h.
1977 Investigative Science Special problems in science for high-ability secondary school students. May be repeated.
1978 Advanced Science 3 s.h.
1978 Investigative Science Consideration of broad conceptual schemes comprising science, student to student interactions of scientific research and modern technology.

Bachelor of Arts

The major in social studies education is an interdisciplinary, nonprofessional major. It provides an excellent foundation for careers in law, social work, religion, urban planning and development, and government service at all levels. Its major purpose, however, is to provide a general education for students preparing to teach in secondary schools. Together with the professional requirements for certification, this major meets the standards for teaching social studies established by the North Central Association of Colleges and Secondary Schools.

Major requirements for the B.A. degree in social studies education total 60 semester hours of credit earned in departments cooperating in the social studies education program. Distribution of the course work is as follows: 12 semester hours in either U.S. or world history; 12 semester hours each in economics, political science, and sociology; at least 3 semester hours in geography; and 9 semester hours in geography, anthropology, U.S. history, or world history.

Students pursuing a social studies education major will take survey courses introducing them to the various social sciences. Many of the departments also offer independent study and readings as alternatives to formal classes. There is no separate honors program in social studies education. Students who qualify are encouraged to do honors work in the social science department in which they wish to concentrate their program.

A Global Studies certificate may be obtained in conjunction with a social studies major.

Admission Requirements

Transfer students must have earned a minimum grade-point average of 2.7 on all work done in the subjects of the cooperating departments in order to be admitted to the program. Approval of candidacy for the bachelor's degree will be granted only to students who have a minimum 2.7 grade-point average in all college work undertaken in the cooperating departments.

Master of Arts

Some of this program's graduate tracks are available to teachers and chairs of social studies departments in junior and senior high schools. The tracks serve as curriculum consultants for school districts, where others are staff members in community colleges. A few have found the day we excellently prepared for their
social work or allied professions; and to prepare students for informed community participation in social welfare issues.

The program is accredited by the Council on Social Work Education. Undergraduate students majoring in social work must satisfy the general College of Liberal Arts requirements, excluding the general education requirement in social sciences. For general education requirement in natural sciences include 11.21 Human Biology. The following courses are required for the major:

**Freshman/Sophomore Years**

30.1 Introduction to Mexican Politics 3 s.h.
30.110 The American Political System 3 s.h.
31.1 Elementary Psychology 3 s.h.
31.3 General Psychology 3 s.h.
34.1 Introduction to Sociology: Principles 3 s.h.
Any basic economics course 2-4 s.h.

**Take in Sequence**

42.22 Introduction to Social Work 4 s.h.
42.140 Human Behavior in the Social Environment 3 s.h.
42.141 Social Work Practice I 1 s.h.
42.171 Social Work Practice II 3 s.h.

**Junior/Senior Years**

42.119 Social Work and Discrimination 2 s.h.
42.127 Social Work and Nativism 2 s.h.
Approved course from another department (see School of Social Work for list) 2 s.h.
42.144 Social Welfare Program and Policy 3 s.h.
42.144 Social Work Research 3 s.h.
42.193 Field Experience Seminar 1 s.h.
42.193 Field Experience 6-12 s.h.

A minimum of 12 semester hours of course work is required in one department listed below. Most students select either sociology or psychology. Courses used to meet general education and foreign language requirements do not count toward the 12 semester hours.

**American Studies**

Anthropology 3 s.h.
Business 3 s.h.
Economics 3 s.h.
Education 3 s.h.
History 3 s.h.
Home Economics 3 s.h.
Journalism 3 s.h.
Political Science 3 s.h.
Psychology 3 s.h.
Recreation Education 3 s.h.
Religion 3 s.h.
Sociology 3 s.h.
Spanish 3 s.h.

**Honors**

The School of Social Work has an honors program leading to a Bachelor of Arts with honors in social work. Students interested in such a program should contact the school.

**Admission**

Admission to the undergraduate program in social work requires:

- Completion, with at least a C grade of 42.22 Introduction to Social Work; which can be taken the sophomore year; at least a 2.5 grade-point average on a 4-point scale; and
- Completion of the application process.

For more information, contact the coordinator of the undergraduate program in social work.

**Master of Social Work**

The M.S.W. program prepares social workers for leadership in the profession and for advanced social work practice worker as generalists or in one of three concentrations. The common goals of the program, to be met through a set of core requirements, are to enable all students to:

1. Understand the dynamics of human development and change;
2. Commit themselves to making human service organizations responsive to people's understandings of the society and the individual; and provide intervention skills for working with individuals, families, small groups, organizations, and communities.

The Master of Social Work degree requires at least 60 semester hours of credit in graduate courses approved by the school including at least 36 semester hours earned after admission to the program. The student may obtain advanced standing for up to 12 semester hours of graduate study completed before admission to the program. Students who have completed an accredited undergraduate major in social work are eligible for a 12-semester-hour reduction of credits required for the M.S.W. With their advisers, who play an active role in assisting students in their educational planning, students should explore additional mechanisms for waiving courses.

The school operates a 12-month program. The summer session is a full semester. Full-time students may enroll for a maximum of 13 semester hours each semester. The core, students entering the program with an accredited undergraduate social work degree and those with advanced standing may expect to complete the program in three or four semesters (i.e., the summer session or fall semester following full admission).

Students requiring the entire 60 semester hours for admission generally complete the program the spring semester of their second year.

Students must maintain at least a 2.5 cumulative grade-point average, must be approved for M.S.W. candidacy, and must successfully complete a final examination project in lieu of the comprehensive examination. The graduate program requires the student may elect a thesis option for credit, and the final examination is oral defense of the thesis. The advanced research requirement may be used for the final examination project. These must be related to the concentration selected. The following is an outline of the M.S.W. degree requirements:

- **Core courses:**
  - 42.119 Human Behavior in the Social Environment 3 s.h.
  - 42.141 Social Work Practice I 3 s.h.
  - 42.143 Social Welfare Program and Policy 3 s.h.
  - 42.144 Social Work Research 3 s.h.
  - 42.202 Social Change, Social Development, and Social Work 2 s.h.
  - 42.127 Social Work and Racism 2 s.h.
  - 42.119 Social Work and Discrimination 2 s.h.
  - 42.150 Advanced Research 2 s.h.
  - Required advanced practice courses:
    - 42.150 Advanced Practice
    - 42.160 Communication and Change
    - 42.161 Human Services Administration
    - 42.201 Community Organization 3 s.h.
  - Concentrations/Generalist options:
    - 9-10 s.h.
    - Concentrators (Individual, Family, and Small Group Services; Human Services Administration, Social Development; three additional courses in the concentration selected)
  - Generalists: one course in each of three concentrations
    - Practicum Seminar 2 s.h.
    - Field Exam/Thesis 6-8 s.h.
  - Internships 10-12 s.h.
  - Total 60 s.h.

**Concentrations**

After admission, students may choose one of four plans of study. They may elect either to pursue advanced work as a social work generalist or to choose from among three concentrations. Concentrations focus on intervention at one of three levels of social systems. The generalist option is designed to provide students with enriched knowledge and skills across all three concentrations so that they are better able to select a variety of functions within
Satellite Centers

In addition to offerings on the Iowa City campus, the school offers both classes and practicum learning in Des Moines, Sioux City, and Quot Cities satellite centers. Regular Social Work faculty are available for students advising and teaching all required courses.

The centers have three primary purposes: to provide the educational programs of full-time students by providing greater diversity of practicum opportunities, to make pursuit of the master's degree in social work geographically available to students unable to relocate to Iowa City; and to provide continuing education opportunities throughout the state for non-degree students.

For full-time students, the general plan is to begin the program in the fall semester in Iowa City. Depending on choices the student makes, practicum can begin as early as the second semester. Some students remain in the Iowa City-Cedar Rapids area for the remainder of their programs, but most are assigned to the Des Moines or Quad Cities Centers. This generally involves the student's relocation.

The Des Moines Center, 115 miles from Iowa City, is the location of the state capitol. It is also the largest city in the state. Many fine practicum opportunities are available in state government offices, child and family agencies, mental health programs, and a variety of other settings.

The Quad Cities City is located on the Mississippi River in Davenport, 60 miles from Iowa City. As part of the Quad Cities metropolitan area of 784,000 people, this area also provides a wealth of practicum opportunities unavailable in Iowa City.aval

Another feature of the school is the opportunity it affords its students to participate in travel/study seminars. Each spring, a policy seminar travels to Washington, D.C. Other urban, rural, and (inter) national seminars are available when there is sufficient interest.

Graduate Admission

The criteria for admission for full-time and part-time study in the M.S.W. program are:

- A bachelor's degree from an accredited college or university, with a reasonable distribution of courses in the social sciences and humanities.
- At least a 3.0 grade-point average for the junior and senior years of undergraduate study, or for 12 semester hours of placement and graduate course work (exceptions noted below).

Three positive letters of reference, including one regarding academic ability and one or more regarding social services or other work experience.
Undergraduate Programs

The undergraduate major in sociology provides a liberal arts education. The program is not oriented to a specific career field, but completion of baccalaureate study in sociology may provide a desirable background for employment in several fields, such as social services, criminal justice, personnel, applied social research, community organizations, and social science teaching in secondary schools. The program also provides a good background for graduate or professional study in social work, urban planning, law, criminal justice, social policy, and similar areas. Finally, the degree prepares the students for work toward advanced degrees in sociology which qualify them for college or university teaching and academic, private, or governmental research positions.

Undergraduate students majoring in sociology should plan their programs in joint consultation with a sociology advisor, and in consultation with the student's intended career field.

An undergraduate student majoring in sociology may elect either a Bachelor of Arts or a Bachelor of Science degree program. Students interested in careers in the physical, biological, or social sciences are advised to seek the Bachelor of Science degree.

Both programs require 27 semester hours of course work in sociology, including:
34:1 Introduction to Sociology: Principles
3:3
34:2 Introduction to Sociology: Problems
3:3
34:10-11 Theory, Research, and Statistics
6:6
Electives
15:15

The student should complete the two-semester theory, research and statistics course work early, to maximize his or her capacity to profit from the other sociology courses.

In addition to the sociology requirements listed above, students minoring in sociology requires the following:
25:110 Introduction to Symbolic Logic
3:3

or
25:104 Introduction to
3:3
25:25 Elementary Statistics and
3:3
One of these three combinations:
25:410 Fundamentals of College Mathematics I
4:5
or
25:11 Fundamentals of College Mathematics II
4:5
or
25:10 Fundamentals of College Mathematics I
4:5
25:20 Elementary Functions
3:3
25:16 Introduction to Programming with PASCAL
4:4
and
25:17 Programming Techniques and Data Structures
4:4

Students with exceptionally strong high school backgrounds in mathematics may substitute 25:25-28 Calculus I-IV for the mathematics option listed above. All majors are advised to take at least one basic course in history and philosophy, and six semester hours of course work in at least one of the following departments: anthropology, economics, geography, political science, or psychology. A list of complete requirements for a sociology major is available in the department office.

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.

Minors

In addition to its major programs, the department provides supportive course work and several students of courses of value to undergraduate students who want to combine a minor in sociology with a major in another field, particularly another social science, business administration, elementary education, or nursing. A brochure describing minors in sociology is available in the department office.

Sociology Teaching Major

To major in sociology and qualify for a teaching certificate, students must complete the following:
All departmental requirements for either a B.A. or a B.S. degree:
Two related electives of 12 semester hours each, taken from economics, geography, American history, world history, political science, and/or psychology (20 semester hours required in psychology), and
The professional courses required for certification (21 semester hours).

Sociology courses taken to fulfill the general education requirement in social science requirements may also be counted toward the sociology teaching major. Other social science or history courses taken to satisfy general education requirements may not be counted toward the hours required in related fields.

Honors

The Honors Program provides a stimulating and integrative educational experience for undergraduate majors who perform at a high level. To qualify for the Honors Program, students must have a grade-point average of 3.35 overall and in sociology courses. The Honors curriculum consists of limited- enrollment classes in which students are able to more thoroughly explore issues of mutual interest with faculty and other honors students. The special requirements for an honors degree in sociology are completion of the honors seminar (34:105), one upper level honors course (see 34:195), and an honors thesis. The honors thesis provides students with an opportunity to do sociological research in consultation with a faculty member of their choice. As an option, honors students may take the honors section of 34:1 and, thereby, waive the general requirement of 25:2 Introduction to Sociology: Principles, introduction to Sociology: Problems for a degree in sociology.

Graduate Programs

The graduate programs in sociology are directed toward professional careers. Depending upon which program the student chooses, the master's program prepares the student for doctoral studies or for professional positions applying sociology. The doctoral program has a research and teaching orientation and prepares sociologists for positions in college teaching and research or for such as academic, private, or governmental personnel responsible for research, using survey, experimental, and observational methods, are readily available in the department.

Master of Arts

The M.A. degree in sociology requires 30 semester hours with thesis of 38 semester hours without thesis. The program without thesis is intended for persons seeking a terminal degree and for whom a wider range of courses in sociology is appropriate.

As candidates for the M.A. degree must complete 34:201 History of Sociological Theory or 34:202 Introduction to Sociology, 34:214 Elementary Statistics and Data Analysis, and 34:215 Sampling, Measurement, and Observation Techniques, with grades of B or higher.
MA in Criminal Justice and Corrections

The program is designed for individuals who wish to work in criminal justice. It is assumed that a sociological orientation and background is extremely valuable for criminal justice work; therefore the major emphasis of the program is sociological. It is also recognized that specialized knowledge is essential for performing specific functions within criminal justice, therefore the student may select 15 semester hours of course work in areas such as legal process, administrative procedure, or direct intervention techniques to develop some level of expertise. The flexible curriculum allows students, in consultation with an adviser, considerate choice in selecting those courses that will best enable them to achieve their career goals.

A limited number of students enter the program each year, so a low-faculty-student ratio is maintained. Facilities are available with local criminal justice agencies. Successful completion of this program requires a minimum of 38 graduate credits, a 3.0 grade-point average on all work taken, and a master's paper (not a thesis).

Joint Program in Sociology and Law

A student may obtain a Master of Arts in sociology and a Juris Doctor by fulfilling the basic requirements of both programs. The College of Law will credit up to 12 hours of graduate work taken after earning the B.A. degree toward the J.D. theore. 90 hours are required for the J.D., even though those hours are also credited toward an M.A. in sociology. At the discretion of the student's M.A. committee, a sociologist may credit up to 12 hours of law course work toward the M.A. degree. This cross-credit allows a student to receive the J.D. and the M.A. by taking less course work than would be necessary if the two degrees were pursued independently. This program is highly individualized and allows the student 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 34:216 Intermediate Statistics and Data Analysis and three elective hours in methods/statistics. Candidates must pass comprehensive examinations and write a dissertation. All doctoral candidates are examined in the basic tool areas of sociology—history, theory, methodology, and statistics. In addition, each is examined on a major and one minor area chosen from among the areas represented by the faculty, such as social psychology, deviance, criminology, family, social stratification, organizations, demography, theory, methods, and statistics. A description of faculty interests is available upon request.

A detailed statement of regulations for graduate study is also available upon request. Prospective doctoral candidates should carefully examine this statement.

Graduate Admission

Admission to graduate study in sociology normally requires a minimum undergraduate grade-point average of 3.0 and a total score of 1160 from the quantitative plus verbal sections of the Graduate Record Examination (GRE) Aptitude Test. In addition to fulfilling the Graduate College requirements for admission (see the "Graduate College" section of the Catalog), the applicant completes a departmental application statement and uses its personal reference forms in obtaining three letters of recommendation.

Applications may be submitted at any time, but should be completed two months before the start of the academic session for which admission is requested. The deadline for applying for departmental financial support is March 1.

Admission decisions are based on a composite consideration of prior academic performance, personal reference letters, scores on the GRE Aptitude Test, and the applicant's statement of reasons for pursuing advanced work in sociology. The department has established a minimum undergraduate course requirement for admission, but a background in the social sciences with some mathematical training is useful. A foreign language is not required for admission and there are no foreign language requirements for either the M.A. or Ph.D. degrees in sociology. Inquiries concerning this admission should be directed to the chair, Admissions Committee, Department of Sociology, 34:160, 1400 Shields Road, Department of Sociology, 1400 Shields Road, 1400 Shields Road, 1400 Shields Road, 1400 Shields Road, 1400 Shields Road, 1400 Shields Road, 1400 Shields Road.

Doctoral Financial Aid

The Department of Sociology offers three types of awards to graduate students: teaching assistantships, research assistantships, and teaching fellowships. Resident tuition is charged to out-of-state students who receive awards. Students who receive assistantships will probably have to work one hour each week for faculty members on teaching or research assignments. The department may also offer tuition scholarships to some students.

Facilities

Departmental facilities include a research laboratory, research project rooms, and the Iowa Urban Community Research Center (IURC). The Research Laboratory consists of 18 rooms especially designed for sociological and psychological research: the facilities include a small-groups laboratory with audio and video equipment; two IBM computers controlling eight subject terminals; and an apparatus shop. The IURC maintains a research library and data bank. Surveys in the data bank are accessible for secondary analysis. (See the "Research Activites" section of the Catalog) Access to the University's main computers is available because of convenient remote facility (terminals and a batch printer) and a separate statistics laboratory containing terminals and a printer.

Courses

For Undergraduates Only

Courses open to freshmen without prerequisites: 34:1, 34:2, 41, 14:13, 14:50, and 34:120. All other undergraduate courses are open to freshmen with stated prerequisites.

34:00 Cooperative Education Internship

Sociology students in the Cooperative Education Program register during work assignment periods in order to have a permanent record of their internships. Open only to majors. May be repeated. Prerequisites: Sociology 201, Cooperative Program and permission of the chair.

35 Introduction to Sociology: Principles

Examination of how individuals are organized into social groups, ranging from intimate groups to large institutions. Major concepts of behavior: biology, culture, social interaction, social structure, and functional analysis. Prerequisites: Sociology 1 and permission of the chair.

38 Sociology and Social Problems

Emergence and distribution of selected social problems: alternative solutions, social problems may include population, inequality, female male, relationships, racism, crime.

39 Theory, Research, and Statistics

Introduction to basic social science techniques appropriate to sociological research. Emphasis on analysis, the statement of researchable propositions, and the logic and meaningful use of statistical techniques in the research process. Prerequisite: Sociology 1.

39:1 Theory, Research, and Statistics

Continuation of 34:10, which is prerequisite.

39:15 Understanding Social Science Research and Methods

Logic and strategy of social science research methods; variables, theories, research, hypotheses, designing and carrying out research. Prerequisite: Sociology 1.

39:50 Water in Society

An in-depth study of the impact of society on water; science, techniques of institutional and natural resources, politics, and ethical issues. Prerequisite: introductory sociology or equivalent, or consent of instructor.

Sociology/LIBERAL ARTS 203
The department provides 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 foreign language requirement for undergraduate majors in English and in Letters. Knowledge of foreign language and culture is indispensable in many career areas. Students majoring in Spanish or Portuguese may find opportunities in such fields as business, transportation, industry, journalism, international broadcasting, and publishing, as well as teaching, research, library work, and transplanting.

Undergraduate Programs in Spanish

First- and second-semester Spanish courses interlace the four performance objectives—understanding, speaking, reading, and writing—through a four-skill厮for a policy of frequent testing of oral skills. Students thereby acquire a broadly based evaluation of their strengths and weaknesses and can calculate and plot their progress in preparation for future work.

Third- and fourth-semester courses are conducted on a dual-track basis, allowing students to enroll in sections having either a speaking orientation or an emphasis on reading, writing, and content analysis.

Major in Spanish

The undergraduate major in Spanish consists of 30 hours of required coursework, according to the following program:

Language (12 s.h.)

311-117 Third-Year Spanish Language I 4 s.h.
311-118 Thirteenth-Year Spanish Language II 4 s.h.
311-117 Fourth-Year Spanish Language I 4 s.h.

Literature (9 s.h.)

Three of the following (both the Peninsular and the Spanish American areas must be represented):
310-121 Renaissance and Golden Age Literature 3 s.h.
310-123 Modern Spanish Literature 3 s.h.
310-123 Contemporary Spanish American Fiction 3 s.h.
310-124 Spanish American Poetry 3 s.h.
310-125 Spanish American Drama 3 s.h.
310-126 Short Story of Spanish America 3 s.h.
310-127 Spanish American Literature of Fantasy 3 s.h.
310-118 Survey of Pre-Twentieth Century Spanish American Literature 3 s.h.

The electives may include one course in Portuguese (with exception of 311 and for the third or fourth semester hours credit, or any number of courses 310-100 or above) and no more than four semester hours may be elected in conversation courses (two semester hours of 310-108 Spanish Conversation: Junior Level and 310-135 Spanish Conversation: Senior Level—no more than three semester hours may be elected in Special Work courses and the following courses may not be elected to fill these eight semester hours.

310-126 Spanish Language Practicum 3 s.h.
310-129 Basic Program for Foreign Language Computer-Assisted Instruction 3 s.h.
310-131 Language Laboratory Equipment Practicum 3 s.h.
310-136 Language Teaching Practicum 3 s.h.
310-144 Elementary Spanish 3 s.h.
310-155 Advanced Intermediate Spanish 3 s.h.

One course given in English may be taken to satisfy some of the semester hours of this requirement, provided additional readings are done in Spanish.

High School Certification

Spanish majors who wish high school certification must complete the requirements listed above for the major in Spanish. Several courses in the College of Education are also required, as is one semester of practice teaching, taken in the junior year.
Minor
A minor in Spanish requires 16 semester hours of course work in Spanish taken at the University of Iowa or in a University of Iowa foreign study program including 12 semester hours at the 100-level. The seven courses listed above as not applicable to the elective requirement for the Spanish major may not be applied toward the minor. No more than three semester hours of credit may be applied toward the minor from the following courses: 35:125 Introduction to Spanish 3 s.h.
35:127 Chicano/Puerto Rican Literature 3 s.h.
35:128 Introduction to Don Quijote 3 s.h.
35:140 Topics in Chicano-Puerto Rican Studies 3 s.h.
35:142 Film and Ideology 3 s.h.
35:145 Chicano Language and Culture for Teachers 3 s.h.
35:159 Latin American Studies Seminar 3-4 s.h.
35:179 Social Work 1-3 s.h.

Students who plan to use the Spanish minor in teaching on the secondary level in a bilingual program are encouraged to complete language study through 35:107 Fourth-Year Language I or its equivalent, and to elect additional courses in Spanish phonology and Hispanic literature and civilization.

Transfer Credit
A maximum of 12 semester hours of credit in approved courses may be transferred from other institutions toward the requirements for the minor in Spanish.

Foreign Study Programs
The department has two foreign study programs, one in Mexico City and the other in Burgos, Spain, both of which are for eight weeks in the summer. A limited amount of credit earned in these and other foreign study programs may be applied toward the requirements for the major or minor in Spanish.

Honors
Admission to the honors program in Spanish requires a minimum of 3.0 overall grade-point average and a minimum of 3.2 average in Spanish. Graduation with honors in Spanish requires, in addition to the 30 semester hours major described above, four semester hours earned in 35:121-122 Honors Literature and/or 35:123-124 honors Spanish Language, an honors essay in Spanish, and an oral examination conducted in Spanish.

Undergraduate Programs in Portuguese

Major in Portuguese
Beginning courses in Portuguese are for students without previous foreign language study or experience. Classes are small, providing a great deal of individual attention in an informal language-learning environment. Courses emphasize speaking and comprehending basic Brazilian Portuguese and incorporating cultural material in the form of films and music.

Requirements
The undergraduate major in Portuguese requires the following courses, or their equivalents, for a total of 27-semester hours of course work beyond the second-year level:

Prerequisites
- 35:1 Elementary Portuguese I 4 s.h.
- 35:2 Elementary Portuguese II 4 s.h.
- 35:100 Accelerated Portuguese 0-5 s.h.
- 35:111 Intermediate Portuguese I 3 s.h.
- 35:112 Intermediate Portuguese II 3 s.h.
- 35:114 Intensive Intermediate Portuguese 3 s.h.

Required Courses (15 s.h.)
- 35:122 Topics in Portuguese Language (upper-division language) 3 s.h.
- 35:114 Culture and Civilization of the Portuguese-Speaking World 3 s.h.
- 35:105 Brazilian Literature I 3 s.h.
- 35:106 Brazilian Literature II 3 s.h.
- 35:107 Introduction to Portuguese Literature 3 s.h.

Two of the Following Courses (6 s.h.)
- 35:121 Portuguese for the Professions (upper-division language) 3 s.h.
- 35:109 Nineteenth-Century Brazilian Fiction 3 s.h.
- 35:110 Twentieth-Century Brazilian Fiction 3 s.h.
- 35:112 Iberian Literature in Latin-American Language 3 s.h.
- 35:115 Topics in Portuguese Linguistics 3 s.h.

Electives (6 s.h.)
Other courses in the above group or other non-regular offerings in Portuguese (seminars, conversation) Approved courses in related fields (e.g. Art, Anthropology, Comparative Literature, Geography, History, Latin American Studies, Linguistics, Sociology).

Minor in Portuguese
The undergraduate minor in Portuguese consists of 18 semester hours in Portuguese, including 12 semester hours of 100-level courses.

Offerings for Undergraduate Nonmajors
Undergraduate students in other disciplines may meet part of the College of Liberal Arts and Sciences foreign civilization and culture general education requirements with 35:3 Contemporary Latin American Narrative, readings in English. The department offers several other literature and cultural survey courses which are taught in English and are of general interest.

Latin American Studies Program
The department plays an important and active role in the Latin American Studies Program, an interdisciplinary undergraduate program focusing on the history, politics, social organization, economy, art, and literature of Latin America, leading to a certificate in Latin American Studies.

Students receiving this certificate must have sufficient competency in Spanish or Portuguese to conduct readings in the language before enrolling in the required senior seminar. For further information on the Latin American Studies Program see "Latin American Studies Program" in the catalog.

Master of Arts in Spanish
Candidates for the M.A. degree must have completed the equivalent of the undergraduate Spanish major. The three years may be combined with the appropriate course work.

Required Course Work
Spanish phonology (either 35:157 Spanish Phonology, or phonology component of 35:208) 3 s.h.
35:208-209 Graduate Spanish Linguistics (4) 8 s.h.
35:226 Cervantes' Don Quijote 3 s.h.
35:233 Seminar in Teaching 1 s.h.
35:251 Medieval Spanish Literature I 3 s.h.
35:252 Historical Ibero-Romance Language 2 s.h.
35:270 Golden Age literature Course in Modern Spanish Literature 3 s.h.

Courses in Spanish American Literature 3 s.h.
Electives bringing student's total to required minimum of 36 semester hours in the M.A. program.
Phonology component of 35-208
Graduate-level phonetics/phonology
3 s.h.
Phonology 35-208-209 Graduate Spanish
3 s.h.
Additional graduate linguistics (excluding seminars below)
2 s.h.

Literary Theory
35-384 Types of Modern Criticism
3 s.h.

Professional Training
35-352 Seminar in Teaching
1 s.h.

Seminars
Two 300-level seminars in
Spanish linguistics
4 s.h.

Ph.D. Comprehensive Examinations
The doctoral comprehensive examinations for Program I (Literary Track) assume a general knowledge of Spanish peninsular and Spanish American literatures and cover five broad fields, such as a literary genre or a historical literary period, chosen by the candidate so as to include at least two Peninsular and two Hispanic American Areas. Candidates following Program II, with emphasis on linguistics, take five examinations, at least four of which are in Spanish linguistics.

Financial Aid
Teaching and research assistantships are available to qualified graduate students. Normally, two years of such support are available for the completion of a master's degree, and three years beyond the receipt of the M.A. for the Ph.D. As long as a graduate student's teaching and performance meet departmental standards, he or she will continue to receive support over a five-year period of time, but usually not over six years. A good working relationship with financial support should apply directly to the departmental office.

All graduate students pursuing an advanced degree in the Department of Spanish and Portuguese are required to spend at least one academic year as a teaching or research assistant in the department.

Facilities
The language laboratory provides facilities for language learning, teaching, and research. These include standard and special modules: tape recorders, tape players, computers, soundproof recording rooms, study rooms, two large rooms with 60 dual-channel tape recorders providing simultaneous master duplicate and student record, an electronic classroom, a soundproof work room, 15mm and 8mm projection equipment and facilities, and a library of tape and disc recordings. The department offers to its majors a specific course in laboratory procedures.

Spanish Courses
Primarily for Undergraduates
An undergraduate student who has had less than two years of high school study in Spanish will be placed in a first-year or second-year-level class. A student with two or more years of high school Spanish will be placed in an intermediate or fourth-year-level class. Prospective students entering students should consult a departmental advisor. Students wishing more advanced placement may take the placement test. Transfer students who have taken college Spanish at other institutions will be placed according to courses previously completed. A student may not, except with the approval of the chair, take for credit an elementary course after having completed a higher-level course for which the elementary course or its equivalent is a prerequisite.

35-008 Latin American Literature
3 s.h.
35-011 Elementary Spanish I
4 s.h.
35-012 Elementary Spanish II
4 s.h.

35-101-201 Advanced Spanish I
3 s.h.
35-102-202 Advanced Spanish II
3 s.h.

35-201 Latin American Literature
3 s.h.
35-202 Latin American Literature
3 s.h.

35-205 Spanish Grammar
3 s.h.
35-206 Spanish Composition
3 s.h.

35-210 Spanish Literature I
3 s.h.
35-211 Spanish Language and Literature I
3 s.h.

35-212 Spanish Literature II
3 s.h.
35-213 Spanish Language and Literature II
3 s.h.

35-214 Spanish Literature III
3 s.h.
35-215 Spanish Language and Literature III
3 s.h.

35-216 Spanish Literature IV
3 s.h.
35-217 Spanish Language and Literature IV
3 s.h.

35-218 Spanish Literature V
3 s.h.
35-219 Spanish Language and Literature V
3 s.h.

35-220 Spanish Literature VI
3 s.h.
35-221 Spanish Language and Literature VI
3 s.h.

35-222 Spanish Literature VII
3 s.h.
35-223 Spanish Language and Literature VII
3 s.h.

35-224 Spanish Literature VIII
3 s.h.
35-225 Spanish Language and Literature VIII
3 s.h.

35-226 Spanish Literature IX
3 s.h.
35-227 Spanish Language and Literature IX
3 s.h.

35-228 Spanish Literature X
3 s.h.
35-229 Spanish Language and Literature X
3 s.h.

35-230 Spanish Literature XI
3 s.h.
35-231 Spanish Language and Literature XI
3 s.h.

35-232 Spanish Literature XII
3 s.h.
35-233 Spanish Language and Literature XII
3 s.h.

35-234 Spanish Literature XIII
3 s.h.
35-235 Spanish Language and Literature XIII
3 s.h.

35-236 Spanish Literature XIV
3 s.h.
35-237 Spanish Language and Literature XIV
3 s.h.

35-238 Spanish Literature XV
3 s.h.
35-239 Spanish Language and Literature XV
3 s.h.

35-240 Spanish Literature XVI
3 s.h.
35-241 Spanish Language and Literature XVI
3 s.h.

35-242 Spanish Literature XVII
3 s.h.
35-243 Spanish Language and Literature XVII
3 s.h.

35-244 Spanish Literature XVIII
3 s.h.
35-245 Spanish Language and Literature XVIII
3 s.h.

35-246 Spanish Literature XIX
3 s.h.
35-247 Spanish Language and Literature XIX
3 s.h.

35-248 Spanish Literature XX
3 s.h.
35-249 Spanish Language and Literature XX
3 s.h.

35-250 Spanish Literature XXI
3 s.h.
35-251 Spanish Language and Literature XXI
3 s.h.

35-252 Spanish Literature XXII
3 s.h.
35-253 Spanish Language and Literature XXII
3 s.h.

35-254 Spanish Literature XXIII
3 s.h.
35-255 Spanish Language and Literature XXIII
3 s.h.

35-256 Spanish Literature XXIV
3 s.h.
35-257 Spanish Language and Literature XXIV
3 s.h.

35-258 Spanish Literature XXV
3 s.h.
35-259 Spanish Language and Literature XXV
3 s.h.

35-260 Spanish Literature XXVI
3 s.h.
35-261 Spanish Language and Literature XXVI
3 s.h.

35-262 Spanish Literature XXVII
3 s.h.
35-263 Spanish Language and Literature XXVII
3 s.h.

35-264 Spanish Literature XXVIII
3 s.h.
35-265 Spanish Language and Literature XXVIII
3 s.h.

35-266 Spanish Literature XXIX
3 s.h.
35-267 Spanish Language and Literature XXIX
3 s.h.

35-268 Spanish Literature XXX
3 s.h.
35-269 Spanish Language and Literature XXX
3 s.h.

35-270 Spanish Literature XXXI
3 s.h.
35-271 Spanish Language and Literature XXXI
3 s.h.

35-272 Spanish Literature XXXII
3 s.h.
35-273 Spanish Language and Literature XXXII
3 s.h.

35-274 Spanish Literature XXXIII
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35-275 Spanish Language and Literature XXXIII
3 s.h.

35-276 Spanish Literature XXXIV
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35-277 Spanish Language and Literature XXXIV
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35-278 Spanish Literature XXXV
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35-279 Spanish Language and Literature XXXV
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35-280 Spanish Literature XXXVI
3 s.h.
35-281 Spanish Language and Literature XXXVI
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35-282 Spanish Literature XXXVII
3 s.h.
35-283 Spanish Language and Literature XXXVII
3 s.h.

35-284 Spanish Literature XXXVIII
3 s.h.
35-285 Spanish Language and Literature XXXVIII
3 s.h.

35-286 Spanish Literature XXXIX
3 s.h.
35-287 Spanish Language and Literature XXXIX
3 s.h.

35-288 Spanish Literature XXXX
3 s.h.
35-289 Spanish Language and Literature XXXX
3 s.h.

35-290 Spanish Literature XXXXI
3 s.h.
35-291 Spanish Language and Literature XXXXI
3 s.h.

35-292 Spanish Literature XXXXII
3 s.h.
35-293 Spanish Language and Literature XXXXII
3 s.h.
Portuguese Courses

301 Elementary Portuguese I 4 s.h.
302 Elementary Portuguese II 4 s.h.
303 Elementary Portuguese III 4 s.h.
304 Intermediate Portuguese I 4 s.h.
305 Intermediate Portuguese II 4 s.h.
306 Advanced Intermediate Portuguese I 4 s.h.
307 Advanced Intermediate Portuguese II 4 s.h.
308 Advanced Portuguese I 4 s.h.
309 Advanced Portuguese II 4 s.h.
310 Portuguese Language and Literature 4 s.h.
311 Portuguese Language and Culture 4 s.h.
312 Portuguese Language and Culture I 4 s.h.
313 Portuguese Language and Culture II 4 s.h.
314 Portuguese Language and Culture III 4 s.h.
315 Portuguese Language and Culture IV 4 s.h.
316 Portuguese Language and Culture V 4 s.h.
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418 Portuguese Language and Culture XXXXVII 4 s.h.
419 Portuguese Language and Culture XXXXVIII 4 s.h.
420 Portuguese Language and Culture XXXIX 4 s.h.
421 Portuguese Language and Culture XXXX 4 s.h.
Undergraduate Programs

Since the master's degree or its equivalent is the minimum level of preparation for persons seeking professional careers in this field, the undergraduate curricula leading to B.S. or B.A. degrees in speech and hearing science do not qualify an individual to work professionally in this field but have as a primary purpose the preparation of students for graduate work. Hence, the undergraduate programs emphasize the normal processes of speech, hearing, and language. These undergraduate programs may also be taken by persons who want a degree in the College of Liberal Arts but who do not desire a career in this field.

The major requirements for the B.S. or B.A. degree in speech and hearing science are as follows:

1. 31:183 Abnormal Psychology
2. 31:185 Behavior Disorders in Children
3. 31:170 Behavior Modification
4. 31:158 Behavior Disorders in Children
5. 31:190 Introduction to Clinical Psychology and/or independent observations, or required observations made for elective departmental courses.

HONORS

The senior-year program leading to the B.S. or B.A. degree with honors in speech pathology and audiology is open to students who at the beginning of the senior year have completed at least ten semester hours of coursework that can be counted toward a major in the department, and have earned at least a 3.2 grade-point average on all major courses and all work at the University.

At any time during undergraduate study, students who have earned a minimum grade-point average of 3.0 and have not entered the University as honors students may apply for honors designation in the College of Liberal Arts and in this department by recommendation of the departmental honors advisor. For graduation with honors, the student must be classified as an honors student in the College of Liberal Arts, and complete both 3.07 Honors Seminar and 3.08 Honors Thesis.

Graduate Programs

Master of Arts

The M.A. program in speech pathology and audiology may be a professional program to prepare the student for immediate placement in clinical service positions, or it may be a general program of graduate study leading to additional study for the Ph.D. degree. The student's program of study for an M.A. with professional emphasis is designed to ensure that upon graduation the student will meet the requirements for immediate professional employment.

The M.A. candidate usually has a background of undergraduate courses in speech and hearing science, psychology of language, and human behavior essentially equivalent to an undergraduate major in this field at The University of Iowa.

Before his or her first registration in the program, the entering M.A. degree candidate must take proficiency examinations covering the speech and hearing course work considered prerequisite to graduate study. The results of these examinations provide the student and faculty advisor with a basis for developing a plan of study.

The M.A. program with professional emphasis is designed to prepare clinicians in speech-language pathology or audiology who will be able to function independently in a variety of clinical settings. The M.A. program with professional emphasis will meet the requirements for clinical certification by the American Speech-Language-Hearing Association. The department offers the M.A. with various emphases. Each requires a minimum total of 38 semester hours of graduate credit for a master's degree in this department.

All M.A. students must complete at least four semester hours of research registration. This may be accomplished by any combination of enrollment in seminars (at 2 s.h.) and/or research hours. Completion of the research hours registration may consist of 11 work toward a thesis, or 2 preparation of a paper involving any of the following alone or in combination: literature review, prospective development, and presentation of data.

A written product is required at the end of each semester's enrollment. An exception to this requirement can be made in the case of research hours leading to a thesis.

Candidates for an M.A. degree with professional emphasis are not required to present a thesis, although all students demonstrating research aptitude and interest are encouraged to do so. All candidates preparing for the M.A. degree with research emphasis are required to take final written comprehensive examinations.

A typical M.A. program with professional emphasis is two years in length but may be longer or shorter depending on the background of the individual students and their personal interests.

A.M.A. with Research Emphasis (General Program)

The typical M.A. program for the student intending to continue to the Ph.D. degree usually includes a substantial portion of the courses in the professional M.A. program. Additionally, the thesis course 3.07 is required to present a thesis and successfully complete a final oral examination.

B.M.A. with Professional Emphasis

Students seeking an M.A. with professional emphasis must fulfill requirements under 1. below, and, depending on specific interests, the courses listed under 2. 3, 4, or 5. below.

1. Offered courses:

*3.116 Neural Processes of Speech and Language 3 s.h.
Speech Pathology and Audiology/LIBERAL ARTS

*3:185 Hearing Loss and Audiology

3:185 Hearing Loss and Audiology

3:194 Developmental Language Disorders

3:244 Rehabilitative Audiology

*3:198 Counseling for Related Professions

or

3:100 Counseling Theories and Techniques

3:510 Seminar in Introduction to Research in Speech and Hearing

0 s.h.

Advanced seminars or research 4 s.h.

Additional seminar hours of practicums registration sufficient to meet supervised direct clinical experience requirements for the Certificate of Clinical Competence of the American Speech-Language Hearing Association, and to provide broad supervisory practical experience.

*Equivalent undergraduate course will be accepted as meeting requirements.

3. Speech-Language Pathology, General Clinical Emphasis

Courses listed under 1 and:

3:163 Pathology

3:172 Voice Disorders

3:236 Neuropathology of Speech and Language

3:237 Otitis Media and Related Disorders

2 s.h.

Additional practicum, research, and elective courses.

3. Speech-Language Pathology Emphasis on Clinical Work in Elementary and Secondary Schools

Courses listed under 1 and 2:

7E:104 Remedial Methods in Speech and Hearing

7E:192 Laboratory Practice in Elementary School

5 s.h.

Additional practicum, research, and elective courses

4. Audiology, General Clinical Emphasis

Courses listed under 1 and:

3:120 Fundamentals of Laboratory Instrumentation

3:140 Manual Communication (Eul. I)

3:240 Clinical Audiology and Hearing Aids I

4 s.h.

3:241 Advanced Audiology

3:242 Clinical Audiology and Hearing Aids II

4 s.h.

3:245 Audiology Procedures for Special Populations

2 s.h.

Additional practicum, research, and elective courses

5. Audiology, School Hearing Clinician

Courses listed under 1 and 4, and:

7E:104 Remedial Methods in Speech and Hearing

7E:192 Laboratory Practice in Elementary School

2 s.h.

5 s.h.

Additional practicum, research, and elective courses

Requirements for Employment

A number of states, including Iowa, require a state license in speech-language pathology or audiology for persons who work in locations other than the public schools. Students who meet the requirements listed above for the M.A. degree with professional emphasis also meet the academic requirements for the license in Iowa, as well as in most other states.

Students preparing for clinical positions in public schools are encouraged to meet the certification requirements of the states in which they plan to work. Completion of the following courses in addition to total listed under 3 or 5 above, will meet the certification requirements of Iowa and most other states:

*7E:170 Human Relations for the Classroom Teacher

7E:104 Remedial Methods in Speech and Hearing

7E:192 Laboratory Practice in Elementary School

1-3 s.h.

Education electives 8 s.h.

Doctor of Philosophy

The Ph.D. program provides flexible, comprehensive training for the scholar-researcher interested in communication processes and disorders. Students with diverse backgrounds in the natural and behavioral sciences are encouraged to apply and develop their skills in an atmosphere of interdisciplinary research.

The program emphasizes the broad interests and diverse backgrounds of the faculty. Interests in speech, language, hearing, psychology, physics, psychoacoustics, linguistics, and audiological engineering are committed to an interdisciplinary approach to questions at every level of the speech and language production/dissipation system. The objective of the entire program is to provide the integrated knowledge necessary for a productive career in the field of speech-language pathology and audiology, communication science, and related areas.

The department encourages application of candidates with special interests, goals, or backgrounds to develop individualized programs of study. There are no required courses for the Ph.D. degree; rather, a program of study is developed by each student in consultation with a faculty committee. The course study will be developed from the courses offered in this department, those in other departments (e.g., physics, engineering, psychology, mathematics, chemistry, physics, neurology, anatomy, and others), and special reading and research experiences.

The courses offered by this department primarily for the Ph.D. student include the following: (Students interested in the specific areas of research and selected publication citations of the faculty are encouraged to write the department directly.)

1.20 Fundamentals of Laboratory instrumentation

2.201 Principles of Voice Production

2.216 Language Acquisition

2.216 Psycholinguistics

2.220 Advanced Laboratory instrumentation

2.324 System and Signal Theory for Speech and Hearing

2.330 Speech Perception

2.350 Acoustics and Biomechanics of Speech

2.352 Physiology of Speech Production

2.354 Psychoacoustics

2.355 Psychoacoustics Laboratory

2.358 Psychophysiology of Hearing

2.359 Psycholinguistics

2.360 Seminar: articulation and Language Disorders

2.371 Seminar: Slumping

2.372 Seminar: Speech and Language Skills of the Mentally Handicapped

2.373 Seminar: Voice

2.374 Seminar: Otitis Media

2.375 Seminar: Rehabilitation Audiology

2.378 Seminar: Neurophysiology of Speech and Language

2.379 Seminar on Communication and Aging

2.382 Seminar: Speech Science

2.383 Seminar: Psycholinguistics

2.384 Seminar: Psychoacoustics

2.385 Seminar: Experimental Audiology

2.387 Seminar: Clinical Audiology

2.388 Seminar: Audiology

2.390 Research

Students in the Ph.D. program are normally expected to register for research credit during each semester of residence to become aware of and participate in 2.350-354 Seminar. Knowledge in each of the areas of hearing, speech, language, mathematics, statistics, computer science, and instrumentation is required of all students. Decisions regarding the extent of this knowledge and the means by which it is obtained (for example, course work or independent study) are made jointly by the student and the student's advisory committee. Doctoral students who have not written a master's thesis must complete the equivalent of a master's thesis project before, or as a part of, the comprehensive examination taken by the doctoral candidate, and must successfully complete and submit a dissertation based on original research.
Admission and Appointments

The Department of Speech Pathology and Audiology has requirements for admission and graduate appointments which supplement those specified by the Graduate College. A brief summary of these requirements is presented below. For more detailed information, contact the department chair.

Application Form

All applicants desiring to engage in graduate study in the Department of Speech Pathology and Audiology must complete the departmental information form, which can be obtained from the department chair.

Admission to M.A. Program

The department bases M.A. admission on the applicant's credentials relative to those presented by other applicants for the same term. While an undergraduate grade-point average above 3.0 does not amount to adherence, the department admits few applicants with undergraduate grade-point averages below 3.3.

Completed applications must be received no later than February 1 for enrollment in the next summer session or fall semester. Late applications will be considered only in special circumstances and only if they are received no later than the preceding Nonterm for enrollment in the next summer session.

Applicants to Ph.D. Program

Completed applications should be received at least two months prior to the beginning of the term for which application is made. Applications for summer appointment (April 1) for summer session, July 1 for fall semester, and November 1 for spring semester. However, if an applicant wishes to be considered for graduate appointment, the admission application must be filed by the deadline for appointment applications specified below. Applicants will usually be notified of action on their admission within six weeks after their applications are complete.

Applications for Graduate Appointments

The department information applies to all financial appointments administered by the department.

Graduate appointments usually begin only in fall semester. Students beginning study in the spring, summer session are considered for appointments for the following fall semester.

Grades on the Graduate Record Examination (GRE or the Graduate Management Test) are routinely required for consideration for financial assistance.

Appointment applications must be received by February 1 to insure consideration for an appointment beginning the following fall semester. Initial appointment offers are generally made between April 1 and June 1; however, the department continues to make offers after this time.

Clinical Facilities

The clinical training program derives great benefit from the fact that Iowa City is the health center of the state and that its health services facilities are easily available for the clinical training of students in speech-language pathology and audiology.

The University of Iowa Affiliated Speech and Hearing Services include the University of Iowa Speech and Hearing Clinic; the division of speech and hearing in the Department of Otalaryngology—Head and Neck Surgery; Speech Pathology Service in the Department of Neurology; Speech and Hearing Services, University Hospital School; Pediatrics Regional Child Health Specialty Clinic; Speech Pathology Service, Child Psychiatry; Audiology and Speech Pathology, Veterans Administration Medical Center. Directors of these programs form the Council on Speech Pathology and Audiology at The University of Iowa.

The University of Iowa Speech and Hearing Clinic serves the University and the general public. Included in its services are outpatient evaluation and rehabilitation programs in speech, hearing, and language problems, and a 5-week summer residential program for children. These clinical programs give students supervised clinical experience with a wide variety of speech, hearing and language disorders.

In addition to the clinical training in the University Speech and Hearing Clinic, graduate training may be acquired in supervised clinical practice with elementary school age children, in an arrangement with the various state Area Education Agencies; and in supervised clinical practice in speech and hearing services provided by the Department of Otalaryngology—Head and Neck Surgery, Department of Pediatrics, Department of Neurology, Regional Child Health Specialty Clinic, University Hospital School; Veterans Administration Medical Center, and St. Luke's Methodist Hospital in Cedar Rapids.

Public and private departments and programs in addition to those mentioned above often contribute to the cooperative professional training, research, and service programs.

Research Facilities

Facilities in the Wencel Johnson Speech and Hearing Center, in the University Auditory Mixing suites, diagnostic and remediation skills, equipment for diagnosis and therapy, a closed-circuit television system, and laboratories and equipment for acoustic, physiologic, and perceptual studies of speech, and for audiological, psychoacoustic, and neurophysiologic studies of hearing. Mechanical and electronic shops and trained technical personnel are available for assistance in research instrumentation.

Cooperation of various departments of the University Hospitals and the College of Dentistry makes additional laboratory facilities available for research on problems in speech and hearing. The participation and cooperation of specialists from various fields, including psychology, child development, education, engineering, statistics, and medicine, further broaden the scope of research activities in speech and hearing.

Courses

Speech Pathology and Audiology Cooperative Education Assignment

Applicants desiring to obtain the Cooperative Education Diploma must file a completed application by the designated deadlines. See catalog for scheduled meetings, requirements, and deadlines for Cooperative Education Program and requirements.

Introduction to Hearing and Hearing Processes

Speech, language, and auditory behavior as fields of scientific study; description of major types of hearing, and language disorders.

Hearing Senser

Readings, reports, preparation of papers, and discussion of research problems in normal and pathological auditory function and audiometry. Open only to hearing science majors.

Hearing Tests

Practical assignments in hearing tests and other common tasks of an audiometrician. Open only to hearing science majors.

Counseling Theories and Techniques

Introduction to counseling and psychological theories as they relate to the adjustment of communication disorders. Emphasis is placed on theory with specific techniques to assist in client counseling.

Anatomy of Speech and Hearing Mechanisms

Structure and function of the oral and pharyngeal cavity, production of speech and hearing mechanisms; section on general hearing.

Fundamentals of Special Speech

Principles, techniques, perceptual characteristics of speech, and mechanisms for the laboratory study of speech. Prerequisites: 201, 210, 211, and 213, or consent of instructor.

Introduction to Hearing Science

Normal auditory function, review of acoustics, physics, and physiology of the auditory system; subjective and objective measures of acoustic character. Prerequisites: 310 and 311.

Hearing Loss of Speech and Language

Basic anatomy and physiology of the central nervous system; evaluation and treatment on hearing impaired persons. Prerequisites: 501 and 502.

Psychology of Language

Theoretical and experimental approaches of linguistic behavior. Emphasis on research methods involved in neuro-psychological studies as well as perceptual, developmental, and speech perception and production. Prerequisites: 517 and 519.

Psychology of Language

Theoretical and experimental approaches of linguistic behavior. Emphasis on research methods involved in neuro-psychological studies as well as perceptual, developmental, and speech perception and production. Prerequisites: 517 and 519.

Alternative models of language acquisition, empirical study of formal and informal language development and cognitive development. Same as 515.
Statistics and Actuarial Science

See "Division of Mathematical Sciences."

Urban and Regional Planning

Program chairs: David J. Fotheringham
Finance: professors John W. Fuller, James L. Harris, Andrew W. Way."
Second Semester
102:204 Collective Decision Making 3 s.h.
102:018 Economics for Policy Analysis 4 s.h.
102:220 Introduction to Analytical Methods 3 s.h.
102:300 Introduction to Visual Perception 3 s.h.

Third Semester
102:105 Problems in Planning 3 s.h.

Courses in the first semester are derived primarily from traditional disciplines (particularly economics, law, and statistics), together with an introduction to the theories and practices of planning. Later courses allow students to select, evaluate, and organize information and arrive at conclusions in planning case studies. As students proceed through the core, increasing reliance is placed on real or realistic planning problems. The intent here is to develop critical judgment and insight in the application of theory through case studies and extended field problems. Students may request a waiver of any core course on the basis of previous training and experience.

The Sectoral Major
The second year of the program is focused toward the development of an area of concentration, the sectoral major. Its purpose is to apply the concepts presented in the core to specific issues. The student fulfills the sectoral major requirement by committing nine semester hours of credit in courses offered by various departments and schools of the University, including the planning program. Currently, there are eight sectoral majors—land use, transportation, housing, health, environmental quality, urban services, regional development, and urban management—and others can be designed by the student, subject to faculty approval.

Sectoral majors are organized around public policy-related areas, rather than emphasizing skills such as quantitative methods, public finance, or community organization. These skills, while important, are taught to all students as part of the core curriculum. As interest dictates, additional specialization is possible by selecting the appropriate electives.

The balance between core courses, a sectoral major, and elective courses allows students the opportunity to acquire a rigorous and consistent foundation for policy planning, specialized knowledge to enhance entry-level employment prospects, and exposure to other specialties within the planning field.

Other Requirements
A core examination is required for all students. The exam tests skills and concepts with emphasis placed on the ability to synthesize material from the various core courses. A sectoral major examination is also required. A variety of options for meeting this requirement exist, including a major paper, several shorter papers, or a written examination. The paper(s) may have been written to meet specific course requirements.

A thesis is not required, although a student may petition to write one for up to six semester hours of sectoral major credit, in which case successful completion of the thesis satisfies the sectoral major examination requirement. Each student is encouraged to complete an internship in a planning or related agency or organization and to submit a brief paper summarizing and evaluating the experience. Program faculty take an active role in advising students to secure these internships. Alternatively, the student may elect to complete an additional two semester hours of credit, bringing the total to 50 hours.

Joint Programs
Law
The Urban and Regional Planning Program and the College of Law cooperate in administering a four-year program which satisfies the degree requirements leading to an M.A. or M.S. in planning and a J.D. in law. This is a reduction of one academic year from the total requirements of the two programs taken separately. The same admissions to both academic units are required.

Engineering
A special program involving the College of Engineering and the Urban and Regional Planning Program enables a student to acquire a B.S. in Engineering and an M.A. or M.S. in planning in a total of four academic years. In this accelerated program, coursework is reduced by one academic year from the separate requirements for the two degrees. Admission to the special program can be applied for by undergraduate students in engineering.

Preventive Medicine and Environmental Health
A joint master’s option exists between the Urban and Regional Planning Program and the Department of Preventive Medicine and Environmental Health in the College of Medicine. This option results in an M.A. or M.S. in planning and an M.S. in Preventive Medicine and Environmental Health. Separate admissions to both academic units are required.

Hospital and Health Administration
The Urban and Regional Planning Program and the School of Hospital and Health Administration in the College of Medicine jointly administer a program for students interested in health policy, planning, and administration. This three-year program leads to an M.A. or M.S. in planning and an M.A. in hospital and health administration, and is reduced by one year from the separate requirements of the two units. Separate admissions to both academic units are required.

Social Work
A concurrent studies program is offered between the Urban and Regional Planning and the School of Social Work. Leading to an M.A. in planning and an M.S.W. in social work. This joint program prepares students to address the planning and policy issues involved in social service delivery. Twelve semester hours of credit in planning are accepted toward an M.S.W., and 16 semester hours of credit in social work are accepted toward an M.A. in planning.

Transportation
The transportation research and training program is offered through the Center for Transportation Studies. A transportation research and training program is offered through the Center for Transportation Studies. A transportation research and training program is offered through the Center for Transportation Studies.

Financial Aid
Opportunities for students in the Urban and Regional Planning Program to receive financial support exist through a variety of sources, including graduate research assistantships, teaching assistantships, and on-campus work-study programs. Financial aid may be applied for by students majoring in urban and regional planning, and opportunities for students with sectoral majors in planning and public policy.

For information, see "Financial Aid: Urban and Regional Planning Program."
Transportation Studies/LIBERAL ARTS

Transportation Studies

Transportation is among the most vital needs of modern society. In the U.S., as in every other nation, numerous critical transportation problems and issues exist. The transportation system reaching an advanced stage of its life cycle, public transit operating deficits are burgeoning, the quality of transportation services available to many citizens is unacceptable low, serious financing deficiencies exist, and extensive changes in transportation automations are occurring.

Transportation planners and analysts increasingly will need the time to draw on a number of somewhat disparate skills to respond to the challenges that they are certain to face. They will be required to analyze and forecast the movement of people and goods within and between cities, to identify the most efficient means for providing needed transportation services, to price these services properly, and to evaluate the effects of changes in transportation services or policies on land use, environmental quality, the local or regional economy, and various subgroups within society.

No, wait. What can supply all of the means, principles, or methods needed to address the varied and complex problems in transportation. Recognizing this fact, this three academic units within The University of Iowa participates in an interdisciplinary transportation program. The Department of Civil and Environmental Engineering, the Department of Geography, and the Graduate Program in Urban and Regional Planning have established a graduate certificate program, which enables students in these academic units to obtain an additional credential along with their graduate degrees.

The Transportation Certificate program is coordinated by the Center for Transportation Studies, which administers the Graduate Program in Urban and Regional Planning within the Graduate College of The University of Iowa. Completion of the requirements for a certificate is documented on the student’s transcript. The certificate is awarded to candidates who fulfill the established degree requirements of the individual academic units.

Sufficient flexibility exists within the Transportation Certificate program to enable students to pursue individual interests. While there is extensive sharing of credits, the transportation curricula of the three involved academic units have somewhat different emphases.

Civil and Environmental Engineering

The Department of Civil and Environmental Engineering offers degrees in transportation at both the M.S. and Ph.D. levels. The Ph.D. degree may be earned on either a non-thesis basis requiring a minimum of 54 semester hours of credit, or through a 30-semester-hour program that includes up to six semester hours of credit for thesis research. Non-thesis students usually are required to complete a research paper based on independent study that is defined as an oral examination.

The Ph.D. degree typically involves 72 semester hours beyond the B.S., of which up to 18 semester hours may be given for dissertation research. A minimum of one year of campus residency is required.

Individuals with degrees in transportation-related disciplines as well as in Civil Engineering are encouraged to apply. Depending upon a student’s background, it may be necessary to complete courses in statistics, computer programming, simulation, mathematics, and operations research, without direct course credit to the degree program. A typical master’s level program includes the following courses:

First Semester
59262 Urban Transportation Planning 3 s.h.
100-260 Transportation Policy and Planning 3 s.h.

Second Semester
59262 Urban Transportation Planning 3 s.h.
100-260 Transportation Policy and Planning 3 s.h.

Third Semester
599 Individual Investigations 3 s.h.

Geography

The Department of Geography offers a Ph.D. degree in geography with specialization in transportation. The transportation specialty draws on the resources of the College of Liberal Arts and Sciences, the Department of Economics, and the Graduate Program in Urban and Regional Planning, as well as 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 provides students with an appreciation of political and organizational considerations affecting transportation systems and of the exigencies of practical problem solving.

M.A. students typically take five courses in transportation and urban and regional analysis, three qualitative methods courses, and four additional courses in geography or economics. The M.A. degree is available without or with a thesis. If a thesis is prepared, it can substitute for two of the five courses.

Students who have studied calculus and undergraduate computer research or teaching assistantships may require an additional one or two semesters to complete the program.

44:134 Methods of Transportation Analysis 3 s.h.
100:311 Transportation Seminar 3 s.h.
102:261 Ph.D. Work in Transportation Systems Analysis 3 s.h.
44:160 T. P. Demand Modeling 3 s.h.
59:165 T. P. Planning 3 s.h.
59:166 T. P. Planning 3 s.h.
59:167 T. P. Planning 3 s.h.
59:168 T. P. Planning 3 s.h.
59:169 T. P. Planning 3 s.h.
59:170 T. P. Planning 3 s.h.
59:171 T. P. Planning 3 s.h.
59:172 T. P. Planning 3 s.h.
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59:183 T. P. Planning 3 s.h.
59:184 T. P. Planning 3 s.h.
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59:189 T. P. Planning 3 s.h.
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59:192 T. P. Planning 3 s.h.
59:193 T. P. Planning 3 s.h.
59:194 T. P. Planning 3 s.h.
59:195 T. P. Planning 3 s.h.
59:196 T. P. Planning 3 s.h.
59:197 T. P. Planning 3 s.h.
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59:199 T. P. Planning 3 s.h.
59:200 T. P. Planning 3 s.h.
59:201 T. P. Planning 3 s.h.
59:202 T. P. Planning 3 s.h.
59:203 T. P. Planning 3 s.h.
59:204 T. P. Planning 3 s.h.
59:205 T. P. Planning 3 s.h.
59:206 T. P. Planning 3 s.h.
59:207 T. P. Planning 3 s.h.
59:208 T. P. Planning 3 s.h.
59:209 T. P. Planning 3 s.h.
59:210 T. P. Planning 3 s.h.
A typical master's level program includes the following courses:

First Semester
61:183 Statistical Methods in Economics 3 s.h.
44:201 Geographical Analysis I 2 s.h.
102:260 Transportation Planning Seminar 3 s.h.
44:350 Research Seminar Staff 1 s.h.

Second Semester
61:184 Methods of Quantitative Economics 3 s.h.
102:261 Problems in Transportation and Land Use 3 s.h.
44:202 Geographical Analysis II 2 s.h.
44:350 Research Seminar Staff 1 s.h.

Third Semester
62:203 Microeconomics I 3 s.h.
53:262 Urban Transportation Planning 3 s.h.
44:134 Methods of Transportation Analysis 3 s.h.
44:350 Research Seminar 1 s.h.

Fourth Semester
44:236 Travel Demand Modelling 3 s.h.
56:170 Deterministic Operations Research 3 s.h.
44:295 Regional Development: Theory and Policy 3 s.h.

Ph.D. students, in addition to taking the courses recommended for master's students, are strongly encouraged to take advanced courses in areas such as economic development research, regional development, and location theory and analysis. Ph.D. students also are required to undertake on-site research leading to the preparation of a dissertation. These courses should be made through the Graduate College and the Department of Geography.

Urban and Regional Planning

The Graduate Program in Urban and Regional Planning offers the M.A. or M.S. degrees with a sectional major in transportation. Students complete an integrated core curriculum during the first year, the core consisting of courses in planning economics and public finance, analytic methods, planning theory and collective decision making, law, and information presentation. The second year is devoted to a sectional major, such as transportation, wherein core concepts are applied to a chosen area of specialization. The planning curriculum is intended to provide students with the capability to examine policy issues in transportation, devise workable options, evaluate these optional courses of action, and work toward implementation of policy solutions.

Planning students complete a total of 48 semester hours and an internship. Twenty-seven semester hours are accounted for by the core. The sectional major constitutes a minimum of new semester hours; and electives are taken to complete the remaining hours. If the thesis option is selected, up to six semester hours of sectional major credit are awarded. Students may elect to complete an additional two semester hours of course work in lieu of an internship, bringing the total to 50 semester hours.

A typical transportation sectional major program includes the following courses:

First and Second Semesters
Core Courses (See "Urban and Regional Planning")

Third Semester
102:301 Field Problems in Planning 3 s.h.
102:320 Transportation Policy and Planning 3 s.h.
102:311 Transportation Program Seminar 1 s.h.
Two of the following courses: 12 s.h.
44:134 Methods of Transportation Analysis 3 s.h.
53:262 Urban Transportation Planning 3 s.h.
Planning Electives 3 s.h.

Fourth Semester
102:261 Problems in Transportation and Land Use (of the following courses): 3 s.h.
102:245 Transportation and Policy 3 s.h.
53:163 Transportation Systems Analysis 3 s.h.
44:236 Travel Demand Modelling 3 s.h.
Planning Electives 3 s.h.
When of the optional transportation courses a student selects is dependent upon individual interest. Elective courses typically selected include:

102:228 Development Finance 3 s.h.
102:234 Project Impact Analysis 3 s.h.
102:241 Urban Public Services 3 s.h.
102:245 Energy and Public Utility Policy and Planning 3 s.h.
102:295 Regional Development: Theory and Policy 3 s.h.
Applications should be made through the Graduate College and the Graduate Program in Urban and Regional Planning.

Women's Studies

Women's Studies Program

Women's Studies Professor: Florence B. Babb

Department of English

Program Chair: Florence B. Babb

Faculty:

professors Florence Babb (English), Linda Kerner (History), J. Kenneth Kurty (Religion), Frederick L. Schnebel (Geography), Carla S. Smith (History), Carol E. Stewart (Religion), Ernestine Matson (History), Robert A. Tannahill (History), Jeanne M. Thompson (History), Nancy L. Wright (History), Sarah M. Young (History), Jennifer L. Young (History), Frank L. Zurbuchen (History), Mary K. Zurbuchen (History)

associate professors Susan S. Brown (Physics Education and Career), Martha Charland (Law), Noni Colgate (Counselor Education), Earl Davis (Chemistry Education), Donald L. Fink (Physics), Timmins Griffin (Physics Education and Career), Nancy Jackson (History), Karen Kellner (History), Andrew Kurty (History), Kevin McAllister (History), Laurence Rodwell (Geological Education), Martin Schmid (Chemistry Education), Daniel Triumph (Physics Education), professor B. Claren Davis (History Education), Florence E. Bass (Anthropology and Women's Studies), Nancy Barry (History and English), Julie Burke (Communication and Theater Arts), Mary Lou Cray (English), Linda Dinnon (Sociology), Corinna Kech Salmon (English), Althea Nkengha (Anthropology and African Studies), Dr. Donald Hornell (Counselor Education), Leslie Stevens (Journalism and Mass Communication), Diana Vickers (Spanish and Portuguese). Rev. Dr. Tony Donovan (Howard Pedagogical Social Work)

The Women's Studies Program is a multidisciplinary program emphasizing the teaching and study of women in culture and history. Its major aim is to bring to the university community a focus on women as a group frequently overlooked by traditional disciplines. By taking courses through departments, students broaden their understanding of the experiences of women and gain a commitment to the cause of gender equality.

Undergraduate Study

Undergraduate students may complete a minor in women's studies by taking six semester hours in departmental courses associated with the program, including at least three semester hours in upper-level course work (numbered 100 or above), and maintaining a 2.0 grade-point average in these courses.

Undergraduates in the Bachelor of Arts in the College of Arts and Sciences may choose a special area of concentration in women's studies.

It is strongly recommended that students completing a minor or concentration in women's studies take 131-132 Introduction to Women's Studies.

Undergraduates may also elect women's studies courses from those listed below.

Graduate Study

Graduate students in master's or doctoral programs may choose a comprehensive area in women's studies within the department. Graduate students who wish to pursue the Ph.D. in women's studies may do so by filing a plan of study for the ad hoc interdisciplinary Ph.D. through the Graduate College.

For information on faculty members in various departments who will direct graduate study, consult the Women's Studies Program, 305 English-Philosophy Building.

Associated Courses

The departmental courses listed below are associated with the Women's Studies Program and may be applied toward a concentration or a minor in Women's Studies. Some of these courses are being cross-listed with the Women's Studies number. Please consult course schedules.
American Studies
45:3 Women in American Culture
Topics include pioneer women in America, women and urban America, writing of American women, women and work, women's popular culture, and lesbian lives and culture.
45:4 Family and Sex Roles: Alternative to Marriage
45:7 Sex, Race and Ethnicity
45:15 TV and Film: Women and Literature
45:128 The Black Woman in America
Anthropology
13:126 Women's Roles: Cross-Cultural Perspectives
113:138 Economic and Political Development: Women's Roles (Same as 34:148.)
Classics
14:103 Women in Antiquity
Communication and Theatre Arts
368:192 The Sexes and Film
36C:137 Sex Roles and Communication
General Education in Humanities
80:15 The Literary Presentation of Women
Curricular Education
7C:150 Psychological Aspects of Women's and Men's Roles
7C:112 Human Sexuality
7C:162 Introduction to Marriage Family Counseling, and Psychotherapy
7C:262 Marriage, Family Counseling, and Psychotherapy
English
8:101 Women in Literature
8:103 Changing Concepts of Women in Literature
8:105 Women Writers
8:134 Women's Literature and Culture
*A-34 Seminar: Twentieth-Century British Literature
General Education in Historical Perspectives
*16:3 Problems in Human History: Communities, Families, and Culture
*16:4 Problems in Human History: Women, Politics, and Society

History
16:158 Society and Gender in Europe: 1450-1750
16:159 Society and Gender in Europe: 1750-1850
16:181 Women in America: Colonial Period to 1875
16:182 Women in America: 1870-Present
16:287 Readings: History of American Women
Law
91:350 Sex Discrimination Law
Nursing
96:112 Human Sexuality
Same as 42:112, 7C:115
Physical Education and Dance
28:109 Physiological Research on Women in Sport
28:153 Sociology of Women in Sport
28:204 History of Women in Sports
Psychology
31:116 Psychology of Sex Differences
Religion
32:111 Religion and Women
Rhetoric
*16:3 Rhetoric
Social Work
42:112 Human Sexuality
Same as 7C:112, 96:112
42:205 Women in Administration
23:206 Women and Therapy
23:273 Women and Social Change
Sociology
34:108 Women and Society
34:102 Courtship, Marriage, and Alternative Life Styles
34:168 Economic and Political Development: Women's Roles (Same as 113:138)
34:135 Sociology of Sexuality: Contemporary Social Patterns
*"Only certain sections of these courses are Women's Studies offered.

Women's Studies Courses
Women's Studies presently offers three interdisciplinary courses with the program's own number (131).

131:101 Introduction to Women's Studies 3 s.h.
An introduction to the feminist interdisciplinary study of women dealing with a variety of aspects of women's lives, including work, family, sexuality, politics and economics. Course requirements will be considered in the examination of women's experiences.

131:104 Topics in Women's Studies 3 s.h.
Course varies; may be repeated with permission of instructor.

131:101 Federal History 3 s.h.
A survey of historical and contemporary federal history relating to women's roles in American society. A survey of historical approaches and political consequences will be considered, as major developments are examined.

zoology
Department Chair: George D. Cram
associates: Doris L. Babson, Lewis G. Natl, David C. Wilcox
adjunct professors: Jeffrey L. Censers, Harry Issac, Leslie K. Johnson, Colin B. Naper, Chiu-Fang Wu

Degrees offered: S.B., S.E., B.S., Ph.D.; joint with the Department of History

Undergraduate Program
The undergraduate degree program in zoology provides a liberal arts background for a career in biological science. Graduates may enter directly into government service or industry. The program also prepares students for certification or advanced degree programs leading to research, teaching (university, four-year college, community college, secondary, and primary schools), or health professions (medicine, dentistry, paramedical practice, medical technology, nursing, dental hygiene, physical therapy).

The basic courses offered in the department serve both its own majors and other planning to enter health-related profession, or fields such as psychology, anthropology, and sociology, as well as other students in other fields who need a cultural interest in biological science.

A one-quarter introduction, 37:3 Introduction to Animal Biology, stresses the major concepts and is ordinarily the first course taken in the department. Majors must also take basic courses in genetics (usually immediately following the introductory course), evolution, and cell physiology.

Beyond this "core" curriculum, the student has a virtually unrestricted choice of 100-level courses in zoology, to a maximum of 32 semester hours. A student may substitute 100-level course work in other areas of natural science or in mathematics (except of the specific course requirements listed below) for up to 8 semester hours of the 32-quarter hour requirement in zoology. Courses required for a B.A. or B.S. degree in zoology are:

In other departments:

8W:10 Expository Writing 3 s.h.
(or equivalent, advisor-approved writing course)
HONORS

Students in the college-wide honors program may earn an honors degree in zoology by completing a total of at least 6 semester hours in 37:199 Honors Laboratory Research, 37:197 Honors Readings in Zoology, and 37:198 Honors Seminar in Zoology. A 3.5 overall grade-point average as well as a 3.2 grade-point average in zoology courses are required. A research paper, approved by the research supervisor, is also required at the conclusion of honors research.

INTRODUCTION TO RESEARCH

The department offers 37:199 introduction to Research to acquaint seniors majoring in zoology with the nature of practicing scientists' work, through association with one of the department's research groups in experiments, discussion of current research, study of specialized topics, and attendance at research lectures.

GRADUATE PROGRAMS

The graduate programs of the department, which are jointly administered by the Department of Botany, are designed to prepare students for different kinds of professional activities, including teaching at various levels; participation in research in private, educational, or government laboratories; or service involving some planning or administrative functions. More than 80 percent of the doctoral students graduating from this department in the last two decades have been engaged in college or university teaching. A substantial number of students have completed their training with an M.S. degree and have then engaged in college or university teaching, or have pursued careers as scientific writers, completing their training with an M.S. degree and thereafter engaged in college or university teaching. A substantial number of students have completed their training with an M.S. degree and thereafter engaged in college or university teaching, or have pursued careers as scientific writers.

Prior to registration in August, all new graduate students in zoology take a diagnostic examination covering topics in developmental biology, genetics, and physiology with emphasis on cell biology, evolution, and ecology. On the basis of examination results, students may be excused from further work in one or all of these areas, or required to take specific courses to enhance their backgrounds in these areas. The student must make up any deficiencies in mathematics, chemistry, or physics during the first year. A student with a bachelor's degree other than biology or zoology may request modification of certain of the area requirements. The student's degree committee will decide whether the student may waive any or all of the requirements. All members of the faculty in zoology engage in research. Areas of departmental research include cell biology, developmental biology, genetics, molecular biology, neurobiology, ecology, behavior, physiology, and parasitology.

Most projects have auxiliary aspects involving work in other areas of natural sciences, sometimes with joint sponsorship of the faculty in those departments. For the Fall semester, a student advisor, research in zoology is appointed in three general areas: developmental biology, ecology, and behavior. Each student selects one of these general areas for his or her concentration, and is advised by a commission of faculty members in that area.

MASTER OF SCIENCE IN ZOOLOGY

The M.S. degree with thesis requires 20 semester hours of graduate credit and a thesis based on original research. Ordinarily 8 to 12 semester hours are assigned to thesis research and writing. The remaining hours are to be selected in consultation with the student's advisory committee, and the choice of courses will be tailored to the student's background and career goals.

The student can receive credit for courses he or she is required to take on the basis of the diagnostic examination (see "Orientation" below), but not for courses required by the admissions committee. The student must pass an oral examination based on the work reported in the thesis and on related subject matter.

The M.S. without thesis requires 36 semester hours of graduate credit and a comprehensive examination. No more than 4 semester hours of credit may be granted for the comprehensive examination. Credit may be earned in graduate courses in zoology or cognate sciences; these courses are determined by the student's thesis committee and tailored to fit the student's background and career goals.

Credit received in courses at the 100- level or above, with the exception of courses in zoology required to make up deficiencies revealed by the diagnostic examination (see above), may be applied toward the M.S. degree minimum if approved by the advisory committee. On completion of the hours requirement and acceptance of the research report by the student's faculty advisor, the student must pass a written examination covering his or her graduate work in zoology, including the area of the student's specialization.

MASTER OF SCIENCE IN BIOLOGY

The M.S. program with thesis requires 30 semester hours of graduate credit, including 8 to 12 semester hours to apply to thesis research and writing, and a comprehensive examination covering the student's major specialization in zoology, including the area of the student's specialization.
to graduate courses in botany, and the remaining semester in the physical sciences. Following acceptance of the thesis, the candidate must pass a written examination covering graduate programs in botany and zoology. This is followed by an oral examination based mainly on the work reported in the thesis. The botany and zoology departments also offer a 34-semester hour program leading to the M.S. in biology, without a thesis.

Doctor of Philosophy in Zoology

Each Ph.D. student's formal course or proficiency requirements are determined by his or her departmental advisory committee on the basis of the student's background and current and prospective research interests.

The committee also determines what portion of the formal course work or proficiency requirements the student must complete before taking the comprehensive examination. In this examination, the student is expected to demonstrate a knowledge of the fundamental areas of zoology and to apply one or two specialized fields in zoology.

The student's research culminates in his or her preparation of a dissertation, which the department must approve before the student can proceed to write his or her thesis. The examination covers the thesis and the specialized field the thesis represents.

Financial Aid

Nearly all of the graduate students in the department receive some support, the largest number from teaching assistantships, scholarships, and research assistantships, provided by the University or by individual research grants administered by faculty members. Stipends and full tuition are available through federally funded, interdisciplinary training programs in cell and molecular biology and neurobiology. These programs also support postdoctoral fellows. Support through interdisciplinary programs in genetics (predoctoral) and cancer (postdoctoral) is also available. The department also participates in the University-sponsored program of teaching assistantships for undergraduate students. Students who apply for any departmental award may be considered for others, if the reviewing committee considers them eligible. The department provides some support each summer for students who arrange for training at major laboratories on the campus, or at other appropriate facilities.

Most graduate students receive appointments for the following academic year are made by April 1, but opportunities occasionally exist for appointments at other times, including the beginning of the spring semester. Requests for appointments should include clear statements of research interest. If such interest has been defined at the time of application.

Admission

An applicant for graduate admission should have a grade-point average above 3.0 and a Graduate Record Examination (GRE) Aptitude Test (verbal and quantitative) score above 1350. The applicant should also take the Graduate Record Examination advanced biology test, and submit his or her score. Although the department prefers applicants who have completed an undergraduate program much like its own, it will consider applicants with backgrounds in biophysics, botany, biochemistry, and other related areas.

Facilities

The department is housed in a cluster of contiguous buildings. It has animal-care facilities for mammals, birds, reptiles, amphibians, fishes, and insects and other invertebrates, including protozoa, and special facilities for research with viruses, DNA sequencing, fruit flies, plants, and marine organisms. It has 12 walk-in and reach-in environmental chambers for special culture or animal care needs.

There are three transmission electron microscopes, including one for teaching and student research purposes, and one with high-resolution capabilities.

The department is equipped to carry out research in all areas in which graduate teaching is conducted. Light microscopes of a variety of types are available, including those with fluorescence, phase contrast and polarizing capacities, and those with Nomarski optics. Special facilities exist for computed image analysis. Centrifuges of various sorts, including refrigerated, high-speed, and ultra-high-speed, are available. Other special equipment includes electron microscopes, gas-liquid and high-pressure liquid, and chromatography equipment; electron scanning and recording equipment for neurophysiological studies; a VAX computer; and other desk-top computers; gas-liquid and fast-ionization and gamma counters for radiobiological detection and analysis, imaging gas-liquid chromatography systems; controlled-temperature gumb units of various types or microelectrode and growth studies; gene and incubators; recording ultraviolet and visible spectrophotometers, densitometers; Coater, couter, instruments for work in physical ecology; water tables, aquaria, and an "instant ocean" micromountains; tissue culture rooms and foods, and cold rooms. Laboratories are also equipped with advanced work which calls for specialized biochemical, biophysical, cytological, or semitechnical techniques.

Iowa Lakeside Laboratory

Courses in field biology and aquatic biology at the Iowa Lakeside Laboratory extend the on-campus work in ecology. See the "Iowa Lakeside Laboratory" section of the Catalog.

Courses

Primary for Undergraduates

33100 Cooperative Education - Internship 3 s.h.
33110 Introduction to Animal Biology 4 s.h.
33111 Principles of Neurobiology 4 s.h.
33115 Principles of Animal Behavior 3 s.h.
33120 Principles of Plant Biology 3 s.h.
33125 Introductory Botany 3 s.h.
33130 Principles of Cell Biology 3 s.h.
33145 Introduction to Animal Research Methods 3 s.h.
33150 Introduction to Animal Behavior 3 s.h.
33160 Introduction to Plant Research Methods 3 s.h.
33165 Introduction to Plant Behavior 3 s.h.
33170 Introduction to Animal Behavior 3 s.h.
33175 Introduction to Plant Research Methods 3 s.h.
33180 Introduction to Animal Behavior 3 s.h.
33190 Introduction to Animal Research Methods 3 s.h.
33200 Advanced Topics in Animal Ecology 3 s.h.
33210 Advanced Topics in Plant Ecology 3 s.h.
33220 Advanced Topics in Animal Behavior 3 s.h.
33230 Advanced Topics in Plant Behavior 3 s.h.
33240 Advanced Topics in Animal Ecology 3 s.h.
33250 Advanced Topics in Plant Ecology 3 s.h.
33260 Advanced Topics in Animal Behavior 3 s.h.
33270 Advanced Topics in Plant Behavior 3 s.h.
33280 Advanced Topics in Animal Ecology 3 s.h.
33290 Advanced Topics in Plant Ecology 3 s.h.
33300 Advanced Topics in Animal Behavior 3 s.h.
33310 Advanced Topics in Plant Behavior 3 s.h.
33320 Advanced Topics in Animal Ecology 3 s.h.
33330 Advanced Topics in Plant Ecology 3 s.h.
33340 Advanced Topics in Animal Behavior 3 s.h.
33350 Advanced Topics in Plant Behavior 3 s.h.
33360 Advanced Topics in Animal Ecology 3 s.h.
33370 Advanced Topics in Plant Ecology 3 s.h.
33380 Advanced Topics in Animal Behavior 3 s.h.
33390 Advanced Topics in Plant Behavior 3 s.h.
33400 Advanced Topics in Animal Ecology 3 s.h.
33410 Advanced Topics in Plant Ecology 3 s.h.
33420 Advanced Topics in Animal Behavior 3 s.h.
33430 Advanced Topics in Plant Behavior 3 s.h.
33440 Advanced Topics in Animal Ecology 3 s.h.
33450 Advanced Topics in Plant Ecology 3 s.h.
33460 Advanced Topics in Animal Behavior 3 s.h.
33470 Advanced Topics in Plant Behavior 3 s.h.
33480 Advanced Topics in Animal Ecology 3 s.h.
33490 Advanced Topics in Plant Ecology 3 s.h.
33500 Advanced Topics in Animal Behavior 3 s.h.
33510 Advanced Topics in Plant Behavior 3 s.h.
33520 Advanced Topics in Animal Ecology 3 s.h.
33530 Advanced Topics in Plant Ecology 3 s.h.
33540 Advanced Topics in Animal Behavior 3 s.h.
33550 Advanced Topics in Plant Behavior 3 s.h.
33560 Advanced Topics in Animal Ecology 3 s.h.
33570 Advanced Topics in Plant Ecology 3 s.h.
College of Business Administration

The college is organized into six academic departments: Accounting, Economics, Finance, Industrial Relations and Human Resource 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 external entities of the college: Industrial Relations Institute, Institute for Economic Research, Institute for Insurance Education and Research, Labor Center, Management Center, and Small Business Development Center.

Bachelor of Business Administration

The college offers the Bachelor of Business Administration (B.B.A.) degree in all six departments. The B.B.A. student completes background studies either in the College of Liberal Arts at The University of Iowa or in another institution, and usually enters the College of Business Administration as a junior.

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 48 semester hours in nonbusiness courses. Limited specialization is offered through the student’s designated 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 eight semester hours of credit in the student’s major must be earned at The University of Iowa.

To graduate, the B.B.A. candidate must have at least a 2.0 grade-point average in all course work attempted at the University, in all course work attempted in the major, and in all business and economics course work attempted at the University.

Common Requirements

The B.B.A. candidate must satisfy these minimum common requirements:

- Rhetoric-communications 6 s.h.
- Historical-cultural 6 s.h.
- Literature 6 s.h.

*Natural sciences (excluding mathematics) 3 s.h.
*Principles of psychology or sociology 3 s.h.
*Socionomy 3 s.h.
*Quantitative methods 8 s.h.
*6A:1 Introduction to Financial Accounting 3 s.h.
*SA:18 Introductory Managerial Accounting 3 s.h.
*6E:1 Principles of Economics 4 s.h.
*6E:2 Principles of Economics 4 s.h.
*6F:100 Introductory Financial Management 3 s.h.
*6M:100 Introduction to Marketing 3 s.h.
*5L:47 Introduction to Law 3 s.h.
*5L:100 Administrative Management 3 s.h.
*6K:70 Computer Analysis 3 s.h.

One of these courses fulfilling the requirement for a course in administrative processes under uncertainty.

5L:165 Business Policy 3 s.h.
5K:165 Business Policy 3 s.h.
5F:128 Managing the New or Small Business 3 s.h.
5K:178 Strategic Planning Systems 3 s.h.

*Consult the Undergraduate Program Office concerning methods for meeting these requirements.

In addition, the student must complete a major area of study. The requirements for a specific major are established by the department of the college.

Minors

Non-Business Minors

An undergraduate student in the College of Business Administration may elect to complete a minor in another college of the University. For example, a student interested in international business might choose a foreign language as a minor. For the minor requirements, the student should consult with an advisor in the relevant department. To have the minor recorded on his or her transcript, the student must complete the “Minor” section on the B.B.A. degree application form before submitting it to the Registrar.

Business Minors

Students majoring in another college of the University may elect a minor in business administration. Students must meet the general admission requirements of the College of Business Administration to be considered for admission to the business minor program. The courses listed below will satisfy all requirements for the minor in business administration:
A computer programming course
3 s.h.
A mathematics course
3 s.h.
(numbered 325 or higher)
A statistics course
3 s.h.
Principles of microeconomics
3 s.h.
Principles of macroeconomics
3 s.h.
6A.1 Introduction to Financial Accounting
3 s.h.
6A.2 Introduction to Managerial Accounting
3 s.h.
A mathematics course numbered
*GM 100 Introduction to Marketing
3 s.h.
*GF 100 Introductory Financial Management
0 s.h.
*BL 100 Administrative Management
3 s.h.
*GL 47 Introduction to Law 3 s.h.
*Must be taken in junior or senior year Interested students should complete or be registered for the first seven courses listed above before applying for admission to the business minor program. The first seven courses listed above may be used to satisfy elective hours toward a baccalaureate degree and in some instances specific College of Liberal Arts requirements. Admission to the program is limited and meeting minimum standards does not ensure admission.

Credit by Examination
Students may earn up to 32 semester hours of credit by examination. Selected tests from the College-Level Examination Program (CLEP) of the College Entrance Examination Board are used. It is possible to receive credit for some of the common requirements of the college Information on the CLEP examinations is available from the Liberal Arts Advisory Office.

Maximum Schedule
Course schedules of more than 18 semester hours for a semester or nine hours for a summer session require approval of the Undergraduate Program Office.

Pass-Fail Grading
Of the total semester hours required for a B.B.A. degree, up to 32 may be taken on a pass-fail or pass-nor-miss basis with the consent of the advisor and instructor. However, a student may not count more than 16 semester hours of pass-fail or pass-nor-miss credit in the last 60 semester hours of course work. Courses with a grade of "C" or better which are taken to satisfy the common business requirements may not be taken pass-fail, nor may courses in the student's major. Pass-fail or pass-nor-miss registration must be completed during the first three weeks of a semester or the first two weeks of a summer session. For courses taken on a pass-fail basis, an earned grade of C or above is recorded as a "P". Otherwise, the grade earned (D or F) is recorded.

Second-Grade-Only Option
A student may repeat a course, if the Undergraduate Program Office approves and if a student is not enrolled, and have only the grade and semester hours of the second registration used in calculating the cumulative grade-point average. This option may be applied to a maximum of 16 semester hours of work and may not be used more than once for a particular course.

Admission
The college normally admits undergraduate students at the beginning of their upper year. Second-semester sophomores may be admitted if an accelerated program record has been established. Unconditional admission requires at least a 2.55 grade-point average in all college-level courses undertaken, including all courses undertaken at The University of Iowa and all business and economics courses. The applicant should also have satisfied the following common requirements: rhetoric, communication, psychology, sociology, quantitative methods, accounting and economics, and either historical-cultural or literature. No more than 60 semester hours, or equivalent, of transfer credit will be accepted for a student transferring from a two-year institution. Transfer credits for business and economics courses taken during the freshman and sophomore years are counted toward the B.B.A. degree only if such courses are normally offered as lower division courses at The University of Iowa.

The college admission standards are set by the Undergraduate Program Committee. Failure to meet the minimum requirements does not ensure admission. Students who have minor deficiencies in meeting admission requirements may be granted conditional or probationary admission.

Interdepartmental Graduate Programs
The following interdepartmental graduate programs are offered in the College of Business Administration: Master of Arts (M.A.) in business administration, Master of Science in business administration, Master of Business Administration (M.B.A.), and Doctor of Philosophy (Ph.D.) in business administration. Joint degree options allow M.A., in business administration or M.B.A., candidates to pursue a second graduate degree in another college. For information on the Master of Arts (M.A.) in accounting, see the "Department of Accounting" section of the Catalog. For information on graduate programs in economics, see the "Department of Economics" 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 or public sector. The program enhances the student's career opportunities and provides the commercial and government sectors with the professional personnel required in a complex, modern economy.

The curriculum is designed for college graduates in any field. Previous college in business are not required for admission. Depending upon the student's undergraduate academic background, 33 to 62 semester hours are required. For students with no previous business administration course work, 52 semester hours of course work are required. For students with course work in business administration, certain courses may be waived on the basis of proficiency examination or equivalent course work of high quality. A minimum of 24 semester hours of 600-level courses must be completed in residence at The University of Iowa after admission to the M.B.A. program.

Undergraduate students at any institution may take courses as part of their undergraduate degree program which are equivalent to one or more of the M.B.A. foundation courses. For advice on these equivalencies, contact the Graduate Programs Office, College of Business Administration. In particular, seniors in the colleges of Liberal Arts and Engineering at The University of Iowa may take professional courses without satisfying requirements in their undergraduate degree programs. Strategically selected course work may allow such students to complete a bachelor's degree in four years and the M.B.A. degree in the fifth year.

Foundation Courses (27 semester hours)
6A.1 Financial Accounting—M.B.A.
3 s.h.
5E.190 Consumer and Firm M.B.A.
3 s.h.
5E.151 National Income Analysis—M.B.A.
3 s.h.
5E.161 Managerial Finance—M.B.A.
3 s.h.
5K.153 Computer Methods—M.B.A.
3 s.h.
6A.157 Quantitative Methods—M.B.A.
3 s.h.
5L.155 Management of Operations—M.B.A.
3 s.h.
5L.158 Society, Law, and Business—M.B.A.
3 s.h.
5M.159 Marketing Management—M.B.A.
3 s.h.
In the M.B.A., integrated core courses, students continue the broad study begun in the sequence of foundation courses listed above and pursue in greater depth more advanced study associated with their own career objectives.
Following are the integrated core course requirements:

**Integrated Core (18 semester hours)**

- M.B.A.
  - 3 s.h.
- 6K:261 Administrative Science
  - 3 s.h.
- 6K:265 Administrative Policy—M.B.A.
  - 3 s.h.
- 6K:265 Administrative Policy—M.B.A.
  - 3 s.h.
- 6K:271 Statistical Methods—M.B.A.
  - 3 s.h.
- 6K:273 Managerial Economics
  - 3 s.h.
- 6K:276 Operations Research—M.B.A.
  - 3 s.h.

**Electives (15 semester hours)**

The student's choice of electives must be approved by 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 Study Center in Rock Island, Illinois.

A student pursuing the degree in the evening usually takes one or two courses each semester. The completed program in three to five years.

A limited number of M.B.A. courses are offered in Iowa City during the evening.

**Executive M.B.A.**

A special program, the Executive M.B.A., is designed to meet the needs of experienced executives who want to broaden their management skills without interrupting their professional careers. Course work is presented in two academic years. Classes begin with one full week in Iowa City followed by classes one day a week on alternating Fridays and Saturdays. Participants progress through the program together as a single group.

Further information about the program, fees, and application procedures may be obtained by writing to the Graduate Programs Office, College of Business Administration.

**Master of Arts**

The Master of Arts degree program in business administration is designed for students seeking specialization in one of several areas of business administration. It provides research emphasis which then qualifies students for research or teaching positions or employment in business.

The program is available on both thesis and non-thesis bases and is sufficiently flexible to permit specialization according to students' interests and objectives. Students may select a major in administrative studies, finance, industrial relations and human resources, insurance, and management systems.

The minor may be developed from approved core courses combinations within the College of Business Administration or from outside the college.

All students in the M.A. program must satisfy the common body of knowledge requirement of the American Assembly of the Collegiate Schools of Business (AASCB). This means that candidates' undergraduate or graduate course work must include study in accounting, quantitative methods, organizational behavior, management, finance, marketing, and the economic and legal environment pertaining to profit and/or nonprofit organizations.

Requirements for the Master of Arts degree with thesis include:

- Major area
  - 9 s.h.
- Minor area
  - 6 s.h.
- Economic Theory and/or organizational behavior
  - 6 s.h.
- Electives
  - 6 s.h.
- Thesis
  - 3 s.h.
- Total
  - 30 s.h.

Requirements for the Master of Arts degree without thesis include:

- Major area
  - 12 s.h.
- Minor area
  - 6 s.h.
- Economic Theory and/or organizational behavior
  - 6 s.h.
- Electives
  - 6 s.h.
- Research methodology
  - 3 s.h.
- Research reports (two)
  - 2 s.h.
- Total
  - 35 s.h.

In either program at least 18 semester hours of course work must be taken at the 200 (graduate) level. Additional course work beyond the minimum semester hours may be required in order to meet the prerequisites for graduate courses in a major or minor area of study.

Students in the thesis program will be expected to defend the thesis in an oral examination and may be required to take a written and/or oral comprehensive examination over course work. A final oral examination is required in the non-thesis program.

A non-thesis M.A. degree in industrial relations and human resources which varies somewhat from those in other departments is also available.

Requirements for the Master of Arts degree without thesis in industrial relations and human resources include:

- Major area
  - 18 s.h.
- Foundation courses
  - 12 s.h.
- Research methodology
  - 3 s.h.
- Research reports (two)
  - 2 s.h.
- Total
  - 35 to 41 s.h.

Maximum—up to six semester hours may be waived with appropriate undergraduate preparation. The 35 to 41 hours is inclusive of all common body of business knowledge requirements mandated by the American Assembly of the Collegiate Schools of Business.

**Doctor of Philosophy**

The Ph.D. program in business administration is designed for students preparing for academic positions in research and teaching as well as for positions in business and government. The program is flexible permitting students to choose an area of specialization according to their wishes. Sufficient course work and related experience are provided so that students achieve competence in economic theory, statistical methods, accounting, and research as well as expertise in a major and minor area of study.

Courses work in the Ph.D. program consists of prerequisites (as necessary), the Ph.D. core, major and minor areas of study, and dissertation research. Most students (including all with master's degrees from AASCB accredited programs) take 60 semester hours of course work. Additional course requirements may be imposed to guarantee satisfaction of business knowledge prerequisites or the Graduate College minimum total credit hour requirement (72 semester hours of graduate credit, including course work before entering the Ph.D. program).

**Prerequisite Courses**

The common body of knowledge requirements of the AASCB must be satisfied by undergraduate or graduate courses. These include courses in accounting, finance, marketing, management, 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 and to provide necessary background for study in more specialized courses. Graduate courses are required as follows: behavioral sciences (three semester hours), economics (six semester hours), issues in social- and policy- oriented 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 doctoral-level courses must be completed in one of the following areas: accounting, finance, human resources management, industrial relations, insurance, management science, marketing, or organizational behavior.
Minor Area of Study
A minimum of nine semester hours of doctoral-level courses beyond the Ph.D. core course requirements must be taken. Available areas include all major areas of study listed in addition to concentrations outside the College of Business Administration.

Comprehensive Examinations
Students must successfully complete a written examination in both the major and minor areas of study. The examination committee is comprised 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 comprised of a minimum of five faculty members.

Dissertation
A dissertation proposal must be presented before a forum attended by dissertation committee members and open to interested faculty and graduate students as established by departmental procedures. Students are required to complete 15 semester hours of dissertation credit. The completion of research and writing associated with the dissertation usually requires one year of full-time effort.

Final Examination
The completed dissertation must be defended in an oral examination attended by the dissertation committee members. It is also open to interested faculty and graduate students.

Graduate Admission
Applicants seeking admission to graduate study in business must submit the Graduate College application form and fee, official transcripts of all course work taken, and official Graduate Management Admission Test (GMAT) scores through the Admissions Office, Calvin Hall. Three letters of recommendation from current or former employers should be submitted to the Graduate Programs Office, College of Business Administration.

Graduate Record Examination (GRE) Admissions test scores may be submitted in place of GMAT scores in the applying to the Ph.D. program in Business Administration. See the 'Graduate College' section of the Catalog for more information.

Application Information
A graduate application packet may be obtained from the Admissions Office, Calvin Hall, The University of Iowa, Iowa City, Iowa 52242. Students may apply for admission for fall, spring, or summer terms.

U.S. citizens and permanent residents applying for the M.B.A. and M.A. (Business Administration) and Ph.D. degree programs must submit a complete application by March 1 for summer session, May 1 for fall semester, or October 1 for spring semester matriculation.

Foreign nationals applying for the M.B.A., M.A. (Business Administration), and Ph.D. degree programs must submit a complete application by March 1 for summer session or April 1 for fall or spring semester matriculation.

Foreign nationals applying for the M.A. in accounting degree programs should see the "Application for Admission to the Graduate College" form for deadlines. Foreign nationals applying for the M.A. in accounting degree program should see the "International Application for Admission" form for deadlines.

A complete application file requires the following:
- A completed application form and fee submitted to the Admissions Office, Calvin Hall, The University of Iowa, Iowa City, Iowa 52242.
- Official transcripts of all undergraduate and graduate work submitted to the Admissions Office by each institution attended.
- Official Graduate Management Admission Test (GMAT) or Graduate Record Examination (GRE) scores submitted to the Admissions Office.
- At least three references from former instructors or employers submitted to the Graduate Programs Office, College of Business Administration, The University of Iowa, Iowa City, Iowa 52242.

Foreign nationals (for whom English is not the primary language) must submit an official score of 550 or more on the Writing Test of the English as a Foreign Language (TOEFL).

Joint Programs
Joint programs allow students to pursue concurrently an M.A. or M.B.A. in the College of Business Administration and a J.D. in the College of Law, an M.A. in library and information science in the School of Library and Information Science, or an M.A. in hospital and health administration in the College of Medicine. Such programs allow students to earn both degrees more rapidly by counting a portion of their graduate course work toward both degrees. These joint degree programs carry an exchange of 12 semester hours each between the J.D. and the M.B.A., nine semester hours each between the M.A. and M.B.A., and 15 semester hours each between the M.A. in hospital and health administration and the M.B.A.

Other Graduate Programs
M.A. in Accounting
(See "Department of Accounting" in this section of the Catalog.)

M.A. and Ph.D. in Economics
(See "Department of Economics" in the section of the Catalog.)

Facilities
The College of Business Administration is located in Phillips Hall, an air-conditioned high-rise building designed especially for programs of the college.

The building contains seminar and conference rooms, a computer laboratory, an auditorium, and the Business Library, in addition to a wide range of classroom facilities.

Extensive research resources for business and economics are maintained in the Main Library, and the facilities of the Wexly Computing Center are available to all students. Additionally, students have direct access to a computer laboratory within the college.

The laboratory serves the instructional programs of the college, and the staff maintains a current library of computational programs and data tapes to service user needs.

Industrial Relations Institute
The Industrial Relations Institute is designed to bring faculty and students together with people in industrial relations for the purposes of curriculum matters and research, and to conduct continuing education seminars and workshops for practitioners in the field of industrial relations.

Institute for Economic Research
The Institute for Economic Research supports 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 to a continuous basis to business and to public agencies; to provide a state total for applied economic research, and to promote and enhance academic research and teaching in economics.
Institute for Insurance Education and Research
The Institute for Insurance Education and Research is the college's continuing education arm in the field of insurance. The institute conducts schools and seminars throughout the year at The University of Iowa campus in Iowa City and at other locations across the country. It also engages in contract research related to insurance for public and private organizations.

Labor Center
The Labor Center serves as the continuing education division of the college in the area of labor education. Labor Center staff members have combined on-campus and off-campus programs in order to reach as many people as possible. The staff members target their instruction to the specific needs of the labor movement in Iowa.

Management Center
The Management Center is a major continuing education branch of the college and provides relevant information to management and government representatives in Iowa. Current administrative, behavioral, scientific, and management knowledge related to the working life of people in organizations is disseminated through on- and off-campus conferences.

Small Business Development Center
The Small Business Development Center was created in 1981 to provide management assistance without charge to small business owners and persons interested in starting a small business. The center provides individual counseling to small businesses and also conducts workshops on topics related to small business management.

Placement Services
In cooperation with the University Careers Office placement service, the College maintains an office where a business coordinator provides career counseling for business students and arranges recruiting visits for companies throughout the state and nation.

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 M.B.A. students only
See individual department listings for additional M.B.A. course offerings.

6836 Cooperative Education Monographs 3 s
6839 Written Communication in Business 3 s
Writing for business curricula. Recommended for M.B.A. candidates.

6812 Telecommunications in Business 3 s
One presentation skill is a key competence. Restricted to M.B.A. candidates.

Accounting
Department head: Russell J. Peterson.

Professional Program in Accounting
The Professional Program in Accounting at The University of Iowa is a three-year upper-division and graduate program which leads to a Master of Arts (M.A.) degree with a major field in accounting. (Students may elect to receive the B.B.A. degree after successful completion of the first two years of the Professional Program.) The M.A. program (three-year program) is designed to develop the technical proficiency necessary in financial, conceptual, analytical, and communication skills required in the accounting profession. Students who wish to begin postgraduate level preparation for the Certified Public Accounting (CPA) or Certified Management Accountant (CMA) examinations may meet their completion by the first two years of the Professional Program.

The M.A. program (three year program) is designed to prepare candidates for careers in all areas of accounting: to help prepare candidates for the CPA and CMA examinations; and to prepare students for demanding leadership roles in the field of accounting. Students may apply for admission to the Professional Program in Accounting after completion of two years of preprofessional study which satisfies the general education requirements of the University, the business requirements of the College of Business Administration, and the admission requirements of the Accounting Department (see program 2 below). Students may also apply for the M.A. program after completion of a bachelor's degree with a major field in accounting from another institution (see program 2 below) or after completion of a bachelor's degree in a field other than accounting (see program 3 below).

Admission information for program 1 may be obtained from the Undergraduate Program Office in the College of Business Administration, or from the head of the Accounting Department. Because of the heavy emphasis on oral and written communication in the M.A. in Accounting program, foreign nationals (for whom English is not the primary language) with TOEFL scores below 600 are rarely admitted.

Students in the first and second year of the Professional Program must maintain a 2.0 grade-point average overall and in upper division accounting courses. Students in the third year of the Professional Program must maintain a 3.0 grade-point average in all graduate level accounting courses. Students not maintaining these minimum grade-point averages are subject to departmental probation and elimination from the Professional Program in Accounting.

As a final condition for completion of the Professional Program in Accounting (three-year program) students must pass an oral examination.

All candidates for the M.A. degree are required to submit a score on the Graduate Management Admission Test (GMAT) as a condition for admission to the third year of the Professional Program in Accounting.

All students should consult a current issue of the Suggested Plan of Study, published each year, for the courses each semester, for current information regarding admission procedures, program requirements, electives, and optimum course planning.

Program 1
This program is for students completing their pre-professional program at The University of Iowa.

An undergraduate student at The University of Iowa who applies for admission to the Professional Program in Accounting after completing 60 semester hours of college work, including the common requirements for the B.B.A. and M.B.A. first-year programs, and after earning grades of A or B in 8A, 8B, and 8C. Students who already hold a Bachelor of Arts in Accounting and 8A, 8B, and 8C Introduction to Management Accounting, or equivalent, upon acceptance of their application to the Professional Program in Accounting, such students are designated accounting majors.

After successful completion of the first two years of the Professional Program in Accounting, a student can receive the B.B.A. in Accounting.

The first, second, and third year requirements for the Professional Program in Accounting are shown below together with the typical semester in which they are typically taken:
Program 1
This program is for students who have bachelor's degrees with no prior training in business or accounting.
A student with an undergraduate degree in a field other than business administration can, with careful planning, complete the Professional Program in Accounting requirements in two calendar years after admission to the Graduate College. A nonbusiness undergraduate planning to enter the program should include as many first-year courses in the undergraduate program as possible. For students entering in the fall semester with no previous accounting or business course work, the typical first-year courses include:

- 6A:182 Financial Accounting — M.B.A.
- 6A:214 Cost Accounting — M.B.A.
- 6A:115 Introduction to Taxation — M.B.A.
- 6A:122 Financial Accounting II — M.B.A.
- 6A:180 Price, Employment, and Production Theory — M.B.A.

A second-year course is also required.

Program 2
This program is for students who have earned bachelor's degrees with majors in accounting at other institutions. Students who wish to enter the Professional Program in Accounting after having completed bachelor's degrees with concentrations in accounting from other institutions must submit an application for the M.A. program to the Graduate Admissions Office, 118 Calvin Hall, at The University of Iowa. Such students will normally be required to take only the third year of the Professional Program (Program 1 above) to complete the M.A. degree.

Doctor of Philosophy
See "Interdepartmental Graduate Program" at the front of this section of the Catalog.

Courses Primarily for Undergraduates
4.00 Core Courses
- 6A:214 Introduction to Financial Accounting — M.B.A.
- 6A:215 Cost Accounting — M.B.A.
- 6A:115 Introduction to Taxation — M.B.A.
- 6A:180 Price, Employment, and Production Theory — M.B.A.
- 6A:122 Financial Accounting II — M.B.A.

Program 3
This program is for students who have bachelor's degrees with no prior training in business or accounting.
A student with an undergraduate degree in a field other than business administration can, with careful planning, complete the Professional Program in Accounting requirements in two calendar years after admission to the Graduate College. A nonbusiness undergraduate planning to enter the program should include as many first-year courses in the undergraduate program as possible. For students entering in the fall semester with no previous accounting or business course work, the typical first-year courses include:

- 6A:182 Financial Accounting — M.B.A.
- 6A:214 Cost Accounting — M.B.A.
- 6A:115 Introduction to Taxation — M.B.A.
- 6A:122 Financial Accounting II — M.B.A.
- 6A:180 Price, Employment, and Production Theory — M.B.A.

Primary for Undergraduates and Graduates
4.10 Toast and Business Decisions — M.B.A.
An introduction to important tax concepts. Emphasis is on understanding the impact of federal income tax law on personal and business decisions. Note: This course is not designed for accounting majors and will not substitute for 6A:115. Prerequisite: 6A:20 or equivalent.

4.11 Introduction to Taxation — M.B.A.
Introduction to federal income taxation, including individual, corporate, and other entities' income tax calculations, tax laws and regulations, emphasis on developing a basic understanding of federal income taxes as a corporate planning tool, and its effects on management decisions. Prerequisite: 6A:1 Professional Program in Accounting.

4.20 Financial Accounting Reporting I — M.B.A.
Analysis of internal and external accounting reporting practices in the context of decision making by internal management, financial analysts, and investors. Emphasis on the formulation and interpretation of financial statements. Prerequisite: 6A:1 Professional Program in Accounting.

4.25 Cost Accounting for Management and Control — M.B.A.
Selection and preparation of information which will enable the management to control and assess performance. Includes cost concepts, activity based costing, budgeting, variance analysis, cost allocation, and quantitative techniques integrated with more traditional approaches. Prerequisites: admission to the Professional Program in Accounting; M.B.A. or equivalent; M.B.A. or equivalent in business, management, or equivalent; 63.180, minor standing (or at least 60 semester hours earned).

4.31 Tax Planning — M.B.A.
Review of income statement and balance sheet accounts, followed by recent coverage of estate and gift tax, federal and state income taxes, federal and state payroll taxes, excise tax, sales tax, and international taxation. Prerequisite: admission to the Professional Program in Accounting; M.B.A. or equivalent.

4.35 Ethics in Accounting — M.B.A.
Includes stockbroker's ethics of the sell-side (sell-side) profession, management, and ethical dilemmas. Emphasis on understanding the ethical and moral responsibilities of managers, accountants, and auditors in the accounting profession. Prerequisite: 6A:20 or equivalent.

4.40 Advanced Tax Topics — M.B.A.
Taxation of corporations and partnerships for M.B.A. students. Emphasis on the application of federal income tax law to partnerships, the calculation of capital gains, and the application of the tax law to M.B.A. students (such as the tax aspects of the M.B.A. program costs). Prerequisite: admission to the Professional Program in Accounting; M.B.A. or equivalent.

4.45 Auditing — M.B.A.
Covers internal auditing, external auditing, and auditing of tax returns, as well as current FASB Accounting Standards, generally accepted accounting principles, and recent developments in accounting and in auditing. Prerequisite: admission to the Professional Program in Accounting; M.B.A. or equivalent.

4.50 Financial Accounting Reporting — M.B.A.
Analysis of internal and external accounting reporting practices in the context of decision making by internal management, financial analysts, and investors. Emphasis on the formulation and interpretation of financial statements. Prerequisite: admission to the Professional Program in Accounting.

4.55 Social Issues in Accounting — M.B.A.
Current social issues and trends relating to external reporting by firms to its investors, regulators and
Primarily for Graduates

48.24 Managerial Accounting - M.B.A. 3 s.h.
Internal financial management systems: accounting concepts and systems, management decision models and systems, modern economic, resource allocation, and quantitative analysis. Emphasis placed on analysis of financial data. Offered fall and spring semesters. Prerequisite: 48.1005.

48.251 Accounting Theory I 3 s.h.
Equity accounting, capital budgeting, variance analysis, and investment performance measurement. Offered fall semester. Prerequisite: 48.1601.

48.252 Accounting Theory II 3 s.h.
Includes advanced income tax and asset measurement methods, bond issuance issues in the selection among alternative accounting methods, and information needs and sources of various users, emphasis on tax planning and other alternatives. Offered spring semester. Prerequisite: 48.220 and either 48.142 or 48.478.

48.222 Accounting-Systems 2 s.h.
Design and implementation of accounting systems.supervisory activities and student performance. 48.224 Contemporaneous Issues in Accounting 2 s.h.
Current topics in taxation, current developments in accounting. 48.241 Advanced Tax Accounting for Graduate Students 1 s.h.
A graduate level introduction to recent taxation and tax efficacy of business enterprises. 48.240 Accounting Costs Series 1 s.h.
Thoroughly covering the latest in cost accounting. 48.260 Advanced Financial Accounting Problems 1 s.h.
Analysis of advanced financial accounting topics and contemporary problems. 48.280 Seminar in Financial Accounting 1 s.h.

Economics

General topics include measurement, research concepts, and strategies for accounting and analyzing business decision making. 48.252 Accounting Research 3 s.h.
Student research topics that may include current research in economics and related disciplines. 48.281 Seminar in Economic Theory 3 s.h.
Individualized study and research project offered in specialized areas. 48.291 Seminar in Economic Thought 3 s.h.
Prerequisite consent of instructor.

Bachelor of Business Administration

In addition to the common requirements of the College of Business Administration, the B.B.A. degree in economics requires 18 semester hours in 100-level economics courses, including: 68.103 Microeconomics 3 s.h.
68.105 Macroeconomics 3 s.h.

Master of Arts

The department offers a three-semester M.A. program in applied economics, with opportunities to specialize in microeconomic and macroeconomic theory, international economics, financial economics, banking and financial intermediation, economic planning and development, and labor economics.

48.233 Statistical Methods in Econometrics 3 s.h.
48.253 Price Theory 3 s.h.
48.294 Macroeconomics 1 s.h.
48.294 Microeconomics 1 s.h.
48.294 History of economic thought 3 s.h.
48.294 Methods of Quantitative Economics 3 s.h.

In addition to the above core courses (15 semester hours), the student has the option of taking 13 hours of electives and writing a thesis (four semester hours) for a minimum total of 33 semester hours of graduate credit. The student must also take 10 hours of electives and write a research paper in each of two 200-level economics courses, for a total of 20 hours of graduate credit. A student who performs well in the first semester of the M.A. program may apply to transfer into the Ph.D. program at that time, without loss of credit.
Joint M.A. Programs

The department collaborates with the Department of Geography in a joint M.A. degree and with the College of Law in offering a joint M.A./J.D. degree. In these programs the economics department satisfies up to nine semester hours of course work from the other departments as credit toward the M.A. degree in economics, and the other departments accept graduate credits in economics toward their degrees.

Doctor of Philosophy

The Ph.D. program is designed to provide rigorous training in microeconomic theory, macroeconomic theory, mathematical economics, and econometrics. In addition, the student selects a major area for intensive study and specialization. The program has three components: a coordinated sequence of core courses, a set of major area courses, and a dissertation.

The core sequence:
- First Semester
  - E6-180 Mathematics for Economists I
  - E6-183 Statistical Methods in Econometrics
  - E6-203 Microeconomics
  - E6-204 Macroeconomics
- Second Semester
  - E6-181 Mathematics for Economists II
  - E6-205 Microeconomics II
  - E6-206 Macroeconomics II
- Third Semester
  - E6-211 Mathematical Economics I
  - E6-221 Economics I
- Fourth Semester
  - E6-222 Economics II

An additional four semester hours in economic history, economic history of economic thought, or economic methodology are to be completed during the third year of residency. 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 Component

Each student chooses a major area of study in addition to the core courses. The requirement for the major area is a minimum of 24 semester hours of intensive study of a field and courses that enable the student to understand the relationship between his or her specialty and related fields. The student must achieve at least a 3.2 grade-point average in the major area courses.

Dissertation

The student must propose and defend a dissertation prospectus during the third year. Admission to candidacy is granted upon success of that defense. Submission of the completed dissertation and an oral defense of the dissertation research completes the Ph.D. program.

Courses Primarily for Undergraduates

Note: E6-1 and E6-2 may be taken in either order or they may be taken simultaneously; they satisfy the general education requirement in social sciences.

E6-00 Comparative Education I

E6-31 Principles of Economics
Organization and workings of modern economic systems; risk of failure; prices, costs; and competition in the American economic system; alternative systems of international trade; Prerequisite: satisfactory performance in University majors requirement.

E6-32 Principles of Economics
Nature and output of income; employment and paste; money and credit; government finance; monetary and fiscal policy; economic growth and development; international finance; Prerequisite: satisfactory performance in University majors requirement.

E6-33 Contemporary Economic Problems and Policy I

E6-34 Economic theory of consumer behavior, production, the role and nature of coordination and exchange, conditions for efficient resource allocation by the market mechanism. Prerequisites: E6-211 and E6-221, or senior standing.

E6-35 Labor Economics
Measurement of national product, unemployment, and inflation: determination of national income and the price level; analysis of the rate of inflation: policies. Prerequisites: E6-211 and E6-221, or senior standing.

E6-36 Labor Economics II

E6-11 Health Economics
Economic functions of America's medical care industry and applications of economic analysis to problems of distribution, pricing, and insurance; role of the profit and private versus public ownership; economic analysis of social security; economies of scale and the economics of health care. Prerequisites: E6-211 and E6-221, or senior standing.

E6-13 Health Economics

E6-18 Economics of the Government Sector

E6-19 Economics of the Government Sector

E6-10 Public Policy of the National Industrial Complex

E6-110 International Economics

E6-12 Foreign exchange and balance of payments; international economic relations; role of tariffs and quotas in international cooperation; price policies, exchange and social problems of living standards; Prerequisites: E6-211 and E6-221, or senior standing.

E6-13 National Resources in the World Economy

E6-14 Economic issues connected with the "new scarcity" in natural resources: availability of demand and supply conditions, natural resource policy, problems of economic development, environmental and social problems; Prerequisites: E6-211 and E6-221, or senior standing.

E6-15 Economic Development, Underdeveloped Areas

E6-16 The problem of underdevelopment in third world countries: examination of means and policies of economic development. Prerequisites: E6-211 and E6-221, or senior standing.

E6-17 Environmental Economics

E6-18 Economic analysis of open environmental and resource policies; analysis of policies that affect economic development, market failures, and environmental quality; consumer behavior; Prerequisites: E6-211 and E6-221, or senior standing, or consent of instructor.

E6-19 Economic Development, Underdeveloped Areas

E6-20 Theory of location of regional development: factors influencing regional development in the U.S.; business location; factors influencing regional development in the U.S.; business location; regional public policy; Prerequisites: E6-211 and E6-221, or senior standing.

E6-21 Problems in Urban Economics

E6-22 Analysis of报业funcional analysis to urban problems: examination of role of city size of urban economics, economic development and urban growth, urban structure, housing, transportation, socio-economic policies, and health; Prerequisites: E6-211 and E6-221, or senior standing.

E6-23 Transportation

E6-24 Economics of American Industries

E6-25 International Economics

E6-26 Economic growth: imperfect competition; public policies toward monopoly practices; studies of exchange rates. Prerequisites: E6-211 and E6-221, or senior standing.

E6-27 Introduction to Economic History

E6-28 Western economic development from antiquity to the present, with special emphasis on the commercial revolution, and, after 1500, the topics of the evolution of political and economic institutions, business organization, production and trade; Taylor's economic systems methodology. Prerequisites: E6-211 and E6-221, or senior standing.

E6-29 American Economic History

E6-30 Analysis of data and a model of how the American economy has developed: special emphasis on such topics as demographic factors, role of government, and exchange, Prerequisites: E6-211 and E6-221, or senior standing. Same as E6-1114.

E6-31 British Economic History

E6-32 Topics in current works of British history viewed from an economic perspective, and the influence of economic and social factors on political change. Prerequisites: E6-211 and E6-221, or senior standing. Same as E6-1114.

E6-33 European Economic History

E6-34 Topics in current works of European history viewed from an economic perspective. Prerequisites: E6-211 and E6-221, or equivalent. Same as E6-1117.
Primarily for Graduates

C.2.01 Directed Readings in Finance

C.2.02 Research Paper

C.2.03 Corporate Finance

C.2.04 Behavioral Finance

C.2.05 Empirical Finance Case

C.2.06 Complementary Principles of Life Insurance

C.2.07 Real Estate and Urban Land Economics

C.2.08 Financial Markets and Institutions

C.2.09 Agency Finance and Liability Insurance

C.2.10 International Business

C.2.11 Risk, Uncertainty, and Insurance

C.2.12 Property and Casualty

C.2.13 Risk Management

C.2.14 Real Estate

C.2.15 Financial Management

C.2.16 Financial Institutions

C.2.17 Corporate Finance

C.2.18 Financial Markets and Institutions

C.2.19 Real Estate

C.2.20 Financial Institutions

C.2.21 Insurance

C.2.22 Corporate Finance

C.2.23 Risk Management

C.2.24 Financial Management

C.2.25 Corporate Finance

C.2.26 International Business

C.2.27 Risk Management

C.2.28 Financial Institutions

C.2.29 Insurance

C.2.30 Corporate Finance

C.2.31 Risk Management

C.2.32 Financial Management

C.2.33 Corporate Finance

C.2.34 Risk Management

C.2.35 Financial Management

C.2.36 Corporate Finance

C.2.37 Risk Management

C.2.38 Financial Management

C.2.39 Corporate Finance

C.2.40 Risk Management

C.2.41 Financial Management
Doctor of Philosophy

Students seeking a Ph.D. in industrial relations and human resources will find degree requirements specified under "Interdepartmental Graduate Programs" at the front of this section of the Catalog.

Courses

Primary for Upper Division Undergraduates

6.09 Cooperative Education Internship
6.09.1 Introduction to Law
6.13 Administrative Management
6.13.1 Administration
6.13.2 Basic principles of management; management functions, leadership, management of the work staff, and administration of organizations.
6.13.3 Directed Readings in Industrial Relations and Human Resource Management

Individual guided readings in selected topics.
Preliminary consent of advisor.

6.152 Managerial Communication
6.152.1 Organizational, interpersonal, and language structures in business and other institutional settings; nonverbal behavior; communication systems and technologies; Preparatory: satisfaction or methods required.
6.153 Business Reporting
6.153.1 Application of communication theory and techniques to written communication; emphasis on relationship of communication principles to the particular business environment. Preparatory: methods required.
6.154 Administrative Law
6.154.1 Principles of organizational and management related to the administration and production functions in organizations, selection, development, and evaluation of personnel, and procedures in offices. Preparatory: all courses.
6.155 Law and Business
6.155.1 Contract, agency, and other operative areas of law applied in business, chiefly for maximizing interests and the advice and consent of their advisors.

Master of Arts

A Master of Arts degree with a major in industrial relations and human resources is available as a specialization program for students who seek a professional degree in the field. The program is designed to provide concentrated graduate study in labor relations and personnel management. Students complete from 35 to 41 semester hours of course work selected with consent of an advisor. The 35 to 41 hours are inclusive of all common body of business knowledge requirements mandated by the American Assembly of Colleges of Business Schools of Business. For general requirements, see "Interdepartmental Graduate Programs" at the front of this section of the Catalog.
Doctor of Philosophy

Candidates wishing to earn a Ph.D. degree in management sciences should refer to the description of the Doctor of Philosophy program in the "Interdepartmental/Graduate Programs" at the front of this section of the Catalog.

Courses

Primary for Undergraduates

08:00 Cooperation Education Internship
3 3 3
Introduction to the computer and its uses in the cooperative management organizations, topics are computer systems terminology, introduction to programming, management information systems, and introductory programming applications. Prerequisites: 08:00 A/B and 235:8. 260:9.

09:00 Computer Analysis
Fundamental principles of database management systems, structuring of complex systems, programming languages, data types, file structures, data manipulation, structured programming, and file/record processing. Prerequisites: 09:00 B and 260:9.

10:00 Statistical Analysis
Fundamental principles of unbiased statistical analysis of social, behavioral and management problems involving uncertainty. Use of various computer use and data. Prerequisites: 260:9. 265:9.

11:00 Production Management
Organization and management of manufacturing enterprises; production design and process planning; plant factors and materials handling, work flow analysis, and measurement, production, inventory control. Prerequisites: 82:8 and 96:7.

For Undergraduates

10:10 Directed Readings
1 1 1
Individual reading in selected topics in management sciences. Prerequisites: consent of instructor.

10:15 Organizational Behavior
1 1 1
A survey of major conceptual and systematic developments in the behavior of individuals and groups in organizations; the organization and its environment, the structure, the formation, development, and effectiveness of work groups, individual and group problem-solving and decision making, interpersonal conflict, and leadership. Not a substitute for 09:10 in B.A. or M.A. programs.

10:16 Individual Behavior in Organizations
Principles of motivation, perception, learning, attitude formation, etc. and their effects on behavior in management situations. Prerequisites: 10:10 A/B and 260:9 or consent of instructor. 265:9.

10:17 Organizational Behavior
Basic characteristics of organizational structure and group processes from the perspectives of a variety of social science theories and research. Illustrative topics include authority and communication structures, group relationships, leadership and group task performance, the role of the organization in society, and the psychology of organization. Prerequisites: 10:16 or consent of instructor.

10:18 Design and Management of Organizations
Applicable theory to problems of designing and managing organizations, including organizational structure and systems, functions and activities, organizational planning and control, and systematic approach to technological and social problems. Prerequisites: 10:17 or consent of instructor.

10:19 Business Policy
Studies the overall managerial responsibilities of general managers, integrates functional aspects of business in problem-solving setting; suitable undergraduates business policy. Prerequisites: 10:16 or consent of instructor.

10:20 Employment in Administration Sciences
Specific problems in organizational behavior. Applicable to problems of management science related to management science. Prerequisites: 10:18 or consent of instructor.

10:21 Directed Readings
1 1 1
Individual reading in selected topics in management sciences. Prerequisites: consent of instructor.

10:22 Research Report
1 1 1
For nonthesis M.A. candidate only. One semester credit for a major paper. Prerequisite: consent of instructor.

10:23 Administrative Science-A.M.
1 1 1
Goals, concepts, and research in motivation, learning, perception, group and attitude change, social exchange, volume, flow, thinking and problem solving, communication depth, Prerequisites: 10:18 or consent of instructor. 270:8, 270:9 and permission of the Graduate Programs Office.

10:24 Administrative Science-B.A. Groups
1 1 1
Understanding and predicting the behavior of individuals in groups, in organizations, and in group and organizations processes. Prerequisites: 10:16 in major and permission of the Graduate Programs Office.

10:25 Behavioral Science-B.A. Groups
1 1 1
Individual behavior, organizational aspects of social behavior and motivation in group behavior. Prerequisites: 10:15 or consent of instructor.

10:26 Behavioral Science and Business
Individual behavior, organization behavior, organization theory, and interorganizational network. Organizations, behavior, and decision making. Prerequisites: 10:24 or 10:25.

10:27 Behavioral Science Problems in Organizations
1 1 1
Interdisciplinary approach to the study of human behavior in organizations and the social science tested in depth, e.g., statistical measurement, statistical analysis, operations research, decision theory, management science, and the improvement of information performance. Prerequisites: 10:26 or 10:27.

10:28 Management Information Processing and Decision Behavior
1 1 1
Introduction to the use of computers in management and their application to management systems, including management science, and application of computer science to management science. Prerequisites: 10:27 or consent of instructor.

10:29 Computer Methods-M.A.
Use of computers in research, computer programming languages emphasizing time sharing, BASIC, FORTRAN, systems design, M.S. data base structure, Prerequisites: permission of graduate programs office.

10:30 Quantitative Methods-M.A.
Quantitative methods applicable to business and economic problems, calculus, linear algebra, and statistical methods. Prerequisites: 10:29 and permission of the Graduate Programs Office.

Primary for Graduates

10:31 Directed Readings
1 1 1
Individual reading in selected topics in management sciences. Prerequisites: consent of instructor.

10:32 Research Report
For nonthesis M.A. candidate only. One semester credit for a major paper. Prerequisite: consent of instructor.

10:33 Administrative Science-A.M.
Goals, concepts, and research in motivation, learning, perception, group and attitude change, social exchange, volume, flow, thinking and problem solving, communication depth, Prerequisites: 10:18 or consent of instructor. 270:8, 270:9 and permission of the Graduate Programs Office.

10:34 Administrative Science-B.A. Groups
Understanding and predicting the behavior of individuals in groups, in organizations, and in group and organizations processes. Prerequisites: 10:16 in major and permission of the Graduate Programs Office.

10:35 Behavioral Science-B.A. Groups
Individual behavior, organization behavior, organization theory, and interorganizational network. Organizations, behavior, and decision making. Prerequisites: 10:24 or 10:25.

10:36 Behavioral Science Problems in Organizations
Interdisciplinary approach to the study of human behavior in organizations and the social science tested in depth, e.g., statistical measurement, statistical analysis, operations research, decision theory, management science, and the improvement of information performance. Prerequisites: 10:26 or 10:27.

10:37 Management Information Processing and Decision Behavior
Introduction to the use of computers in management and their application to management systems, including management science, and application of computer science to management science. Prerequisites: 10:27 or consent of instructor.

10:38 Computer Methods-M.A.
Use of computers in research, computer programming languages emphasizing time sharing, BASIC, FORTRAN, systems design, M.S. data base structure, Prerequisites: permission of graduate programs office.

10:39 Quantitative Methods-M.A.
Quantitative methods applicable to business and economic problems, calculus, linear algebra, and statistical methods. Prerequisites: 10:29 and permission of the Graduate Programs Office.

10:40 Research Report
For nonthesis M.A. candidate only. One semester credit for a major paper. Prerequisite: consent of instructor.
Graduate Programs

See "Interdepartmental Graduate Programs" at the front of this section of the Catalog.

Courses

Primary for Upper-Division Undergraduates

5008 Co-operative Ed-Academic Internship 4 s.h.
5012 Introduction to Marketing 3 s.h.
5015 Adaptation to structure of marketing—advertising environment of an organization and its strategies with respect to marketing decisions and internal management and control systems. Prerequisites: Prereq: 5012; 5016, 5017. 

For Undergraduates and Graduates

5101 Directed Readings in Marketing 1-18 s.h.
5110 Introduction to Marketing Research 3 s.h.
5111 Marketing and Consumer Behavior 3 s.h.
5116 Advertising Theory and Planning 3 s.h.
5120 Marketing Communications 3 s.h.
5122 Sales Management 3 s.h.
5123 Retailing and Marketing in the Service 3 s.h.
5124 Senior Seminar in Marketing 3 s.h.
5170 Marketing Management 3 s.h.
5171 Experimental Methods in Marketing 3 s.h.
5172 Marketing 3 s.h.
5173 Business Research Methods 3 s.h.
5174 Business Research Methods 3 s.h.
5175 Marketing Management 3 s.h.
5176 Marketing Management 3 s.h.
5177 Marketing Management 3 s.h.
5178 Marketing Management 3 s.h.
5179 Marketing Management 3 s.h.
5180 Marketing Management 3 s.h.
5181 Marketing Management 3 s.h.
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5212 Marketing Management 3 s.h.
5213 Marketing Management 3 s.h.
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5222 Marketing Management 3 s.h.
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5226 Marketing Management 3 s.h.
5227 Marketing Management 3 s.h.
5228 Marketing Management 3 s.h.
5229 Marketing Management 3 s.h.
5230 Marketing Management 3 s.h.
5231 Marketing Management 3 s.h.
5232 Marketing Management 3 s.h.
5233 Marketing Management 3 s.h.
5234 Marketing Management 3 s.h.
5235 Marketing Management 3 s.h.
Primarily for Graduates

MK-211 Introduction to Marketing
3 s.h.
Individually guided readings in selected topics in marketing. Prerequisite: consent of instructor.

MK-215 Contemporary Topics in Marketing
3 s.h.
Special topics in contemporary issues at the graduate level. Students may register for credit for more than one section of this course. Prerequisite: consent of instructor.

MK-217 Marketing Management I—MBA
3 s.h.
Linkage and system approach to marketing decisions. Behavioral science applied to consumer behavior, demand and micro-market segmentation, marketing plans, policies, and strategies. Prerequisite: MK-209 or consent of instructor.

MK-218 Marketing Research Methods
3 s.h.
Methods of design and analysis of marketing research studies, including survey and laboratory and field experiments. Descriptive and inferential statistics; experimental design; multivariate regression; empirical validation; sampling; sources of data; instrument construction; and statistical analysis. Prerequisite: consent of instructor.

MK-220 Buyer Behavior
3 s.h.
Study of behavior of consumers and industrial buyers. Examination of research methods and findings from behavioral sciences. Prerequisite: consent of instructor.

MK-221 Product Management
3 s.h.
The strategic importance of marketing planning. Determination of the nature of the environment facing the organization, and the designing and implementing of actions to maximize the objectives of the firm in that environment. Planning models, long-term and short-term marketing plans will be considered. Prerequisite: consent of instructor.

MK-222 Marketing Communications
3 s.h.
Examination of marketing communications as dialogue between producers and consumers and how promotional mix evolves, emphasis on advertising, sales promotion, and personal selling. Prerequisites: MK-217, MK-218, or consent of instructor.

MK-223 Multivariate Methods in Marketing
3 s.h.
Brief overview of multivariate methods and concentration on those methods as they relate to marketing problems; regression analysis; factor analysis; discriminant analysis, curvilinear analysis, AID analysis, and clustering, and illustration from marketing literature. Prerequisite: consent of instructor.

MK-245 Marketing Models
3 s.h.
Examination of theoretical and operational models in marketing with emphasis on recent advances in rational and quantitative models which attempt to solve marketing management problems. Analysis of how marketing models can be used in the strategic planning and development process. Prerequisite: consent of instructor.

MK-241 Psychological Scaling for Marketing
3 s.h.
Survey of a number of psychological scaling techniques which have applications in consumer research in marketing. Topics include definition and properties of scale types; unidimensional and multidimensional scaling models; nominal scales and descriptor analysis; some emphasis on data collection methods and applications. Prereq: MK-218. Prerequisite: consent of instructor.

MK-242 Seminar in Marketing
1-3 s.h.
Examination of current marketing literature and current problems facing marketing faculty and students. Prerequisite: consent of instructor.

MK-275 Research in Marketing
1-3 s.h.
Individually guided research projects on appropriate topics in marketing. Prerequisite: consent of instructor.

MK-285 Thesis in Marketing
1-6 s.h.
Prerequisite: consent of instructor.

MK-296 Field Studies in Marketing
3 s.h.
Supervisory knowledge regarding various aspects of marketing, applied to real problems in operating business firm(s). Individuals or teams of students conduct field studies under faculty supervision. Prerequisite: consent of instructor.
College of Dentistry

The College of Dentistry is both administratively and physically an integral part of the University. It draws upon and contributes to the University’s diverse resources, and its students enjoy all the advantages and privileges enjoyed by the general student body. The college benefits particularly from its cooperative relationship with the colleges of Medicine, Nursing, and Pharmacy in The University of Iowa Health Center, whose teaching, research, and service activities have earned international recognition.

Doctor of Dental Surgery

The basic educational program leading to the degree Doctor of Dental Surgery (D.D.S.) consists of approximately three years of preprofessional study and four years of study in the College of Dentistry. The dental curriculum consists of five basic units:

Basic Sciences

- Gross anatomy
- Biochemistry, histology, physiology
- General pathology
- Oral pathology
- Pharmacology, microbiology

Restorative Dental Sciences

- Gross, microscopic, and radiographic dental anatomy
- Dental materials
- Endodontics
- Operative dentistry
- Fixed partial prosthesis
- Removable prosthesis

Oral Medicine

- Preventive dentistry
- Oral diagnosis
- Dental radiology
- Oral patholoy
- Anesthesiology and pain control
- Oral surgery
- Geriatrics

Community Dentistry

- Ethics: epidemiology, nutrition
- Preventive dentistry
- Community health
- Principles of human behavior
- Dental economics
- Dental jurisprudence
- Geriatrics

Pediatric Dentistry

- Facial growth and development
- Pedodontics
- Orthodontics

To achieve a close correlation of the basic sciences with clinical disciplines, the student is introduced to clinical patient-treatment situations during the first year.

The second-year program includes further activities in the basic and clinical sciences.

Third-year dental students rotate through a series of "teamship" programs which expose them to each of eight clinical disciplines.

Fourth-year dental students are involved in the delivery of comprehensive dental care in an environment which simulates conditions in private dental practice. Fourth-year students also are exposed to various extramural health programs that include state and University Hospitals and Clinics and the State Department of Health; also, there are preceptorships in which fourth-year dental students assist in selected dental offices throughout Iowa. The preceptorships expose students to facets of dentistry usually not observable in an academic setting, such as practical business-management procedures, and the relationship of the dentist to the community.

Promotions and Graduation

Student promotions and graduation are determined by the Collegiate Academic and Professional Performance Committee appointed by the dean from the basic preclinical and clinical sciences, and from the other academic areas of the college. The performance committee may recommend to the dean that a student withdraw from the college or repeat specific courses when the student is deemed generally unprepared to be promoted or to enter the dental profession.

Committee for Appeals

When a student has been asked to withdraw from the college, or desires special consideration on problems concerning promotion or graduation, he or she may appeal this decision to the dean. All appeals shall be heard by an ad hoc committee appointed by the dean. The ad hoc committee is charged to investigate new information that has not been available before, or for some reason has not been discussed as fully as the student feels it should have been, and to determine whether this new information (or important new insights that may have gained) could have influenced the Collegiate Academic and Professional Performance Committee's decision. The recommendation of the appeals committee is submitted to the dean for final action.
State Board of Dental Licensure Examination

The states of Kansas, Colorado, Missouri, Iowa, Wisconsin, Nebraska, Minnesota, Wyoming, North Dakota, and South Dakota have joined in the formation of the Central Regional Dental Testing Service to replace dental examinations previously given by the states individually. These examinations are administered at several testing sites located at schools of dentistry within the region. Examination data are determined by the Central Regional Dental Testing Service and are available upon request.

Successful completion of requirements of the Central Regional Dental Testing Service will be accepted by the member states for a five-year period in lieu of their individual state's examination requirements.

Facilities

The Dental Science Building, a major unit in an expanded health center, enables the college to accelerate its research activities, and facilitates the development of interdisciplinary communication in health center teaching, research, and patient-care activities. The health center includes the colleges of Medicine, Nursing, and Pharmacy, the Biology Science Building; University Hospitals and Clinics, and a Health Sciences Library. The Health Sciences Library houses all of the University's special health sciences collections, a total of 184,600 volumes, including the College of Dental Surgery's collection of 18,000 volumes on dentistry and allied scientific topics, and the more than 300 dental journals the college currently receives. The library received a total of 2,600 journals from the combined health professions.

The Dental Science Building consists of two connected four-story wings located on either side of a main south wing that is devoted to clinical teaching, with various departments clinics laboratories, support laboratories, clinical research offices, and an automated learning center. The north wing houses a variety of teaching, administrative, and research facilities, including teaching laboratories, research laboratories, administration areas, an audiovisual production center, and the programs in community dentistry.

Student Organizations

All dental students are eligible for membership in the American Association of Women Dentists and the American Society of Dentistry for Children. Students who rank in the upper 12 percent of their class are eligible for selection to Omicron-Kappa Upsilon, national dental honorary society. Two national dental professional organizations, Delta Sigma Delta and Pi Omegaa, have chapter houses at both schools, and both have sponsored organizations.

Expenses

The College of Dentistry maintains a Supply-Instrument Management System (S.I.M.S.) that provides the student with most of the instruments and supplies necessary throughout dental training. The instrument usage fee for the program leading to the D.D.S. degree is payable in installments over the first three years of the program.

A fee for expendable laboratory supplies is charged each of the first two years. A $100 breakage fee must also be deposited; the deposit is refundable upon graduation or termination of enrollment.

Financial Assistance

Financial assistance for dental students is based on need. Eligibility is established by completion of the College Scholarship Service Financial Aid Form, which includes an evaluation of parents' income and assets. Students are eligible for Federal Loans, Federal Work-Study Program, National Direct Student Loans, state grants, and Student Employment. Students interested in these Loans should apply at the College within a reasonable time after completion of the course of study. Short-term loans are available to establish students in emergency situations. These are available through the Financial Aid Coordinator at the College of Dentistry.

See the "Financial Aid" section of the Catalog or major at the Office of Student Financial Aid for updated information regarding financial assistance available to dental students.

Admission

Each applicant must submit to the American Association of Dental Schools Application Service a completed application form. The forms are available from the University Office of Admissions.

Applications are accepted beginning June 1 of the year prior to the year for which application is made. The end of the application cycle is November 30. Applications received after this date will not be processed.

Admission is open on a point system, the highest for which one-fourth is to be laboratory work.

Chemistry

Two years (equivalent to 16 semester hours), of which one year (equivalent to eight semester hours) must include organic chemistry, and of which one-fourth must be laboratory work.

Biology

One year (equivalent to eight semester hours), which must include appropriate laboratory work, must include general zoology, and must be one course in either general genetics and zoology (not botany).
The dental admissions committee may waive or reduce some of the above requirements when the candidate for admission is considered outstanding in other respects.

Combined Liberal Arts-Dentistry Course

Students who are enrolled in a baccalaureate program at The University of Iowa may be allowed to include the first year of dentistry to complete their elective hours requirements toward the bachelor's degree.

The provision for acceptance by the College of Liberal Arts of 30 semester hours of elective credit earned in any other college of the University makes it possible for the student who enters the College of Dentistry to obtain the admission degree from the College of Liberal Arts upon successful completion of the freshman year in dentistry. To take advantage of this plan, the student must fulfill all specific requirements for the bachelor's degree, including the requirements for a major in some department or area of concentration. The successful completion of the test 30 hours in the College of Liberal Arts at The University of Iowa preceding enrollment in the College of Dentistry satisfies the College of Liberal Arts residence requirement.

Grade-Point Requirement

The applicant should have a cumulative grade-point average of at least 2.5. In addition to the cumulative grade-point average, the admissions committee gives special consideration to the quality of the applicant's coursework in the preclinical sciences.

Interviews

Personal interviews are required of applicants accepted by the College of Dentistry. After the initial evaluation of the applicant's academic background, the applicant will be interviewed for those who are in competitive positions for potential admission.

Required Dental Admission Test

All applicants must complete the Dental Admission Test sponsored by the Council on Dental Education of the American Dental Association. Tests are given twice a year annually, and The University of Iowa is a testing center. Applicants must take the test no later than October in order to be admitted to the following year's classes. Applicants may take the test up to two times within a year. Two applications should be submitted at least 30 days before the test.

Deposit by Accepted Applicants

An accepted applicant is required to submit a deposit within 30 days after notification of favorable action on his or her application until April 15. Applicants admitted after April 15 must submit the deposit within two weeks after their notification of admission. This deposit is not refundable but is credited toward the final fee payment. An applicant who fails to make the deposit within the time specified forfeits a place in the entering class.

Additional Admission Considerations

Fulfillment of the specific requirements listed for admission does not ensure admission to the College of Dentistry. From the applicants meeting minimum requirements, the admissions committee selects those who appear best qualified for the study in dentistry. The committee considers applicants' academic averages, science averages, the scores on the required Dental Admission Test, and several other factors.

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, Fixed Prosthodontics, Operative Dentistry, Endodontics, Oral Pathology and Diagnoics, Oral and Maxillofacial Surgery, Orthodontics, Pedodontics, Periodontology, Preventive and Community Dentistry, and Removable Prosthodontics. Admission to any of the graduate programs requires a score of at least 4.0 on all requirements for admission to the Graduate College, possession of the Doctor of Dental Surgery degree or its equivalent (except for Dental Hygiene), and departmental 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 program.

Basic Sciences in the Dental Curriculum

The following science courses are offered by departments in colleges other than Dentistry, and are a required part of the dental curriculum:

- 60:101 Human Gross Anatomy for Dental Students 4 s.h.
- 60:112 General Histology for Dental Students 6 s.h.
- 60:114 Oral Microscopic Anatomy and Embryology 1 s.h.
- 61:182 Dental Microbiology 4 s.h.
- 60:203 Introduction to Human Pathology 5 s.h.
- 71:111 Pharmacology for Health Sciences: Dental 5 s.h.

72:152 Marrinnal Physiology 4 s.h.

99:161 Biochemistry for Dental Students 4 s.h.

Nondegree Program

No course in this program is applicable toward the degree. The program is intended for continuing education of dentists in general dentistry and related areas.

150:001 Cephalometrics 3 s.h.

150:002 Occlusion 3 s.h.

150:003 Intraoral Films 3 s.h.

150:004 Periodontics 3 s.h.

150:005 Oral Surgery 3 s.h.

150:006 Restorative Dental Treatment 3 s.h.

150:007 Endodontics 3 s.h.

150:008 Periodontics 3 s.h.

150:009 Oral Surgery 3 s.h.

150:010 Cephalometrics 3 s.h.

150:011 Occlusion 3 s.h.

150:012 Intraoral Films 3 s.h.

150:013 Periodontics 3 s.h.

150:014 Oral Surgery 3 s.h.

150:015 Restorative Dental Treatment 3 s.h.

150:016 Endodontics 3 s.h.

150:017 Periodontics 3 s.h.

150:018 Oral Surgery 3 s.h.

150:019 Restorative Dental Treatment 3 s.h.

150:020 Endodontics 3 s.h.

150:021 Periodontics 3 s.h.

150:022 Oral Surgery 3 s.h.

150:023 Restorative Dental Treatment 3 s.h.

150:024 Endodontics 3 s.h.

150:025 Periodontics 3 s.h.

150:026 Oral Surgery 3 s.h.

150:027 Restorative Dental Treatment 3 s.h.

150:028 Endodontics 3 s.h.

150:029 Periodontics 3 s.h.

150:030 Oral Surgery 3 s.h.

150:031 Restorative Dental Treatment 3 s.h.

150:032 Endodontics 3 s.h.

150:033 Periodontics 3 s.h.

150:034 Oral Surgery 3 s.h.

150:035 Restorative Dental Treatment 3 s.h.

150:036 Endodontics 3 s.h.

150:037 Periodontics 3 s.h.

150:038 Oral Surgery 3 s.h.

150:039 Restorative Dental Treatment 3 s.h.

150:040 Endodontics 3 s.h.

150:041 Periodontics 3 s.h.

150:042 Oral Surgery 3 s.h.

150:043 Restorative Dental Treatment 3 s.h.

150:044 Endodontics 3 s.h.

150:045 Periodontics 3 s.h.

150:046 Oral Surgery 3 s.h.

150:047 Restorative Dental Treatment 3 s.h.

150:048 Endodontics 3 s.h.

150:049 Periodontics 3 s.h.

150:050 Oral Surgery 3 s.h.

150:051 Restorative Dental Treatment 3 s.h.

150:052 Endodontics 3 s.h.

150:053 Periodontics 3 s.h.

150:054 Oral Surgery 3 s.h.

150:055 Restorative Dental Treatment 3 s.h.

150:056 Endodontics 3 s.h.

150:057 Periodontics 3 s.h.

150:058 Oral Surgery 3 s.h.

150:059 Restorative Dental Treatment 3 s.h.

150:060 Endodontics 3 s.h.

150:061 Periodontics 3 s.h.

150:062 Oral Surgery 3 s.h.

150:063 Restorative Dental Treatment 3 s.h.

150:064 Endodontics 3 s.h.

150:065 Periodontics 3 s.h.

150:066 Oral Surgery 3 s.h.

150:067 Restorative Dental Treatment 3 s.h.

150:068 Endodontics 3 s.h.

150:069 Periodontics 3 s.h.

150:070 Oral Surgery 3 s.h.

150:071 Restorative Dental Treatment 3 s.h.

150:072 Endodontics 3 s.h.

150:073 Periodontics 3 s.h.

150:074 Oral Surgery 3 s.h.

150:075 Restorative Dental Treatment 3 s.h.

150:076 Endodontics 3 s.h.

150:077 Periodontics 3 s.h.

150:078 Oral Surgery 3 s.h.

150:079 Restorative Dental Treatment 3 s.h.

150:080 Endodontics 3 s.h.

150:081 Periodontics 3 s.h.

150:082 Oral Surgery 3 s.h.

150:083 Restorative Dental Treatment 3 s.h.

150:084 Endodontics 3 s.h.

150:085 Periodontics 3 s.h.

150:086 Oral Surgery 3 s.h.

150:087 Restorative Dental Treatment 3 s.h.

150:088 Endodontics 3 s.h.
Dental Hygiene

Department Chair: Paulette Stone
Faculty: Linda M. Chervow, Katherine Cross, Patricia Deene, Elizabeth Swinn, Kari Nelles, Nancy Silvy
Lecturers: Catherine Davis, Penny Nielsen, Rebecca Holt, Jene Rehav, Jangaja Alfred

Bachelor of Science

Qualified by education and licensure, the dental hygienist applies knowledge of the basic, social, dental, and clinical sciences in providing patient services for the prevention and control of dental disease.

The Bachelor of Science degree program in dental hygiene comprises two years of general education followed by two years of specialty education. Students who wish to graduate in December rather than May may enroll in an extended summer semester between the junior and senior years.

The curriculum is accredited by the Commission on Dental Accreditation of the American Dental Association. Program graduates are prepared to take the state board examination for certification and state dental hygiene licensure examinations required for dental hygiene practice.

Included in the general education requirements are courses in the basic and core sciences. These courses provide the student with educational preparation in disciplines relevant to specialized study in medical and dental sciences and in dental hygiene.

Students take the specialized courses during the junior and senior years. In the junior year, they enroll in 60:2 Human Microscopic Anatomy; 71:130 Intermediate Pharmacology; 82:61 Operative Dentistry Laboratory, Hygiene; 86:63 Oral Pathology; 86:61 Oral Pathology for Dental Hygienists; 86:62 Dental Radiology for Dental Hygienists; 77:61 Anesthesiology, Anesthesia, and 88:51 Dental Anatomy.

In addition, juniors learn the basic theory and clinical skills required for professional hygiene practice in 86:61 Dental Hygiene Seminar I and 86:62 Dental Hygiene Seminar II, which integrate concepts in dental anatomy with the theory and practice of clinical dental hygiene.

During the senior year, students advance after clinical skills in 88:85 Clinical Dental Hygiene. In 82:60 Advanced Periodontics for Dental Hygiene Students, each student is assigned to work with a graduate student in periodontics performing procedures on adults who have active periodontal disease. This experience not only advances dental hygiene clinical skills, but provides both the hygiene and graduate dental students with a learning experience emphasizing the team approach.


Senior students also are enrolled in 88:85 Practicum: Community Dental Hygiene; 88:88 Seminar: Community Dental Health; 77:171 Designing and Developing Instructional Materials; 222:101 Biostatistics; and 15:115 Introduction to Genetic Dentistry.

Courses traditionally taught as isolated subject-oriented units, such as dental health education, public health, and epidemiology are incorporated into an integrated core. Learning emphasis is on the relationship between the underlying theory and practical application of community dental health. Students discuss broad community health issues related to the provision of dental health care. Faculty advisors enable students to apply knowledge of human behavior, basic principles of communications and marketing, and educational and research techniques to the design, implementation, and evaluation of health care and educational programs.

Admission Requirements

High School Preparation

Although there is no specific high school course requirement, college preparatory courses are recommended. These courses should include four years of English, at least two years of foreign language, two years of high school algebra and one year of high school geometry, and one year each of biology and chemistry.

College Preparation

Eligibility for admission to the professional program in dental hygiene requires satisfactory completion of 62 semester hours of college work course work. The student must satisfy general education requirements of the College of Liberal Arts and complete the following dental hygiene prerequisites:

- Five semester hours (eight for transfer students) of general science—31:71 Introductory Animal Biology
- Three semester hours of inorganic chemistry—47:1 General Chemistry I

Three semester hours of organic chemistry, including biochemistry—2:8 General Chemistry II

Four semester hours of microbiology—31:1 Microbiology

Three semester hours of nutrition—7:41 Food, Nutrition, and You

Three semester hours of psychology—35:1 Elementary Psychophysics

Three semester hours of anatomy—60:1 Elementary Human Anatomy

Three semester hours of physiology—7:16:12 or 7:16:14 Human Physiology

These prerequisites provide the educational basis for the dental hygiene courses of study. In addition, students admitted to the professional program of study must complete basic certification in cardio-pulmonary resuscitation technique (CPR) prior to entrance. Completion of a two-year associate degree program in dental hygiene does not provide as appropriate background for transfer into the baccalaureate program at RUT.

Students begin the professional program in dental hygiene in the fall only. Students enrolled in The University of Iowa College of Liberal Arts need submit only the dental hygiene application in the fall semester of their sophomore year. Transfer students must submit both dental hygiene and dental hygiene applications. All applicants are interviewed by the dental hygiene admissions committee after submission of their dental hygiene applications. Students must apply for dental hygiene admission by March 1 preceding the fall semester in which they wish to enter the program.

Graduate Program

The graduate program fulfills the need for qualified educators in dental hygiene. Graduates are prepared to contribute toward the advancement of new knowledge in dental hygiene. Therefore, graduate program goals place emphasis on the acquisition of advanced scientific knowledge in the biological, social and physical sciences, and basic knowledge of and experience in conducting research. Program graduates are prepared for positions as dental hygiene educators and administrators, research consultants, oral health care practitioners, program administrators, health educators, and preventive product consultants.

The curriculum design provides the student with concentrated advanced education in dental hygiene theory, in the biological, social and physical sciences, and in research.
Graduate Admission Requirements

Applicants for admission are subject to the general rules of the Graduate College. Departmental requirements for the Graduate Record Examination (GRE) Aptitude Test and a 2.0 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.

Candidates for admission must submit official transcripts of all undergraduate academic records, an application for admission, and Graduate Record Examination scores to the Office of Graduate Admissions, Calvin Hall. These materials must be received before the candidate’s application can be processed. Application for admission and information on the Graduate Record Examination can be obtained from the Office of Graduate Admissions.

Special Programs

Through an independent study program, students can explore additional career options in dental hygiene or enrich their educational background in a dental hygiene-related field of study. For example, a student interested in clinical research may become involved in a faculty-directed research project. Others considering graduate programs in public health or dental hygiene education may direct projects related to these interest areas.

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’s Health Sciences Center, one of the nation’s outstanding health sciences teaching, research, and patient care facilities.

Financial Aid

In addition to financial assistance available to University students in general, there is a limited number of loans specifically for dental hygiene students. These loans are based on assessment of the student’s academic record as well as financial need.

Courses For Undergraduates

The program in dental hygiene is designed to provide a foundation of knowledge and skills necessary for professional practice in dental hygiene. The program is designed to prepare the student for a career as a dental hygienist.

Endodontics

The program in endodontics is designed to provide a foundation of knowledge and skills necessary for professional practice in endodontics. The program is designed to prepare the student for a career as an endodontist.

Predoctoral Program

The program in predoctoral dentistry is designed to provide a foundation of knowledge and skills necessary for professional practice in dentistry. The program is designed to prepare the student for a career as a dentist.
of the dental pulp, emphasizing the areas of prevention and diagnosis of pulpal disease. Students study endodontic patients under direct supervision of the department faculty and staff.

Graduate Program in Endodontics

The graduate program offered by the Department of Endodontics is designed to prepare qualified dentists for the practice of endodontics and for a career in dental education and research.

The department offers two types of graduate post-D.S.J. programs. The Master of Science degree program requires at least a total of 40 graduate credit hours, including an original research project and thesis. The student follows a plan of study which may involve a total of 80 semester hours.

The certificate program requires 30 formal hours. The candidate is expected to write a scientific paper of publishable quality, based on original research.

The certificate program involves coursework study for at least 80 semester hours of credit. An individual plan of study is prepared for each student.

Both programs are for a maximum of two calendar years, and only full-time students are admitted. Completion of the program requires satisfactory performance in academic written and/or oral examination which is of a functional character and does not duplicate seminar examinations.

These programs satisfy the training requirements for eligibility for the American Board of Endodontics. The specific goals of these programs are to allow the dentist to develop his or her skills and acquire a broad knowledge of the practice of endodontics and for a career in teaching and practice purposes; to gain sufficient knowledge and experience in the educational process so that he or she may function as a dental educator, to recognize the value of the pursuit of scholarly research, and to develop the ability to plan, conduct, and report the results of research investigations.

An applicant for the graduate programs in endodontics must be a graduate of an accredited college of dentistry and must comply with the requirements for admission to the Graduate College of The University of Iowa.

The graduate programs in endodontics normally begin July 1. However, it is also possible to start a program in the beginning of the spring semester or summer session. Applicants should be admitted in the application period in advance of anticipated starting date. Directors of the program will meet with applicants to discuss the requirements for admission to the Graduate College and also accept into the program by the faculty of the Department of Endodontics. A personal interview with the applicant may be requested.

Each student in the program must maintain a grade-point average of 3.0 to receive a certificate or degree. A student who fails below this level will be allowed one semester to attain it. The circumstances creating the deficiency will receive careful consideration.

Students enrolled in the graduate programs in endodontics may not enrol themselves in private practice enterprises outside the college. A student who does so will be asked to withdraw himself or herself exclusively to either the program or the practice.

Persons applying to the graduate program in endodontics must be able to support themselves financially for the time required to complete the program.

D.D.S. Program

81511 Endodontics

Lectures, seminars, and laboratory projects designed to give understanding of basic principles, concepts, and technical procedures necessary for treatment of pulp pathology in humans.

81516 Clinical Endodontic Practice

Clinical endodontic practice; clinical symptoms evaluated, discussion of treatment of each individual case followed by student's practical application on similar simple cases. Prerequisites: 81511 and 81515.

81518 Clinical Endodontic Seminar

81519 Selected Topics in Endodontics

Primary for Graduates

82251 Endodontic Literature Review I

Review of the past and present of endodontic literature.

82252 Endodontic Literature Review II

Introduction to modern methods of endodontics and discussion of dental materials used in endodontics.

82253 Endodontic Literature Review III

Review and discussion of biologic and prosthodontic considerations.

82254 Endodontic Literature Review IV

Recent research papers, current trends and new directions in methods and materials and their use in endodontics.

82320 Research in Endodontics

Topic selection, protocol preparation and starting the research investigation. Literature review, and writing of theses and defense.

82321 Thesis Progress in Endodontics

Evaluation of candidate's progress that requires surgical repair. Discussion of different treatment methods and techniques. Graduate students present their surgical repair and after treatment to the faculty for discussion and surgical repair to endodontic treatment.

82411 Advanced Clinical Endodontics

Clinical treatment of patients, progressing from simple to complex cases and techniques. Evaluated by critically analyzing the treatment and recommendations presented. Students must take this course every semester.

82511 Seminar in Endodontics I

Weekly discussion of the endodontic literature. Includes the study of endodontic reviews of basic endodontic literature.

82512 Seminar in Endodontics II

Discussion and critical analysis of relevant literature. Clinical applications and review of endodontic treatment principles.

82513 Seminar in Endodontics III

Discussion and critical analysis of relevant literature. Clinical applications and review of endodontic treatment principles.

82514 Seminar in Endodontics IV

Discussion and critical analysis of relevant literature. Clinical applications and review of endodontic treatment principles.
Fixed Prosthodontics

Department Head: Kenneth A. Turner
Degree offered M.S. or Ph.D.

Predoctoral Program

The department participates in the D.O.S. program for dental students at all levels. Predoctoral courses at the first and second levels prepare the student with a background in materials and techniques used in fixed prosthodontic treatment. Third-and fourth-level students participate in a comprehensive didactic program of patient treatment in the specialties. The department provides a consultation service to students in the fourth-curricular level.

Postdoctoral Programs

The department offers Master of Science and certificate programs. The primary purpose of the Master of Science program is to train students in the basic sciences and clinical sciences in fixed prosthodontic education and research. The certificate program is designed primarily for individuals wishing to further prepare themselves for private practice in fixed prosthodontics. Both programs satisfy the formal training requirements for eligibility for the American Board of Prosthodontics examination.

Master of Science

The program gives major emphasis to fixed prosthodontic theory and treatment, and includes seminar courses in other specialties of dentistry. Curriculum includes a course in research methodology, a course in biostatistics or elementary statistical inferences in medicine, and a research work in the general area of basic science. A research project and thesis are also required for the master's degree.

Certificate Program

The department offers a certificate program which provides more clinical experience than the M.S. program, and does not require a thesis. The certificate also satisfies the formal training requirements for eligibility for the American Board of Prosthodontics examination.

Admission

The minimum requirements for admission into the program correspond to the minimum requirements for admission to the Graduate College. In addition, the student must hold a D.O.S. or D.M.D. degree or its equivalent.

Courses

12011: Prosthodontics Materiel Laboratory 2 h.
12012: Dental Materials 2 h.
12013: Principles of statics and static and mechanical properties of basic dental materials 1 h.
12014: Occlusion 2 h.
12015: Restorative Dental Materials 1 h.
12016: Fixed Prosthodontic Clinical Techniques 1 h.
12017: Fixed Prosthodontic Clinical Techniques Laboratory 2 h.
12018: Fixed Prosthodontic Clinical Techniques Laboratory 2 h.
12019: Fixed Prosthodontic Clinical Techniques Laboratory 2 h.
12020: Fixed Prosthodontic Clinical Techniques Laboratory 2 h.
12021: Fixed Prosthodontic Clinical Techniques Laboratory 2 h.
12022: Fixed Prosthodontic Clinical Techniques Laboratory 2 h.
12023: Fixed Prosthodontic Clinical Techniques Laboratory 2 h.
12024: Fixed Prosthodontic Clinical Techniques Laboratory 2 h.
12025: Fixed Prosthodontic Clinical Techniques Laboratory 2 h.
12026: Fixed Prosthodontic Clinical Techniques Laboratory 2 h.
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12034: Fixed Prosthodontic Clinical Techniques Laboratory 2 h.
12035: Fixed Prosthodontic Clinical Techniques Laboratory 2 h.
12036: Fixed Prosthodontic Clinical Techniques Laboratory 2 h.
12037: Fixed Prosthodontic Clinical Techniques Laboratory 2 h.
12038: Fixed Prosthodontic Clinical Techniques Laboratory 2 h.
12039: Fixed Prosthodontic Clinical Techniques Laboratory 2 h.
12040: Fixed Prosthodontic Clinical Techniques Laboratory 2 h.
12041: Fixed Prosthodontic Clinical Techniques Laboratory 2 h.
12042: Fixed Prosthodontic Clinical Techniques Laboratory 2 h.
12043: Fixed Prosthodontic Clinical Techniques Laboratory 2 h.
12044: Fixed Prosthodontic Clinical Techniques Laboratory 2 h.
12045: Fixed Prosthodontic Clinical Techniques Laboratory 2 h.
12046: Fixed Prosthodontic Clinical Techniques Laboratory 2 h.
DENTISTRY: Oral and Maxillofacial Surgery

Required courses are:

- 86:182 Topics in Oral Pathology 1 s.h.
- 85:220 Oral Pathology and Diagnosis Literature Review 2 s.h.
- 85:222: Manifestations of Oral and Oropharyngeal Disease 1 s.h.
- 68:199 Basic Orthropathy I 3 s.h.
- 5C:206 Problems 2 s.h.
- 85:225 Physical Laboratory and Historical Features of Disease 1 s.h.
- 85:227 Survey of Oral Pathology 1 s.h.
- 86:240 Histopathology 3 s.h.
- 85:231 Hospital Oral Pathology 4 s.h.
- 85:250 Pathologic Processes 2 s.h.
- 85:256: Advanced Oral Pathology 1 s.h.
- 69:231 General Pathology for Medical Students 5 s.h.
- 85:232 Systematic Pathology for Medical Students 7 s.h.
- 9T:216 Dental Sciences Research Methodology 2 s.h.
- 87:315 Physical Diagnosis 2 s.h.

Facilities

The laboratories and clinics of the department are equipped in diagnostic radiology, histopathology, immunopathology, laboratory diagnosis, clinical diagnosis and therapy, and experimental pathology. Laboratories are available with facilities for investigation of ultrastructure of both soft and calcified tissues.

Admission Requirements

Applicants must have completed an accredited program leading to a B.S. or B.D. degree in their field, equivalent, with a minimum cumulative grade-point average of 2.7 (4.0 scaled), and must present satisfactory scores in the Graduate Record Examination (GRE) Aptitude Test. Acceptance of any applicant meeting the requirements for admission will be at the discretion of the department staff. Prospective applicants are encouraged to discuss program requirements with the head of the department prior to application.

Courses

- 86:001 Introduction to Oral Pathology 1 s.h.
- 86:002 Oral Pathology 3 s.h.
- 85:003 Oral Pathology for Dental Hygienists 1 s.h.
- 86:004 Oral Pathology for Dental Hygienists 2 s.h.
- 86:201 Dental Radiology for Dental Hygienists 1 s.h.
- 86:202 Dental Radiology for Dental Hygienists 2 s.h.
- 86:203 Introduction to Radiology and Diagnosis 1 s.h.

Oral and Maxillofacial Surgery

Department Head: Donald R. Wike

The Department of Oral and Maxillofacial Surgery combines clinical and didactic training on an individual basis to fit the interests, abilities, and development of the student. The predoctoral program is housed in the College of Dentistry, with some clinical assignments in the Division of Oral and Maxillofacial Surgery at University Hospital. Graduate studies is based primarily in the Residency Training Program at University hospitals.

Predoctoral Program

The predoctoral curriculum is designed to develop a broad and comprehensive base of knowledge, coupled with known surgical skills, to enable the student to diagnose and manage surgical problems related to the practice of general dentistry. Emphasis is placed on reinforcing high clinical standards and developing good surgical concepts, clearly indicating the moral responsibility assumed for the surgical problems undertaken. The clinical portion of the curriculum allows the student to develop surgical skills and the knowledge base necessary for the beginning surgeon. The clinical portion of the curriculum allows the student to develop surgical skills and the knowledge base necessary for the beginning surgeon.

Residency Program

The scope of the residency program in oral and maxillofacial surgery is provided for by specialty guidelines. The program is designed to combine clinical and didactic training on an individual basis. Each effort is made to adapt the program to the interests, abilities, and development of the individual student; however, it is essential to their subsequent professional requirements. The recommendations of the Council on Dental Education of the American Dental Association, the Committee on Graduate Training of the American Society of Oral and Maxillofacial Surgeons, and the American Board of Oral and Maxillofacial Surgery have been carefully considered in planning the structure and scope of training.
The residency period covers three years of hospital training, providing an orientation to hospital procedures, integration of basic and clinical sciences, acquisition of the skills of surgery, and familiarization with the various aspects of health services.

Competence in clinical oral and maxillofacial surgery requires knowledge of the basic medical sciences related to the specialty. Therefore, in addition to hospital and clinical training, the resident takes advanced course work in such subjects as applied pharmacology, surgical anatomy, pathophysiology, physiology, and microbiology, and reviews such closely-related disciplines as immunology, rheumatology, physical diagnosis, and laboratory procedures.

The assumption of increased responsibility and the opportunity for clinical and operating room experience are important aspects of residency training.

The resident gains clinical training in anesthesia through an assignment in the Department of Anesthesiology. Prior to advanced training in physical diagnosis, physiology, pharmacology, and pathology, the resident assumes greater clinical significance.

Increased responsibility in the operating room, first assistant and surgeon further develops surgical judgment and skills.

The development and implementation of a research project under staff supervision enhances the knowledge acquired in the residency training.

The third-year resident may be given responsibility for major oral and maxillofacial surgical cases during rotations in the University Hospitals and Veterans Administration Medical Center. Each third-year resident is assigned on a rotational basis as a clinical and didactic coordinator to improve the resident's ability to qualify for examination by the American Board of Oral and Maxillofacial Surgery.

Master of Science Degree

Requirements for the Master of Science degree may be completed during residency. The M.S. program comprises a three-year course of integrated didactic and clinical education, including a research project and the preparation of a thesis.

Admission

Admission is invited to July 1 of each year. A four-year dental program. The applicant—a full-time student—should submit a completed application along with three letters of recommendation from local dentists and three letters of recommendation from dental educators.

The applicant must be a graduate of an accredited college of dentistry and be licensed to practice dentistry in the United States.

The applicant should be in the upper one-third of his or her graduating class.

Documents required include application for graduate oral and maxillofacial surgery, applicant appraisal form from applicant’s references, transcripts, and letters of recommendation from the dean of the dental college from which the applicant graduated and, if from two professional references.

Interviews are not required but are strongly recommended.

Applicants may be appointed any time after the application has been completed and the staff elects to offer an additional position.

The graduate assistant will send an application form to the applicant to be completed for the Graduate College by approximately March 1.

Facilities

The University Health Center has outstanding basic and clinic-science departments which stimulate and support scholarly research and superior clinical practice. The facilities of the University Hospital and the Veterans Administration Medical Center, and the offices of Dentistry and Medicine provide an environment for research in oral and maxillofacial surgery.

Hospital Organizations

The organization of the University Hospitals and Clinics includes a hospital, the University Hospital Clinic. The clinic is affiliated with divisions of Oral and Maxillofacial Surgery, Family Dentistry, Pediatrics, Orthodontics, Periodontics, CranioFacial Anomalies, Prosthodontics, Endodontics, and Oral Pathology. The oral and maxillofacial surgery residency program and a one-year general practice residency program are considered under the auspices of the Division of Oral and Maxillofacial Surgery and Division of Family Dentistry.

Courses

Predoctoral

8111 Anatomy, Antigens 1.5 h.

Principles and techniques in use of local anesthetics, preservation of local tissue techniques for general hospital surgery.

8115 Anesthesia and Pain Control 1.5 h.

Principles and techniques of complete mobile anesthesia, heat stress, and general anesthesia, including epidural anesthesia, regional anesthesia, and the anesthetic use of local anesthetics and techniques in the use of local anesthetics.

8110 Oral and Maxillofacial Surgery 2 h.

Basic principles of oral surgery, identification and correlation of oral and maxillofacial surgery procedures.

8116 Anesthesia and Pain Control 1.5 h.

Theory and application of methods of anesthesia, including the use of local anesthetics, nerve block, inhalation anesthesia, and regional anesthesia.

8117 Oral and Maxillofacial Surgery 2 h.

Basic principles and techniques of oral surgery, including identification and correlation of oral and maxillofacial surgery procedures.

8118 Oral and Maxillofacial Surgery 3 h.

Oral and maxillofacial surgery, including identification and correlation of oral and maxillofacial surgery procedures.

8119 Oral and Maxillofacial Surgery 2 h.

Oral and maxillofacial surgery, including identification and correlation of oral and maxillofacial surgery procedures.
Admission

Admission requires the D.D.S. degree, or its equivalent, and satisfaction of Graduate College requirements. The application deadline is October 1 for the class starting July 1. Applicants will be required to come to the University for interviews with the faculty of the department.

Courses

01:15 Growth and Development

Provides basic and preparatory information about the growth and development of the craniofacial region.

02:10 Orthodontic Diagnosis and Its Biological Foundations

Introduction to various concepts of craniofacial therapy based on orthodontic diagnosis and the philosophy of treatment planning. Development of clinical recognition of development of orthodontic diagnosis, development of craniofacial system, orthodontic treatment planning, growth and development, general orthodontics, and facial aesthetics.

02:10 Orthodontic Laboratory

Practical experience in taking and analyzing orthodontic diagnostic records, developing treatment, planning, and constructing appliances.

02:10 Orthodontic Treatment

Therapeutic management and use of different appliances to correct or improve the malocclusion or the general treatment plan of the patient.

02:10 Orthodontic Practice

Case analysis designed to develop students' capabilities to differentiate orthodontic problems, orthodontic classification diagnosis and treatment planning as an orthodontist, and systematic decision-making in clinical practice.

02:15 Orthodontic Clinic

Clinical experience in orthodontic diagnosis, treatment planning, and orthodontic appliances adequate for undergraduate treatment. Students will obtain orthodontic diagnosis and treatment plans in actual clinical situations, and the students will be expected to participate in their own case presentations.

02:18 Orthodontic Theory, Diagnosis, and Treatment

Seminar readings pertaining to art and science of orthodontic diagnosis.

02:20 Diagnosis and Treatment Planning

Seminar readings concerning orthodontic diagnosis, treatment planning, and selection of orthodontic appliances adequate for patients currently under orthodontic care.

02:22 Advanced Biological Methods

Biological theories related to craniofacial development, and the interaction between genetic and environmental factors affecting craniofacial development.

02:25 Dental Growth

Therapeutic procedures related to the growth of

Oral Health and Diabetes Mellitus

Department Head: John S. Caste
Faculty:
Professor George F. Anderson, Sami S. Bahar, Richard M. Jacobs, Charles R. Krepelak
Professor: Robert K. Shirley
Degree offered: M.S.
Dental Education of the American Dental Association

Students are trained in all phases of pedodontics, to permit them career choices in practice, education, or research. Approximately 50 percent of the program is devoted to advanced clinical activity, 30 percent to didactic courses and practice teaching, and 20 percent to original research.

The program comprises a core of clinical and basic science courses, supplemented by elective selections determined by the student's individual needs. Development of a minor subject area is recommended.

Dual degree programs have been arranged with several other departments. Close association with the Department of Pediatrics in the College of Medicine, and with the University Hospital School of Nursing and University Hospitals and Clinics, permits emphasis on oral rehabilitation under general anesthesia, instruction in physical diagnosis, and management of developmentally disabled children.

Research Opportunities

Research carried out by faculty and graduate students in pedodontics has been selected regularly for national awards and journal publications. Clinical and laboratory research projects are in progress, with financial support from federal agencies and other sources. Significant contributions have been made in the areas of cariology, dentistry for handicapped persons, fluoride therapy, and child behavior management.

Quality of Faculty

Faculty members hold numerous national and international academic memberships, consultancies, and honors in professional organizations. They serve as reviewers for several professional journals and federal granting agencies. They also participate regularly in continuing education programs for dentists and other health science personnel. Several members are Diplomates of the American Board of Pedodontics.

Financial Aid

Sizable support is available to qualified students through grants from the Office for Maternal and Child Health, Bureau of Community Health Services, Department of Health and Human Services.

Admission

Apply to the Graduate College.

Courses

96:151 Pediatric Diagnosis and Treatment 2 hrs.

Conceptual growth and development, behavior management, and preventive/restorative techniques for pediatric patient.

96:152 Clinical Pedodontics 2 hrs.

Comprehensive clinical management of pediatric patient.

96:163 Clinical Seminar in Pedodontics 1 hr.

Discussions of patient management, case histories, and treatment philosophies.

Primarily for Graduates

96:214 Orthopositional Orthodontics 3 hrs.

96:215 Growth and Development: Law and Lab 3 hrs.

96:220 Advanced Elastics Therapy 3 hrs.


96:231 Advanced Didactic Pedodontics 4 hrs.

Laboratories of growth and development, behavior management, preventive/restorative techniques, and diagnoses of pediatric patient.

96:232 Research in Pedodontics 4 hrs.

Research designs and the completion of an original research project is required, with results to be presented in a seminar/oral form.


Preparation of original research project and completion of thesis.

96:234 Advanced Clinical Pedodontics 3 hrs.

Comprehensive clinical management in pedodontics presented in areas of preventive orthodontics, operative therapy, endodontics, and oral surgery.

96:235 Pediatric Physical Diagnosis for Dental Practitioners 3 hrs.

Principles and methods for making a physical examination of the child.

96:240 Pediatric Therapy for Dental Practitioners 3 hrs.

Principles of therapy in various disease conditions encountered in pedodontics.

96:241 Geriatric Pedodontics 3 hrs.

A six-to-eight week rotation through the anesthesia services at the University Hospitals and Clinics, with emphasis on pediatric pharmacology and medicine.

96:250 Practice Teaching in Pedodontics 3 hrs.

Observations and practices in current teaching procedures.

96:260 Pediatric Case Review 3 hrs.

Presenting pedodontic case histories with emphasis on recognition of dynamics, syndromes, and common oral and periodontal diseases, diagnosis, laboratory, radiographic interpretation, and therapy.

96:270 Pediatrics: Oral Pathology and Clinical Immunology 3 hrs.

96:280 General Adolescent Dentistry 3 hrs.

Periodontics

Department Head: Philip A. Larson

Faculty: prof. Philip A. Larson, Ian C. McManus, William C. Ruiniag, Charles B. Sassin, J., Andrew Macrae, Lawrence L. DeBoni

Professor and Associate Professors: Andrew L. DeBoni, Lawrence L. DeBoni, Paul A. Castiglione, William R. Sassin.

Degree offered: M.D. D.

Predoctoral Program

The Department of Periodontics is concerned with the diagnosis, treatment, and prevention of periodontal disease. Its predoctoral program combines didactic, laboratory, and clinical experience, with emphasis on applying the biological concepts of periodontology to the comprehensive clinical management of patients who have periodontal disease.

Master of Science Program

The Master of Science Program is designed to provide advanced training for teaching, research, and specialization in pedodontics. The program meets all eligibility requirements for American Board of Periodontology certification. The program requires:

- Satisfactory completion of a minimum of at least 72 semester hours of required and elective course work;
- Preparation and defense of an acceptable thesis based on original research requiring 11 semester hours of research and three semester hours of thesis preparation;
- Satisfactory completion of a comprehensive written and oral examination.

Completion of the program requires a minimum of 24 calendar months of full-time study.

Ad Hoc Interdisciplinary Ph.D. Program

Under Graduate College regulations, proposals for interdisciplinary doctoral programs of study may be developed. The Graduate College grants final approval of such individual programs. The Department of Periodontics will assist in the development of individual doctoral programs designed to train candidates for careers in teaching and research in periodontal diseases. Such programs are interdisciplinary with anatomy, biochemistry, microbiology, pharmacology, or physiology.

Certification

Designed to meet all the requirements of the American Board of Periodontology for eligibility for certification, this certification program provides a sound foundation in the clinical practice of periodontics.

Completion of the program requires 24 calendar months of full-time study, with:

- Satisfactory completion of a minimum of 60 semester hours of required and elective courses;
- Satisfactory completion of a comprehensive written and oral examination; and
- An acceptable literature review or research paper.

Opportunities are provided for experience in clinical and basic research.
The certification program may be combined with the Ph.D. program.

Facilities
The department has 20 modern and well-equipped operations designated exclusively to periodontics, and access to hospital experience at the adjacent University Hospitals and Clinics and the Veterans Administration Medical Center. Research facilities include a departmental research laboratory, and colleges laboratories in histology and histochemistry, microbiology and biochemistry, electron microscopy with EM and scan capabilities, and growth and development. These college facilities are in addition to those available by arrangement in the University Hospitals, the Veteran's Administration Medical Center, and in the basic science departments.

Financial Aid
The applicant must be financially prepared to undertake unremunerated assistancehips. Assistantships and loans are offered, dependent upon available resources.

Admission
Admission to graduate study in periodontics requires the D.D.S. degree or its equivalent, and satisfaction of Graduate College admission requirements. See "Graduate College" section of the Catalogue. National Dental Board examination, if available, is required. Interviews are encouraged, but not mandatory.

Courses
Predoctoral

2020 Introduction to Periodontology
2.0h Fundamentals of periodontics, for dental hygienists, presented in a lecture and seminar format augmented by slide series.

2024 Advanced Periodontics/Dental Hygiene
2.0h Series of seminars designed to enhance dental hygiene student's knowledge of periodontal diagnosis, prevention of disease, mechanics of destructive periodontal disease, maintenance of treated periodontium.

2040 Periodontal Methods
2.0h Fundamentals concepts of periodontics, presented in a lecture and seminar format augmented by slide series.

2045 Periodontics
3.0h Comprehensive clinical management of the periodontal patient.

2050 Periodontology
1.0h Comprehensive overview of periodontics and the clinical management of patients covered by service and seminar cases.

Graduate

2100 Advanced Periodontology
4.0h Provides incoming graduate student with comprehensive knowledge of periodontal therapy. Offered outline sections.

2102 Clinical Seminar in Periodontology
4.0h Comprehensive management of periodontal patients, presented with emphasis on treatment planning and case documentation and presentation for complete periodontal therapy. Current clinical science seminars included. Required each fall and spring semester.

2105 Methods of Instruction in Periodontics
4.0h Experience in course design in periodontics, including behavioral objectives and methods of evaluation.

2107 Practice Teaching in Periodontics
4.0h Practical experience in lecturing, seminar direction, and clinical teaching in periodontics.

2108 Recent Advances in Periodontology
4.0h Offered spring semester.

2110 Periodontology Pathology Seminar
4.0h Emphasizes differential diagnosis and histopathology of case studies encountered in clinical periodontal therapy. Required prerequisite.

2112 Aplaud Oral Microbiology
4.0h Review and assessment of student's knowledge of microbiology as it applies to oral health problems.

2121 Biochemical Aspects of Periododontics
4.0h Emphasizes biochemical substrates bleeding, calculus, mediators, nutrition, etc. relevant to periodontology. Offered fall semester.

2126 Dental Science Research Methodology
4.0h Provides facility with practical procedures involved in general and specific methods for preparation and examination of biological specimens relevant to dental research. Offered summer sessions.

2127 Dynamics of Oral Soft Tissues
4.0h Review of methods and techniques associated with changes in and treatment of periodontal soft tissues.

2128 Methods for Advanced Studies in Oral Tissues
2.0h Examination of advanced research techniques which have been developed to present concepts of structure of specific dental tissues and mechanisms. Offered spring semester.

2129 Periodontology Literature Review I
4.0h Offered fall semester of even years.

2130 Periodontology Literature Review II
4.0h Offered spring semester of odd years.

2132 Periodontology Literature Review III
4.0h Offered fall semester of odd years.

2136 Periodontology Literature Review IV
4.0h Offered spring semester of even years.

2138 Research Periodontology
4.0h

2139 Thesis Preparation in Periodontology
4.0h Preparation of original research project and completion of thesis.

2140 Advanced Clinical Periodontology
4.0h Comprehensive clinical management of the periodontal patient, with emphasis on the complex case. Required each semester.

Extramural programs provide students with opportunities to interact with health care teams and members of communities in Iowa. The department conducts five full-time off-site extramural programs throughout the state.

In addition to the classroom, students are observed to participate in a variety of activities intended to make them aware of the social obligations they must assume in order to practice effectively.

Included in the department's resources are two mobile dental vans, one with five operators and a second smaller unit designed for prevention programs. The vans are operated throughout Iowa, and give senior dental and dental hygiene students an opportunity to have a meaningful experience which closely simulates community dental practice.

Master of Science Program

The Master of Science degree program is designed to prepare students in community dentistry and public health, with emphasis on research, teaching, or administration. The program objective is to help students achieve a high degree of professional competence in their respective areas of special interest.

Successful graduates will have completed educational requirements necessary to establish their eligibility for the Iowa Board of Dental Public Health.

The program requires a minimum of 36 semester hours of course work which students must complete after graduation research. Most students should expect to take two academic years to complete all degree requirements.

Courses
Predoctoral

1101 Introduction to Dental Hygiene
2.0h Fundamentals of periodontal disease, prevention of disease, mechanics of destructive periodontal disease, maintenance of treated periodontium.

1102 Advanced Periodontics/Dental Hygiene
2.0h Series of seminars designed to enhance dental hygiene student's knowledge of periodontal diagnosis, prevention of disease, mechanics of destructive periodontal disease, maintenance of treated periodontium.

1104 Periodontal Methods
2.0h Fundamentals concepts of periodontics, presented in a lecture and seminar format augmented by slide series.

1105 Periodontics
3.0h Comprehensive clinical management of the periodontal patient.

1106 Periodontology
1.0h Comprehensive overview of periodontics and the clinical management of patients covered by service and seminar cases.

Preventive and Community Dentistry

Department Head: James O. Denk

Programs in preventive and community dentistry are designed to increase dental students' awareness of oral health needs and to encourage them to develop and implement approaches to alleviate these needs.

Specific data describing dental plaque and its related diseases (pyogenic periodontal disease and gingivitis). Students learn how their parents are implemented and evaluation is based on success in controlling their own health problems. Students are taught specific oral hygiene techniques, and are instructed in the use of these techniques. Students are instructed in the use of these techniques. Students are instructed in the use of these techniques.
4.25.1 Complete Denture Seminar I 1 h
Review of current research in principles, practices, and concepts of complete denture construction.

4.25.2 Removable Partial Denture Seminar I 1 h
Review of current research in principles, practices, and concepts of removable partial denture construction.

4.25.3 Complete Denture Seminar II 1 h
Review of past research in principles, practices, and concepts of complete denture construction.

4.25.4 Removable Partial Denture Seminar II 1 h
Review of past research in principles, practices, and concepts of removable partial denture construction.

4.25.5 Research: Removable Prosthetics
- Literature review, protocol preparation, and data collection for selected research project.

4.25.6 Thesis Preparation: Removable Prosthetics
- Preparation and defense of thesis from research project.

4.25.7 Advanced Clinical Removable Prosthetics
- Treatment of patients requiring complete and removable prosthetics.

4.25.8 Technical Methods: Removable Prosthetics
- Assigned problems employing technical methods in construction of complete and removable partial dentures.

4.25.9 Workshop: Removable Prosthetics
- Classroom and laboratory training experience assigned by advisor.

4.25.10 Journal Club
- Review of current literature in prosthodontics.

4.25.11 Library Assignment: Removable Prosthetics
- Discussion of assigned readings that are contained in relevant prosthodontics literature.
College of Education

The nation's first university-level professional college in education was established at The University of Iowa in 1872. The department became the School of Education in 1907, and the College of Education, structured in the basic pattern which governs it today, was founded in 1913. The growth of the college has corresponded to the growth of the University.

Faculty members have been leaders in a variety of educational fields. Particularly noteworthy are the early developments in educational testing and measurement which helped lay the foundation for the present-day educational testing and measurement industry, thus making Iowa City one of the best known centers for this educational specialty.

The College has seven divisions: Counselor Education; Early Childhood and Elementary Education; Educational Administration; Foundations; Postsecondary and Continuing Education; Psychological and Quantitative Foundations; Secondary Education; and Special Education.

The University is accredited by the National Council for Accreditation of Teacher Education (NCATE) for the preparation of elementary and secondary school personnel, with the doctoral degree approved. Teacher preparation programs are also reviewed and approved by the Iowa Department of Public Instruction.

Teacher Education Programs

The College of Education at The University of Iowa offers seven Teacher Education Programs, each of which leads to a state of teaching certificate.

Five of the programs involve earning a College of Education major.

Early Childhood Education

Elementary Education

Health Occupations Education

Elementary Mentor Preparation

Secondary Mental Retardation

The other two programs are teaching endorsement programs, one in the teaching of handicapped children at the preschool level, the other in the teaching of subject areas at the secondary level.

To receive an endorsement to teach at the secondary level, a student must complete an appropriate major in one of the departments of the College of Liberal Arts and Speech and complete course work required by the College of Education. To receive an endorsement to teach the preschool handicapped, a student must complete a major in early childhood education.

All students admitted to a Teacher Education Program (TEP) must complete College of Liberal Arts general education requirements for the Bachelor of Arts, Bachelor of Science, or Bachelor of General Studies.

Undergraduate Admission to Elementary and Secondary Teacher Education Programs

Undergraduate students interested in becoming teachers should indicate their proposed College of Education major or their interest in a secondary-level teaching endorsement program on the application for admission to The University of Iowa. Students already enrolled at the University who decide to enter a Teacher Education Program (TEP) must declare the appropriate College of Education major or secondary education teaching area in the College of Liberal Arts Advising Office.

Schaeffer Hall, if requirements for formal admission have been met, students may submit at the same time an Application for Admission to the Teacher Education Program. Students who have decided on a Teacher Education Program but have not yet satisfied formal admission requirements should make their declaration in the College of Liberal Arts Advising Office so that a College of Education adviser may be assigned. Students may submit the formal TEP application only after program admission requirements have been satisfied.

General Requirements

Before being formally admitted to a Teacher Education Program, an undergraduate student must have:

been admitted to The University of Iowa as a degree candidate;

completed the American College Tests. Attained sophomore standing (28 semester hours) prior to the semester during which he or she seeks to enroll in the foundations of education sequence of courses.

Achieved a 2.00 grade-point average on all college course work and course work completed at The University of Iowa. Submitted an Application for Admission to a Teacher Education Program.

Additional Requirements for Admission to Special Education

Students seeking a major in the secondary and elementary education program must also earn a major in elementary education. Students seeking a major in the secondary-level mentally retarded program do not need to complete a second major. For each of these...
programs students must meet the general admission requirements of the undergraduate Teacher Education Program.

Enrollment in each of the special education programs is limited to a fixed number of students. Applicants who meet the minimum general requirements for a Teacher Education Program are then chosen for each special education program on a competitive basis. The selection procedures are as follows:

Application deadline is May 15 preceding the academic year in which the applicant plans to enroll.

Applicants for the elementary mental retardation, secondary mental retardation, or preschool handicapped program will be ranked ordered on the basis of cumulative college grade point average. Further, students with documented successful experience with the handicapped will be given preference over applicants without experience. Forms for documenting successful experience may be obtained from the Division of Special Education. Students wishing to gain experience prior to applying should contact the Division for Special Education for a listing of ways to gain such opportunities in the Iowa City area.

Twenty students will be admitted each year to the elementary mental retardation program. Fifteen students will be admitted each year to the second mental retardation program. Twenty students will be admitted each year to the preschool handicapped program. The admission process will take place as soon as transfer transcripts become available to the Division of Special Education. Students accepted by the Division of Special Education will be notified by mail (usually about July 1) regarding admission to the program.

Late applications will be considered on a first-come, first-served basis only when program quotas are not filled. Students transferring from the University of Iowa from special education programs at other colleges or universities may be admitted to second year courses only if space permits.

Graduate-Level Admission to Teacher Education Programs

Students who have completed a baccalaureate degree may be admitted to a Teacher Education Program in one of two ways:

They may apply to the Graduate College with their objective stated as "Admission only in the case of a special secondary teaching area 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.

Have a cumulative grade-point average of not less than 2.50 on undergraduate work; 3.00 for M.A.T. objective.

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 a postbaccalaureate student with a letter of standing. Students selecting this route should not apply as special students. They must apply to the appropriate Teacher Education Program following the undergraduates admission procedure and must meet the general requirements stated in the undergraduate admission section.

Student Teaching

The final phase of the Teacher Education Program is the practicum semester devoted to supervised student teaching and directed observation in a variety of situations. Periodic seminars provide for discussion and evaluation of student teacher experiences. The student teaching requirement may not be met by transfer credit except under unusual circumstances and with approval in advance.

Admission to the senior year student teaching semester is by separate application. This application must be submitted by March 15 of the academic year preceding the one during which the student teaching is to be completed to the Office of Student Services, 3316 Lindquist Center. Opportunities for overseas and urban student teaching experiences are available. Requirements for admission to student teaching vary by program and academic level. Students should consult with their advisers regarding specific requirements for the several program areas.

Waivers

Students who have completed practicum-level type experiences or courses which they feel should be considered as fulfillment of requirements should consult with their advisers concerning waiver procedures.

Urban Student Teaching

Students who feel they may better advance their educational interests through student teaching in an urban setting may apply for a type of experience through the Office of Student Field Experiences. Regular settings for urban student teaching include the CUTE Program (Cooperating Urban Teacher Education). This option is open to all education majors (bilingual, elementary, secondary, and special education) who meet the requirements for student teaching.

Overseas Student Teaching

In cooperation with the University of Wisconsin-Madison, a split student teaching assignment is available (eight weeks in one of our regular centers and eight weeks in an overseas setting). The overseas sites available include: Ireland, England, Scotland, Wales, and Australia. In most locations, students are assisted with housing by the on-site coordinator. Students electing this program must meet the regular requirements for student teaching.

State Requirements

Certification to teach in most states, including Iowa, is based on the general education (social sciences) courses in the liberal arts and the American government or American history. Either of the general education (social sciences) courses in American Government or American History is required to satisfy this requirement. All students seeking an IUP enrollment certificate must complete a course in human relations. This requirement can be met by completing 71:170 Human Relations for the Classroom Teacher.

Special Requirements

Students admitted to TEP for the fall semester 1984 and thereafter must complete 7W:92 Introduction to Microcomputers for Teachers or demonstrate basic competency in the use of computers. Students admitted for the fall semester 1984 and thereafter must also demonstrate prior to program completion competency in communication and mathematics skills as prescribed by the given teacher education program area.

Minors

In addition to offering many programs of preparation for teachers, the College of Education offers four minors for students who are simply interested in being better informed about education. This interest may arise from the idea of being better informed as a parent or a community member, or as a future member of a local board of education. Or, a given student may feel that each of these areas is supplementary to his future career objective. The four available minors are general education, science education, human relations, and educational psychology. Descriptions of these minors are available in the Student Services, 310 Lindquist Center.

Graduate Programs

Graduate study in the College of Education is guided by the general regulations of the Graduate College. With certain additional requirements stipulated by the faculty of the College of Education, each student must file a completed graduate enrollment application for the Graduate College and receive a degree from that college.

The College of Education offers these advanced degree programs:
Master of Arts

The College of Education offers a Master of Arts degree in both a thesis and nonthesis format in each of the divisions. The nonthesis M.A. program usually provides the most specialized coursework, then is found in the M.A. thesis program. The nonthesis M.A. program is not necessarily a terminal program, but students who expect to continue their studies on a doctoral level must complete that program. 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 division during the early part of their doctoral program.

Master of Science

Thesis and nonthesis programs are available for students desiring a concentration in science. The degree outcome and the use of the programs are similar to those above for the Master of Arts degree.

Master of Arts in Teaching

The M.A.T. program is a 38 semester hour (minimum) nonthesis program designed for academically superior liberal arts graduates who included few or no professional education courses in their undergraduate programs. The program leads to a master's degree and certification in teaching in such fields as art, business, English, foreign languages, home economics, mathematics, science, and speech and drama. A grade-point average of at least 3.00 on undergraduate course work is required for admission. At least 18 semester hours of graduate coursework are required of all students. A minimum of 12 semester hours of graduate work in education must be completed. A minimum of 50 must be taken to satisfy certification requirements.

Specialist in Education

This degree is granted upon the completion of a prescribed two-year, postbaccalaureate program designed for students with special needs who do not have education coursework proficiency in such fields as teaching, administration, evaluation, and supervision, and special services. Of the minimum of 60 semester hours required for the degree, 28 are prescribed in the area of specialization: the remaining credit may be earned in cognate fields, supervised experience, research, and elective courses. The research must culminate in a major paper. Other requirements and regulations applicable to the Ed.S. are the same as for the master's degree, except that each student must have at least one resident on campus are required in one 15-month period or in two summer sessions, and course work completed ten years prior to the final examination must be evaluated to determine the amount of credit that may be accepted toward fulfillment of the program requirements.

Doctor of Philosophy

The Ph.D. is the highest academic degree and is conferred upon those students who have demonstrated superior scholarship and mastery of research skills in course work as well as in the preparation and defense of a dissertation.

Professional Improvement

Students may be admitted to a professional improvement program for purposes of taking limited course work rather than a degree program. This program provides for minimal advancement and is appropriate for persons seeking salary credits, who are undecided about career plans, or whose occupations are too late to permit processing for regular admission into degree programs. Faculty review committees may admit students to the program rather than as degree candidates due to incomplete information, unclear degree objectives and the like, in order to permit registration in the University.

Bulletin

Prospective graduate students should write to the College of Education for its bulletin, Advanced Studies in Education, which provides specific information about the various programs, admission procedures and requirements, and rules and regulations.

Support Units and Special Resources

The Computer Resources Laboratory provides hardware and consulting support for computer applications and instructional development related to ongoing instruction of the College of Education.

The Curriculum Resources Laboratory provides materials primarily for students and faculty members interested in elementary, secondary, and postsecondary instructional materials. It brings into a convenient central location approximately 26,000 secondary textbooks, reference books, courses of study, bibliographies, pamphlets, and non-print media such as slides, games, records, and microcomputer software. The laboratory also houses a 27,000-volume youth collection.

The Audiolaboratory Production Laboratory houses a variety of instructional equipment and materials. Its facilities provide opportunities to develop skills in design and production of instructional materials and in the operation of instructional equipment of all types. In addition, laboratory staff members provide consultative service to students and faculty of the College of Education for production of color slides, overhead transparencies and other materials related to instructional development.

The Video Production Laboratory offers a wide variety of audio and video services. These services range from equipment checkout and micro-teaching facilities use to the design and production of high quality audio and video programs. The laboratory also offers workshops and credit courses through the College of Education.

The Educational Placement Office assists students and alumni seeking teaching, administrative, and related positions at all levels and in all fields. Services include individual consultation and group assistance with job search skills and employment tactics, access to job vacancies, establishment of a placement file, and the opportunity to interview with school recruiters on campus. An Information Center with resources covering career information, directories of schools, colleges, and agencies, and community and state data is available for students planning careers in education and related areas.

The Main Library and the Psychology Library provide books, periodicals, reference books, films, ERIC microfiche, and tests, and a reserved book room for students and faculty.

The Iowa Testing Program's staff develops standardized educational tests such as the Iowa Tests of Basic Skills and Iowa Tests of Educational Development, for use in elementary and secondary schools. This department also conducts research studies in educational measurement and evaluation, publishes the results of these studies, sponsors lectures and symposia, provides consulting services to school systems, and provides training experience for graduate students in measurement and statistics.

The North Central Association (NCA) of Colleges and Schools is the largest and most active of six regional accrediting associations in the United States. Iowa is one of 15 NCA-member states. The NCA's primary purpose is to foster improvement in education at the elementary, secondary, and collegiate levels through the development of professional programs, variation by evaluation teams and committees, and setting of standards for continued membership. The University of Iowa houses and supports the office of State Director of the Iowa NCA State Committee.

The Office of Research and Development provides support services for faculty research, development, and grant efforts and coordinates such efforts with the University Division of Sponsored Programs. It initiated and maintains contacts with State agencies, and private foundations for the purpose of identifying potential research
opportunities. It disseminates information to college faculty concerning research opportunities and research being conducted.

The School Program for Emotionally Disturbed Children is located in the child psychiatry unit of the University's Psychiatric Hospital. Children attending this school are residential patients in the child psychiatry unit. The program is supported by the Psychiatric Hospital. Opportunities are available for student teaching and practicum experience in school psychological services. University Counseling Services are facilities available to students in counseling psychology for research and practicum purposes.

University Hospital School is a University-affiliated faculty and, as such, it strives to provide a viable balance of direct services to developmentally disabled youngsters, interdisciplinary training activities for personnel, and research projects in program development and effectiveness.

Teacher Certification Services

Though each state has its own teacher certification requirements, a majority of state certification agencies have entered into an agreement to issue certificates to applicants who have completed approved teacher education programs in institutions accredited by the National Council for Accreditation of Teacher Education.

The College of Education Office of Student Services, N301 Lindquist Center, provides Iowa application forms and certification information to all students completing Teacher Education Programs.

Financial Aid

Persons interested in employment opportunities in any of the support units and special resources listed above should contact the director of each facility and indicate their interests, their academic and employment records, and their career or degree goals at The University of Iowa.

Graduate Assistantships

Individual academic programs provide opportunities for teaching, research, or service assistantships, as well as for fellowship and related employment opportunities. Inquiries should be addressed to the chair of the division or to the director of the special program in an area in which the student believes he or she can provide service or achieve an outstanding academic record. If the student has applied for admission, his or her student file is available for review by those responsible for selecting the assistantship(s) for the student's program. Appointments are normally, but not always, made from within the program area of the assistantship.

Special Graduate Assistantships in Education

The Iowa Testing Programs and the Iowa Measurement Research Foundation provide sufficient funds to support a limited number of special graduate assistantships in education. Students admitted to or pursuing any of the advanced degree programs offered by the College of Education are eligible to apply; provided they are United States or Canadian citizens. The assistantships are for the academic year, renewable for a limited number of times, and, at the present, provide stipends similar to those for other assistantships. Helpers are assigned to work under the direction of a faculty member in a research capacity, and must be enrolled for not less than 9 nor more than 12 semester hours per semester. All candidates must submit transcripts of all college work completed (undergraduate as well as graduate), letters of recommendation, and scores on the Graduate Record Examination (GRE) Aptitude Test. The application must be filed on a special form which may be obtained from the director of the Iowa Testing Program, 334 Lindquist Center, College of Education. The application deadline is March 1.

Loans and Outside Employment

Information about commercial and federal loans as well as part-time employment in the University and possibilities to all students can be obtained from the Office of Student Financial Aid.

College of Education Student Loan Fund

The College of Education Student Loan Fund has been established by combining four existing endowments:
• Associate Dean Emeritus L.A. Van Dyke
• Professors Emeriti John Haehler and John McMakin
• The late Peter Maguire, a University of Iowa alumnus, and the late Donald Sawy
• A University of Iowa alumna and former elementary principal in Iowa City, Iowa. The purpose of the loan fund is to assist College of Education students who are faced with extraordinary expenses while pursuing degree or certification programs, as, for example, unforeseen emergencies. The borrower must be a senior or post-bachelor's student seeking teacher certification or a graduate student seeking an advanced degree or certification in the College of Education. The borrower must have completed the equivalent of two semesters of full-time course work at the University of Iowa and have a strong academic record, and demonstrate potential for success in the field of education. For further information and application forms, contact the Director of College Development, Educational Placement Office, N302 Lindquist Center.

College of Education Awards

Awards are presented to outstanding graduate students in the -Senior of Education at the spring semester faculty meeting of the college. The awards include:
• John Leonard Davies Memorial Award To an outstanding student specializing in education whose specialization is adult and continuing education;
• Harvey H. Davis Award To an outstanding student in educational administration or higher education, particularly a student interested in the financing of education;
• Howard R. Jones Achievement Award To an outstanding graduate student who has made a noteworthy scholarly presentation at a national professional conference or published a significant scholarly article in a reputable professional journal or other substantial printed work;
• Perry Eugene McClain Award To the outstanding candidate for an advanced degree in educational administration;
• Leonard A. Miller Memorial Award To an outstanding first-year M.A. student specializing in rehabilitation counseling;
• Paul C. Packer Award To the outstanding candidate for the Master's Degree in Education;
• Paul L. Tatau Award, Senior, M.A. and Ph.D. levels To outstanding students of high scholarship, promise in the professional areas of research, teaching or writing, and striking personal qualities.

James and Coretta Stroud Fellowship for Doctoral Study in Educational Psychology, Measurement or Statistics To an outstanding graduate student in the Division of Psychological and Quantitative Foundations who is entering the dissertation phase of study, and

Janet R. Zober Memorial Award To an outstanding student preparing to teach the physical handicapped (including the hearing impaired).

Faculty

Ninety-eight percent of the members of the faculty with academic rank hold earned doctorates in their teaching fields, and the majority have had teaching or administrative experience in the public schools.
A major strength of the college is its close working relationship with the College of Liberal Arts. With few exceptions, professors on the College of Education faculty also hold academic rank in the College of Liberal Arts. A majority of the professors who teach secondary school methods have doctorates in their teaching disciplines, and all are prepared in education, and hold academic rank in both their academic department(s) and in education.

Intervisitonal Courses

75:300 Cooperative Education Internship 2-4 hrs. Cooperative education students participate in Cooperative Education Internship programs in this course during work experiences. Registration procedures follow those of the participating cooperating agencies and must be approved by the departmental advisor. Students must register for the course during the normal registration period for Cooperative Education requirements.

75:311 Facilitating Career Development in Schools 3 hrs. Introduces teachers and counselors to counseling and career education. Each student will be assigned a mentor to provide guidance in the identification of career-related educational issues. Covers career counseling programming, including career, goal-setting, methods, materials, and evaluation procedures.

75:310 Topics in Vocational Work in the Schools 1-2 hrs. Designed to orient non-technological volunteer workers by providing knowledge and skills required to work effectively with students in public schools. Topics include volunteer responsibility and accountability, motivation, goal-setting and objectives, testing skills, management and discipline, testing in school, counseling, and general educational reform. Lecture or seminar. May be repeated. Foundation course for work with at-risk and/or educationally disabled students. May not be taken concurrently with 75:304.

75:340 Parent-Teacher Relationships 3 hrs. Prepares students who will be teachers for the realities and responsibilities of working with, understanding, and influencing parents. Foundational course for work with parents in a variety of settings. May be repeated. Students in the Supervised School Internship Program or other approved programs that include work with parents may take this course in lieu of 75:304.

75:410 Human Relations for the Classroom Teacher 3 hrs. Develops awareness of values, life-styles, and histories of cultures in the United States and abroad. Emphasis on understanding and communicating with students from different racial, ethnic, social, religious, and educational backgrounds will be the focus of the course, as well as understanding of the role of emotions and voice fluency and style of expression in communication.

75:320 Workshop The Art in Education 1-5 hrs. Designed to introduce students to the arts in the school setting.設計s for developing new skills, understanding the purpose and function of art in schools, and the integration of arts in education.

75:160 Teaching American Literature in High School 3 hrs. Social, historical, ethical, moral, and aesthetic concerns of American literature as presented in the school curriculum. Prerequisite: 75:100 or approval of instructor.

75:150 Examination of Alternative Learning Futures 3 hrs. Emphasizes current trends in societal movements toward broadening, equalizing, and expanding opportunities for all children to maximize their potential. Focuses on diverse educational options, including standards of success for students, and emphasizes on students' families and communities. Same as 75:100.

75:271 Examination of Alternative Learning Futures 3 hrs. Emphasizes current trends in societal movements toward broadening, equalizing, and expanding opportunities for all children to maximize their potential. Focuses on diverse educational options, including standards of success for students, and emphasizes on students' families and communities. Same as 75:100.

75:271 University Honors and Equity Issues 3 hrs. Experiences of students who have had the opportunity to pursue their educations in diverse environments. Emphasis will be placed on the unique aesthetic and ethical challenges of educational opportunities.

75:315 Seminar in Assessment in the Arts 3 hrs. An interdisciplinary seminar for students interested in assessment of student educational achievements and programs of offerings in the arts. Prerequisite: consent of instructor.
of study or the equivalent in one foreign language. In all other respects the B.A. and B.B.S. degree requirements are identical.

Required by both programs are the following foundations courses, which should be completed by the end of the sophomore year:

97.7 Fundamentals of Science 4 s.h.
23410 Theory of Arithmetic 3 s.h.
7P.75 Educational Psychology and Measurement 3 s.h.
7E.100 Introduction: Elementary and Early Childhood Teaching 3 s.h.
7W.91 Audio-Visual Equipment for Instruction 1 s.h.
7W.102 Introduction to Microcomputing for Teachers 1 s.h.
A course in American history or American politics 3-4 s.h.
Also required, usually completed during the junior or senior year, is the following:

7X.170 Human Relations for the Classroom Teacher 3 s.h.

Undergraduate Programs in Early Childhood Education

Early childhood teachers serve in a variety of organizations, including pre-kindergartens and kindergartens in the public school system. Head Start and other publicly funded pre-kindergarten classes or day care centers, and privately funded early childhood centers serving children from infancy to first grade (elementary age). Preparation for early childhood teaching includes the study of child development, parent-child relationships, and the organization and administration of child care centers in addition to the core content of phonics and methodology for young children. The program requires a minimum of four practice experiences with children of different ages within the early childhood years in public or private early childhood centers or classrooms. This program meets the requirements of the Iowa Education Commission for pre-kindergarten and kindergarten teachers. Students interested in dual certification at the pre-kindergarten and kindergarten level and the kindergarten and elementary level should elect the elementary education major as described in a subsequent section of the Catalog and its early childhood education area of specialization. A student who successfully completes this combination is eligible for Iowa teaching certificate endorsements 10 (K-8) and 53. Students interested in dual certification as teachers of pre-kindergarten and kindergarten and pre-school handicapped children should refer to the Early Childhood Education section of the Catalog. Separate requirements apply to this program and must be completed by the Department of Educational Studies. A student who successfully completes this combination is eligible for Iowa endorsements 53 and 9.

In addition to the foundations courses listed above, the following must be completed before student teaching:

17-1.10 Growth and Development of the Young Child 3 s.h.
7P.106 Child Development 3 s.h.
17.112 Nutrition with Children 3 s.h.
(Qsame as 7E.102)
7E.126 Methods and Materials: Music for the Classroom Teacher 3 s.h.
7E.127 Methods and Materials: Art for the Classroom Teacher 3 s.h.
7E.123 Literature for Children I 3 s.h.
7E.127 Methods: Elementary Childhood Education I 3 s.h.
7E.92 Pre-Education Practicum, Pre-Kindergarten (Corequisite: 7E.107) 1 s.h.
7E.167 Methods: Early Childhood Education II 3 s.h.
7E.93 Pre-Education Practicum, Kindergarten and Early Elementary 1 s.h.

Additional courses, required to complete the early childhood education major, which may be taken before or after student teaching, follow:

7T.11 Parent-Child Relationships 3 s.h.
7U.09 The Culturally Different in Educational Settings 3 s.h.
7E.165 Methods: Multicultural-Bilingual Education 3 s.h.
7E.195 Multicultural Concepts and Educational Systems 3 s.h.
7E.169 Development of the Child and Administration of Child Care Centers 3 s.h.

Students must also take a minimum of three courses (nine semester hours) in one of the following areas of specialization: child and family services, the family, child development, and pre-school handicapped children. Copies of specialization requirements are available in the Early Childhood and Elementary Division office. These courses may be taken pass-fail if they are offered with that option.

One full semester of student teaching (15 semester hours) is required. The appropriate student teaching assignment is determined by the student's academic advisor in consultation with the student. Students should submit student teaching applications to the Office of Student Services by March 15 preceding the academic year during which they plan to do their student teaching.

Undergraduate Programs in Elementary Education

Elementary teachers serve in a variety of school settings, including self-contained rooms in which the teacher assumes responsibility for most of the curricular areas, departmental positions in which their responsibilities are concentrated in one or two subject areas, and team teaching arrangements in which two or more teachers assume shared responsibility for the total instructional endeavor.

Preparation for elementary teaching involves the acquisition of a broad general education background, in-depth study of at least one elementary curriculum subject area, and professional study of the learning process, of the selection and structure of curricular materials suitable for school age children, and of the methodological procedures most appropriate for presenting these materials. Study of the program is rigorous. It involves wide reading, creative planning, and application of knowledge in the classroom.

The program is assigned specifically to prepare candidates to teach kindergarten through sixth grade. Special sequences are also available for students seeking the pre-kindergarten/kindergarten endorsement and for those seeking approval for teaching in middle schools or junior high schools. Students interested in certification for elementary teaching and approval for special education should note the requirements for admission to each of these programs. Students interested in this combination must make a separate application to each program and these applications will be considered independently.

The foundations courses listed earlier in this section are required. Also, to be taken in consultation with the student, is the following:

7E.160 Pre-Elementary Education, Elementary Education

(To meet the foundations requirements, graduate work in the equivalent of any graduate-level courses with the approval of the faculty)

The student must complete the following elementary methods courses to be eligible for certification:

7E.161 Methods: Elementary School Language Arts 3 s.h.
7E.168 Methods: Elementary School Social Studies 3 s.h.
7E.152 Methods: Elementary School Science 2 s.h.
7E.156 Methods: Elementary School Mathematics 2 s.h.
7E.154 Methods: Elementary School Reading 3 s.h.

An area of specialization is required in a teaching field. The area of specialization offered are elementary art, the arts in early childhood, childhood education, bilingual education, early childhood, health education, elementary language arts, elementary mathematics, music education, physical education, physical education special, music, elementary reading, elementary physical education, elementary science, and music.
elementary social science, special education, and elementary generalist.

The student should consult his or her adviser concerning courses which will serve to strengthen preparation for teaching in a subject area and meet the specific requirements for that area. Copies of the requirements for each area of specialization are available in the Early Childhood and Elementary Education Division office. Courses in the area of specialization may be taken pass-nonpass if they are offered with the pass-nonpass option.

Required is a minimum of 15 semester hours of credit in student teaching. Students should apply to the Office of Student Services by March 15 preceding the academic year during which they plan to do their student teaching. Students should consult with their advisers concerning the appropriate registration pattern.

Graduate Programs
Master of Arts in Elementary Education

The program is designed to prepare persons to administer and/or deliver care and education to children from infancy through the early primary grades in private and public settings, or to serve as early childhood consultants or community college instructors. Admission requirements will be given to those persons with undergraduate degrees which focused on the education and/or development of young children. Courses include early childhood education, home economics, social work, or child development.

A core of courses (or their equivalents) is required of all students:

7E:189 Development and Administration of Child Care Centers 3 s.h.
7E:264 Building Foundations for Reading: Pre-primary and Primary 2-3 s.h.
7E:267 Curriculum Development in the Kindergarten and Early Primary 2-3 s.h.
7E:268 Supervision and Curriculum Development in the Pre-Kindergarten 3 s.h.
7E:269 Comparative Early Childhood Education 3 s.h.

In addition, a course in each of the following areas is required: parent-child relationships, family development, and child development or psychology. One of the required 15 semester hours (3 with minors) are elected mutually chosen by the student and the academic adviser.

Master of Arts in Developmental Reading

This degree program is designed to prepare graduate students for positions as reading specialists in kindergarten and grades 1-12. Successful completion of this program, together with four years of successful teaching experience, qualifies the student for certification as a reading specialist, Iowa Endorsement 54. The program is offered with either a master's degree and without a master's degree. The following are required of all candidates:

7E:171 Reading Clinic 2-3 s.h.
7E:172 Teaching Techniques 2-3 s.h.
7E:264 Instructional Adaptations for Reading: Pre-primary and Primary 2-3 s.h.
7E:265 Supervision of Intermediate Grade Reading 3 s.h.
7E:364 Methods: High School Reading 2-3 s.h.
7E:364 Seminar: Secondary Reading 3 s.h.
7E:308 Seminar: Research and Current Issues, Reading 2-3 s.h.

In addition, candidates must complete one or more courses in the curriculum, supervision, and social foundations areas. The student selects the remaining elective hours with the adviser's approval.

Master of Science in Elementary Science

This degree program is designed to prepare master's degree candidates in elementary science to serve as team or departmental science specialists. The program may be taken with the master's degree and without a master's degree. Admission requirements are the same as those established by the Graduate College and, in addition, the applicant must have completed an undergraduate program of teacher preparation in elementary education.

The following are required of all candidates:

7E:255 Science Education: Issues, History, and Rationale 2-3 s.h.
7E:256 Science Education: The Nature of Science 3 s.h.
7E:257 Science Education: Teaching, Learning and Curriculum Models 2-3 s.h.
7E:258 Science Education: Research Models and Conceptual Schemes 3 s.h.
7E:263 Advanced Techniques of Teaching Science in the Elementary School 3 s.h.

Science courses to complete the number of semester hours required are selected by the candidate in consultation with the academic advisor.

Doctor of Philosophy in Elementary Education

The purpose of this program is to prepare students for research and teaching positions in elementary education and for research, curriculum, supervisory, or administrative positions in public school systems and government educational agencies.

The program requires a minimum of 90 semester hours, including hours earned for the dissertation. Each student prepares an individual plan of study in consultation with an advisor. The final plan must be approved by the advisor and the dissertation committee.

As a general guideline, each student is expected to have a good general background in all facets of elementary school education and a very strong area of specialization of at least one year. Commonly selected specialization areas are elementary school administration, children's literature, early childhood, curriculum, language arts, mathematics, reading, and social studies.

Each doctoral student must also complete a cognate or related field of concentration. The external field may be a professional specialization, such as educational psychology and measurement, special education, or general school administration; or it may be a subject field, such as English.
In addition, all students must demonstrate competency with respect to appropriate research tools, most commonly statistical analysis and data processing.

Assistantships
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 practica, and some involve teaching sections of undergraduate methods courses and supervising student teachers. Most assistantships are classified as half-time. This classification permits students to register for a minimum of 12 semester hours of credit per semester. Graduate students with assistantships may register for a maximum of six semester hours per semester.

All assistantships are awarded on a competitive basis. To be considered for an assistantship an applicant must have been admitted on regular status to the Graduate College and must have been accepted in an advanced program by the College of Education. Inquiries concerning assistantships should be directed to the division chair.

Courses

7E1 - Growth and Motor Development
3 s.h.

7E2 - Research in Early Childhood Education
3 s.h.

7E3 - Physical Education and Physical Activity
3 s.h.

7E4 - Education of Exceptional Children
3 s.h.

8E1 - Pre-Kindergarten Education
1 s.h.

8E2 - Early Childhood Education
3 s.h.

8E3 - Early Childhood Education
3 s.h.

8E4 - Early Childhood Education
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8E5 - Early Childhood Education
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8E6 - Early Childhood Education
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8E98 - Early Childhood Education
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8E99 - Early Childhood Education
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9E1 - Nutrition and Child Development
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9E2 - Child Psychology
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9E3 - Introduction to Child Psychology
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9E4 - Child Development
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3 s.h.

9E57 - Child Development
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9E58 - Child Development
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9E59 - Child Development
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9E60 - Child Development
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9E61 - Child Development
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9E62 - Child Development
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9E70 - Child Development
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9E71 - Child Development
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9E72 - Child Development
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9E73 - Child Development
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9E74 - Child Development
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9E75 - Child Development
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9E76 - Child Development
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9E77 - Child Development
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9E78 - Child Development
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9E79 - Child Development
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9E80 - Child Development
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9E81 - Child Development
3 s.h.

9E82 - Child Development
3 s.h.

9E83 - Child Development
3 s.h.
### Educational Administration

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<tr>
<th>Course Code</th>
<th>Title</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>7231</td>
<td>Education Project</td>
<td>7231 Research Project or 7232 Field Service Project or 7233 M.A. Thesis in Early Childhood and Elementary Education</td>
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<tr>
<td>7232</td>
<td>Field Service Project</td>
<td>7231 Research Project or 7233 M.A. Thesis in Early Childhood and Elementary Education</td>
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<td>7231 Research Project or 7233 M.A. Thesis in Early Childhood and Elementary Education</td>
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### Educational Administration Programs

**The Division of Educational Administration functions to prepare individuals for leadership positions within the educational system and offers courses for the M.A. and Ph.D. degrees.**

### Certification

To be eligible for a recommendation by The University of Iowa for certification to teach in an M.A. or Ph.D. program, candidates must:

1. Complete a minimum of 20 semester hours in a planned program at The University of Iowa, including successful completion of the core courses for all principalship certification candidates, the core courses for the appropriate certification level, and courses from the elective list approved by the advisor to meet minimum semester hour degree requirements.
2. Achieve a minimum of 20 semester hours in a planned program at The University of Iowa, including successful completion of the core courses for all principalship certification candidates, the core courses for the appropriate certification level, and courses from the elective list approved by the advisor to meet minimum semester hour degree requirements.

In addition, each certificate has these requirements:

**Elementary Principal (Endorsement 11) and Secondary Principal (Endorsement 22):**

- Completion of a planned M.A. program at The University of Iowa, including successful completion of the core courses for all principalship certification candidates, the core courses for the appropriate certification level, and courses from the elective list approved by the advisor to meet minimum semester hour degree requirements.

**Superintendent (Endorsement 61):**

- 60 semester hours of graduate work in a planned program at The University of Iowa, including successful completion of the core courses for all principalship certification candidates, the core courses for the appropriate certification level, and courses from the elective list approved by the advisor to meet minimum semester hour degree requirements.

### Course Requirements

With the aid of an advisor, the student prepares a plan of study including these core requirements:

- **Common Core Courses:**
  - Educational Research
  - Educational Psychology
  - Educational Administration Theory
  - School Law and Ethics
  - Educational Evaluation and Assessment
- **Practicum:**
  - Individualized Placement Program (IPR) in a specific curricular area for the advanced student.

- **Field Experience:**
  - Internship in a specific curricular area for the advanced student.

- **Thesis Option:**
  - May be submitted in partial fulfillment of the above requirements.

- **Professional Competencies:**
  - Professional Development Workshops
  - Professional Reading and Writing
  - Professional Leadership
  - Professional Communication
  - Professional Ethics

- **Elective Courses:**
  - Education and Society
  - Educational Technology
  - Educational Policy
  - Educational Finance

- **Specialized Courses:**
  - Special Education
  - Multicultural Education
  - Exceptional Learners
  - School Counseling

- **Field Study:**
  - Field internship
  - Field practicum
  - Field experience

- **Capstone Experience:**
  - Thesis
  - Comprehensive Examination
  - Final Project
All Candidates
70:211 Foundations of School Administration 3 s.h.
70:203 Computer Applications in Education 2-3 s.h.
72:261 The Principalship 3 s.h.
72:298 Legal Aspects of School Personnel 2-3 s.h.
70:383 Supervision of Instruction 2-3 s.h.

The student must meet the human relations requirement of the State of Iowa and specialize in elementary, secondary, or central staff administration by completing one of the programs outlined below. The candidate may choose electives approved by the adviser to satisfy degree requirements:

Elementary Level
Required
7E:300 Design and Organization of Curriculum 3 s.h.
7C:391 Field Service Projects in Educational Administration 3 s.h.
(arr. = arranged)

Electives
7F:117 Philosophies of Education 2, 3, 5 s.h.
7P:150 Introduction to Educational Measurement 3 s.h.
7D:262 School Organization Patterns 3 s.h.
7E:282 Advanced Techniques of Teaching Science in the Elementary School 3 s.h.
7E:297 Curriculum Development in the Kindergarten and Early Childhood Education 2-3 s.h.
7U:303 Seminar: Administration and Coordination of Curriculum 2-3 s.h.
7D:381 Analysis and Appraisal of Curriculum 2-3 s.h.
7E:290 Supervision of Elementary School Language Arts 3 s.h.
7E:291 Supervision of Elementary School Social Studies 3 s.h.
7E:293 Supervision of Elementary School Mathematics 3 s.h.
7E:295 Supervision of Intermediate Grade Reading 3 s.h.
7E:298 Curriculum Development in the Pre-Kindergarten 3 s.h.
7E:290 Supervision of Student Teachers and Auxiliary Personnel 2-3 s.h.

Secondary Level
Required
7S:291 Secondary School Curriculum 2-3 s.h.
7D:392 Field Service Project in Educational Administration (secondary) 3 s.h.

Electives
7F:117 Philosophies of Education 2, 3, 5 s.h.
7P:131 Educational Psychology 3 s.h.
7P:142 Introduction to Statistical Methods 3 s.h.
7E:153 Collective Bargaining 3 s.h.
7L:158 Personnel Management 3 s.h.
7S:186 Curriculum Foundations 2-3 s.h.
7D:253 Administration and Supervision of Special Education 3 s.h.
7P:255 Construction and Use of Evaluation Instruments 3 s.h.
7D:262 School Organization Patterns 3 s.h.
7C:270 Issues and Trends in School Guidance 2-3 s.h.
7D:290 Improving Instruction in the Secondary School 3 s.h.
7D:291 Administration of Professional Personnel 2-3 s.h.
7D:295 Financial Management of Local School Systems 3 s.h.
7D:297 Theory in Administration 3 s.h.
7D:299 Legal Aspects of School Administration 2-3 s.h.
7D:344 Seminar: Supervision and Administration 2-3 s.h.

Central Staff Administration
Required
7F:143 Introduction to Statistical Methods 3 s.h.
7D:203 Computer Applications in Education 2-3 s.h.
7D:295 Financial Management of Local School Systems 3 s.h.

Electives
To be selected with the approval of the adviser.

Thesis
A student electing the M.A. program with thesis must take 300 M.A. Thesis in Education Administration and a final oral examination on the thesis.

Comprehensive Examinations
The student takes two three-hour examinations in areas of concentration selected with the approval of his or her adviser.

Ed.S. in Educational Administration
This program is designed to enable educational personnel to meet original certification requirements or to upgrade their background and skills to prepare them for positions as principals, superintendents, and other administrative and supervisory positions in educational agencies. A student desiring certification plans a program approved by an adviser to meet State of Iowa certification requirements.

Course Requirements
7F:131 Educational Psychology 3 s.h.
7P:117 Philosophies of Education 2, 3, 5 s.h.
7D:201 Foundations of School Administration 3 s.h.
7D:297 Theory in Administration 3 s.h.

Program Emphasis
Students must complete the balance of their minimum required hours (minus required core courses) in one of the following areas of emphasis. Courses specified below in each area of specialization are the required courses.

Elementary School Administration
7P:150 Introduction to Educational Measurement 3 s.h.
7D:261 The Principalship 3 s.h.
7D:262 School Organization Patterns 3 s.h.
7E:300 Design and Organization of Curriculum 3 s.h.
7D:303 Seminar: Administration and Coordination of Curriculum 2-3 s.h.
7D:354 Seminar: Supervision and Administration 2-3 s.h.

Secondary School Administration
7E:296 Curriculum Foundations (same as 7E:298) 3 s.h.
7P:150 Introduction to Educational Measurement 3 s.h.
7D:203 Computer Applications in Education 2-3 s.h.
7D:261 The Principalship 3 s.h.
7D:290 Improving Instruction in the Secondary School 3 s.h.
7E:291 Secondary School Curriculum 2-3 s.h.
7D:270 Issues and Trends in School Guidance 2-3 s.h.
7P:117 Introduction to Statistical Methods 3 s.h.

General School Administration
7C:100 Design and Organization of Curriculum 3 s.h.
7L:291 Secondary School Curriculum 2-3 s.h.
7D:203 Computer Applications in Education 2-3 s.h.
7D:291 Administration of Professional Personnel 2-3 s.h.
7D:295 Financial Management of Local School Systems 3 s.h.
7D:298 Legal Aspects of School Personnel 2-3 s.h.
7D:299 Legal Aspects of School Administration 2-3 s.h.
7P:143 Introduction to Statistical Methods 2-3 s.h.
Cognates
The student must complete a minimum of six semester hours bearing a cognate relationship to educational administration, subject to the adviser’s approval.

Electives
The student chooses electives comprising the 60-semester hour requirement for the Ed.S. degree. In the program for general education administration, the student may choose electives for specialization in such fields as staff personnel, business affairs, instruction, theory, legal aspects, curriculum, and information systems.

Research
All candidates for the Ed.S. degree must complete a formal research paper (four semester hours) dealing with a specific problem in school administration or instruction.

Comprehensive Examination
The comprehensive examination for the Ed.S. degree comprises one three-hour examination in educational administration and one three-hour examination in a specialized area either in educational administration or in a related or cognate field.

Ph.D. in Educational Administration
The purpose of this program is to prepare students for positions at all levels of school administration, to do research in educational administration, and to teach educational administration at the college or university level. All prior preparation and experience is carefully analyzed and a sequence of courses is determined to best equip individuals for their career objectives. As a general guideline, the student is expected to have a general background in professional education, educational administration, and an area of specialization in at least one aspect of educational administration. Commonly selected specialization areas are general administration, elementary school administration, secondary school administration, systems analysis and research, school finance, curriculum, upon the major, theory, and school personnel. Students specializing in administration must complete a nine-semester hour program outside the College of Education. Proficiency in two foreign languages must be demonstrated.

Comprehensive Examinations
Each doctoral student must complete satisfactorily an extensive six-hour comprehensive examination in the six common areas of educational administration and a three-hour examination based on the student’s areas of specialization that is approved by the student’s adviser and the division chair.

Students pursuing doctoral programs in areas other than educational administration desiring to utilize some aspect of educational administration as an area of concentration for which they would request a comprehensive examination should consult with an adviser in the Division of Educational Administration early in their sequence of study.

Any of the areas of specialization open to doctoral students in educational administration are open for this purpose to other doctoral students provided they meet the necessary prerequisites for specific course registration. The student should complete approximately 12 semester hours in one area of specialization before requesting a comprehensive examination. The student decides to use a field of educational administration as a related comprehensive area, the student should plan to complete approximately 18 semester hours of diversified course work in educational administration.

Research
Discertation Prospectus
The student must write a formal dissertation prospectus and submit it to a doctoral committee for approval. The student and adviser determine the time for completing the prospectus. Final evaluation of the prospectus is made in a meeting of the committee.

Completion of the Dissertation and Final Examination
The student must accumulate a minimum of 78 semester hours of credit or research for the dissertation. Work for the doctorate culminates in a final oral defense of the dissertation. The student usually takes the examination within a month of his or her anticipated time of graduation. The student must be registered at the University during the session in which he or she graduates.

Admission
Applicants must satisfy Graduate College requirements. Candidates are selected through a faculty review process. Factors considered include undergraduate record, Graduate Record Examination (GRE) Aptitude Test scores, and other evidence of academic ability and professional promise.

Courses

Eductional Administration
10:101 Foundations of School Administration 3 s.h.
Introduction to education and organization of school systems. Principles and emphases of educational leadership, administration, and services provided; legal and political aspects; responsibility for the education of children; and the role of schools in society.
10:202 Computer Applications in Education 3 s.h.
Prerequisites: Credit or waiver in basic computer skills. Introduction to and continued exposure to word processing, spreadsheet and database applications, and project management. Intended for all education majors.
20:106 Educational Systems Analysis and Operations Research 2 s.h.
Application of systems analysis and operations research methodology to educational planning, programming, and design. Prerequisites: TC 252 or consent of instructor.
10:211 Individualized Instruction, Foundations 4 s.h.
Individualized designed course based on readings, special projects, and/or studies that reflect past instruction with specific aspects of the field. Prerequisites: consent of adviser and instructor.
10:212 Individualized Instruction, Theory 4 s.h.
Individualized designed course based on readings, special projects, and/or studies that reflect past instruction with specific aspects of the field. Prerequisites: consent of adviser and instructor.
10:213 Individualized Instruction, Practice 4 s.h.
Individualized designed course based on readings, special projects, and/or studies that reflect past instruction with specific aspects of the field. Prerequisites: consent of adviser and instructor.
10:214 Individualized Instruction, Law 4 s.h.
Individualized designed course based on readings, special projects, and/or studies that reflect past instruction with specific aspects of the field. Prerequisites: consent of adviser and instructor.
10:215 Individualized Instruction, Elementary Administration 3 s.h.
Individualized designed course based on readings, special projects, and/or studies that reflect past instruction with specific aspects of the field. Prerequisites: consent of adviser and instructor.
10:216 Individualized Instruction, Secondary Administration 3 s.h.
Individualized designed course based on readings, special projects, and/or studies that reflect past instruction with specific aspects of the field. Prerequisites: consent of adviser and instructor.
10:217 Individualized Instruction, Curriculum 3 s.h.
Individualized designed course based on readings, special projects, and/or studies that reflect past instruction with specific aspects of the field. Prerequisites: consent of adviser and instructor.
10:218 Individualized Instruction, Supervision 3 s.h.
Individualized designed course based on readings, special projects, and/or studies that reflect past instruction with specific aspects of the field. Prerequisites: consent of adviser and instructor.
10:219 Individualized Instruction, Middle School Administration 3 s.h.
Individualized designed course based on readings, special projects, and/or studies that reflect past instruction with specific aspects of the field. Prerequisites: consent of adviser and instructor.
10:220 Administration and Supervision of Special Education 3 s.h.
Prerequisites: credit or waiver of special education courses. Public school administrative personnel or individuals with a baccalaureate degree who seek to be special education supervisors.
to enable students to better understand the influence of social, historical, and philosophical forces upon the formal, educational enterprise. Major areas of specialization within the program are comparative/international education, history of education, philosophy of education, and sociology of education.

General requirements for admission are as stated by the Graduate College. A personal interview with one or more members of the Graduate College faculty is desirable and may be required. An understanding and/or an emphasis in philosophy, the humanities, or the social sciences for four years of teaching experience are strongly recommended. Student must maintain a 3.0 overall grade-point average to remain in the program.

Master of Arts

Students in the M.A. program must take a minimum of 18 semester hours of work in social foundations, which should include at least two courses in each of three of the four offered areas of specialization. The remainder of their required 35 semester hours of course work will be in an area of concentration appropriate to their career and academic goals. For example, a student interested in philosophy of education would normally take these courses in the Department of Philosophy.

Doctor of Philosophy

The minimum requirement is the completion of 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 minimum of six semester hours from other areas of specialization. In addition, the student must take at least 12 semester hours in the major area of specialization in the College of Education, nine of which must be in one area of concentration, such as educational administration, educational psychology, measurement and evaluation, post-secondary and continuing education, etc. Approximately one-third to one-half (30 to 45 semester hours) of each student’s program is devoted to course work in depth from at least one other program in the College of Education. Students must develop an appropriate philosophy, political science, sociology, etc. These sequences are individually planned by the student with the aid of his or her adviser and suggestions from the appropriate department and/or departments.

Two research tools are required and are selected from the following: (1) writing theses in accordance with the individual candidate’s research interests and program; two courses in a graduate level statistics and/or sociological methods and/or philosophy and/or social science; (2) proficiency exams.

In addition, all students are required to successfully complete 7F-010 Seminar: Alternative Research Strategies and 7H-005 Research in Higher Education. Dissertation supervision is normally taken for 12 to 15 semester hours of credit.

Higher Education

Postsecondary and continuing education in the United States represents an extensive and complex phenomenon. The academic programs in the division encompass that complexity. Degrees are offered at all levels. There is emphasis on both research and practice. Preparation for either teaching or administration is available. The teaching, research, and service activities of the faculty, and the work of the graduates of the general degree programs, illustrate that education beyond the high school level continues in a variety of ways for all ages and in many different settings.

Undergraduate Major in Health Occupations Education

The health occupations education major has been developed to prepare teachers for employment at the community college level in preparatory health occupations education programs. In addition to basic skill and general education requirements of the College of Liberal Arts, students will complete courses in the general education and additional course work in the health occupations field and/or supporting areas. Students making application to this program must fulfill 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, respiratory therapy, and the like. The health occupations education major is planned upon this base, and provides work in professional education and the liberal studies appropriate to teachers who wish to achieve a baccalaureate degree. Applicants to this program must satisfy criteria for admission to the Teacher Education Program (TEP) of the College of Education.

Program requirements:

Professional Education Component

7P-131 Educational Psychology 3-4 s.h.
7P-150 Introduction to Educational Measurement 3 s.h.
7N-111 Principles of Instruction for Postsecondary Faculty 3 s.h.
7K-113 Teaching of Adults 3 s.h.
7H-117 Foundations of Vocational Education 2 s.h.
7T-190 Seminar in Health Occupations Education 1-4 s.h.
7H-191 Community College Teaching Internship 12 s.h.
or
7S-181 Observation and Laboratory Practice in the Secondary School 12 s.h.
7I-112 Curriculum Development: Application to Community College and Health Careers 3 s.h.
Appropriate course in social foundations 2-3 s.h.

Students must satisfy course work in health occupations education.

Coarse work in the health occupations education speciality and supporting field should be planned carefully in consultation with the student’s advisor.

Students may avail themselves of workshops or courses offered by specific health colleges or choose electives such as development of audio visual aids, computers in education, etc., in keeping with their educational goals. In addition, graduates must meet certification requirements stipulating an American government or U.S. history course and a human relations course.

Graduate Programs

Master of Arts Without Thesis

The purpose of the M.A. program in higher education is to prepare individuals for entry- and middle-level administrative, curriculum and instruction, or continuing education positions in two- and four-year institutions, and is appropriate for professionals who wish to upgrade their knowledge in such fields as educational administration, business management, development officer, assistant to the president, director, personnel director, or the president of the college.

Applications for admission must satisfy the requirements of the Graduate College. Candidates are selected on the basis of grade-point average, Graduate Record Examination (GRE) Aptitude Test scores, and promise for professional growth.

Transcripts, GRE scores, and three letters of recommendation are required for consideration for regular admission. An interview is recommended.

Specialist in Education

The Ed.S. program provides advanced graduate education in a highly focused specialization in the areas of administration, curriculum and instruction, community college administration, and continuing education for persons not generally planning to continue for the doctorate. The specialist degree may also be awarded upon completion of a joint program in higher education and an academic field comprising a minimum of 60 semester hours of graduate work 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 will be
selected on the basis of grade-point average, GRE Aptitude Test scores, and promise for professional growth. Transcripts, GRE scores, and three letters of recommendation are required for regular admission. An interview is recommended.

Major in Higher Education

Requirements for the Ed.S. major in higher education are:

At least 18 semester hours in professional education and related fields including a structured internship determined in consultation with the adviser to be appropriate for one of the following areas: administration, curriculum and instruction, community college programs, and continuing education.

At least 28 semester hours in the area of specialization to be determined in consultation with the adviser.

Ten semester hours of electives to be approved by the adviser.

Research conducted under registration in 7H:395 Educational Specialist Research in Higher Education for four semester hours.

Two three-hour comprehensive examinations:

An examination to cover the field of higher education in general; and

An examination in one of the four core competency areas in higher education, perhaps reflecting an area of specialization, followed by an oral examination.

Major in Higher Education with Emphasis in College Teaching

Requirements for the Ed.S. major in higher education with emphasis in college teaching are:

At least 18 semester hours in professional education and related fields appropriate for college teaching including a structured internship:

TH:270 Intern Seminar—1-3 s.h.
TH:370 College Teaching Internship—1-9 s.h.
TH:115 Post-High School Staff Development Workshop—1-2 s.h.
TH:91 Audiovisual Equipment for Instruction—1-2 s.h.
TH:131 Educational Psychology—3 s.h.

At least 28 semester hours in the area of teaching specialization.

Ten semester hours of electives to be approved by the candidate's adviser.

Research conducted under registration in 7H:395 Educational Specialist Research in Higher Education for four semester hours.

Comprehensive Examination:

An examination of the nature of postsecondary institutions and student characteristics, the professional responsibilities of a faculty member, and the candidate's ability to organize the subject matter into selected appropriate teaching strategies.

An examination in the candidate's teaching field, written and administered in that field, and followed by oral examination.

Related Field

Students majoring in another field and desiring to complete a related field in higher education should consult with the higher education adviser early in their studies. Plans of study will be developed individually for each student.

Teaching Internship

Program participants teach half-time for a full semester at cooperating community colleges under the supervision of an experienced faculty member in that community college, with field supervision from The University of Iowa. Interns participate as fully as possible in the academic life of the host community college, and usually gather data for their Ed.S. research project during the internship.

Participants must be willing to travel to a community college and reside there for the one-semester program. Some interns are accommodated at nearby community colleges, but preference will be given to those willing to travel for that experience.

Doctor of Philosophy

The Ph.D. program continues to attract persons who are likely to serve as administrators, specialists, researchers, and teachers in postsecondary institutions or in the public or private agencies.

The program offers four areas of concentration: general administration, curriculum and instruction (academic administration), community college, and continuing education (adult education).

The program requires a minimum of 90 semester hours beyond the baccalaureate.

The candidate chooses one area of concentration and must earn 16 to 24 semester hours in that area. Ordinarily the candidate chooses a related field of 9-11 semester hours or a minor (approximately 30 semester hours) which may be met by appropriate previous coursework at the M.A. level that complements the area of concentration. The dissertation research (12 to 15 semester hours) is expected to deal with a specific problem in the area of concentration. These three components—concentration, minor and/or related fields, and dissertation research—constitute a major part of the typical doctoral program, and give the student the opportunity to specialize in one or more areas of interest.

While the doctoral program covers heavy emphasis on administration at both the theoretical and applied levels, the student is expected to take course work outside the division, using the flexibility of the program to develop expertise in such areas as organizational analysis and the design of instruction and evaluation.

Comprehensive examinations for the doctorate cover the general area of higher education and the candidate's area of concentration, minor and/or related field, and dissertation. Applicants for admission to the doctoral program must satisfy the requirements of the Graduate College. Candidates will be selected on the basis of grade-point average, GRE Aptitude Test scores, and promise for professional growth. Transcripts, GRE Aptitude Test scores, and three letters of recommendation are required for regular admission. An interview is recommended and may be required.

Iowa Community College Certification

To qualify for a professional certificate with authorization to teach in arts and sciences fields of an area community college in Iowa, the student 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. Preparation must include six semester hours of professional preparation appropriate for college teaching. Two semester hours of American history or government are required for certification in latter.

The following courses fulfill the requirement:

TH:171 Community College 2-3 s.h.
TH:270 Intern Seminar 3 s.h.
TH:175 Post-High School Staff Development Workshop 1-2 s.h.
TH:112 Teaching of Adults 3 s.h.
TH:370 College Teaching Internship 3 s.h.

In addition applicants for certification must have completed an approved human relations course for three semester hours of credit.

A master's degree in the student's teaching area is required for certification in arts and sciences areas.

Special Facilities

A resources and document collection relating to community colleges is available for students doing research or seeking employment information.

Courses

Social Foundations and Comparative Education

Social Foundations and Comparative Education 3 s.h.

Basic principles and methods of inquiry from psycho-social, political, economic, academic, and humanistic perspectives. Development of critical responses to social change and social policy determination and analysis. Concepts of educational requirements and recommendations.
37.101 Education, Politics, and Culture of Mexico: Southwest Asia

Encompasses different approaches to educational development taking place in the region from ancient reforms in Lure to more traditional approaches in Burma. Particular attention is devoted to education and social change in Thailand.

37.102 History of American Education

Survey of American educational history with an emphasis on contrasting historical developments of past educational and social movements. Contemporary reform efforts are examined in a methodological framework.

37.103 European Schools

Discussion of historical development of European educational institutions and policies. Emphasis on the influence this history had on the evolution of American education.

37.104 Education in the Third World

Educational innovations of various developing countries will be discussed. Lessons that can be learned from national educational innovations and failures in addition to an examination of educational outcomes currently facing their third world governments.

37.105 History of Eastern Education

Historical patterns of education in China, Japan, and Korea examined. Reference is made to contemporary educational issues in these countries.

37.106 History of Western Education

The principal focus is on the educational philosophies of significant individuals in the history of education and the relevance of their ideas in terms of contemporary educational practice in the United States.

37.107 The Creation of Women's Roles in Education

Although principal focus is on the emerging role of women in America's educational history a turning point is provided through treatment of women's education across Europe's history as well as in other times and places.

37.108 History of Education

Introducing survey of the primary educational philosophies and institutions in China, Japan, and Korea. Historical trends and changes are examined. Focus is on the Emphasis on the role of educational institutions in connection with political and economic structures of the society under study.

37.109 The Educational Reform: School Reform in the 1960s

Survey of the educational reform in the United States.

37.110 Introduction to the Politics of Education

Introduction to the study of politics of education including organization, policy making at the state level. Federal, state, and local, as well as consideration of factors like immigration, social class, and educational policy.

37.111 Macro-Sociological perspectives of the role of education in social change. Impact of educational reform on social stratification, social mobility, and economic achievement in the U.S. and selected societies.

37.112 John Dewey and Education

Dewey's philosophy of education is examined in the context of his contribution to educational theory and practice.

37.113 Sex Role Development and Socialization in Education

Development and socialization of sex role in education, with special emphasis on sex role socialization and its effects on social interaction and social behavior.

37.114 Education of Immigrants and Refugees

Study of adjustment of new arrivals in the United States, relative to sex roles and sexual mores, educational needs, and the problem of race differences.

37.115 Workshop in Japan

Introduction overview of Japan and the Japanese people. The pedagogical educators emphasis on ways of relating aspects of Japanese civilization and culture to the United States and the history and social and cultural studies. Same as 75u:100.

37.116 Sociology of Teaching

Emphasis on sociological aspects of teaching.

37.117 Development of Social and Psychological Backgrounds of Sex Differences and how these factors directly and indirectly influence perception of the teacher's role. Investigation of nonverbal responses of male teacher interactions.

37.118 Education, Race, and Ethnicity

The role of education in white and black stratification in the U.S. and other nations. Investigation of the influence of variables in the structure of stratification patterns, and educational consequences in the formation of educational experiences and achievement levels.

37.119 Micro-Sociology of Education

Avances in social psychological aspects of teaching. Emphasis on microsociological aspects of formal schooling.

37.120 Socialization and Schooling

Focus on the role of educational institutions in connection with political and economic structures of the society under study. I influence of technological change through technological studies of educational changes in both developed and developing nations.

37.121 History and Philosophy of Psychology in Education

Influence of major psychological movements in educational psychology. Historical development of psychology in educational psychology and its influence on educational development. Same as 71u:220.

37.122 Psycholology and Public Policy

Same as 71u:220.

37.123 Topics in Social Foundations of Education

Hypothesis for interrelated studies of social policy, issue, or work field may be required.

37.124 Development Policy and Planning in Third World Countries

Theoretical and empirical analysis of problems and planning of development in the developing countries. Same as 71u:100, 76u:220, 42u:270, 40u:270, 100u:225, 120u:225.

37.125 Development of Professional Competencies in Education

Focus on the development of professional competencies in education.

37.126 American Contribution to Educational Theory

American philosophies and their influence on American education.

37.127 Chinese and Other Communist Educational Systems

Present status, trends, and problems among schools in 12 communist nations considered. Soviet Union and People's Republic of China serve as basis for comparison with trends on socialist educational systems from Yugoslavia to Outer Mongolia and from China to Cuba.

37.128 Educational Planning

Same as 71u:518.

37.129 Seminar: History and Philosophy of American Education

European foundations, relationship to development of cultural, intellectual, and political institutions. American educational states; its problem of the future of higher learning in the United States.

37.130 Seminar: Value Problems in the Administration of American Education

Philosophical and sociological ideas which underwrite American educational administration. Investigation of value ideas as the place of both public and private schools and the democratic educational system; contemporary issues used to provide basis for examination of these ideas.

37.131 Seminar: Alternative Research Strategies

Introduction to problem definition and hypothesis formulation. Theory of sampling and questionnaire design. Use of archival and historical data. Emphasis on theory and data selection in studies of educational pressures students bring in methodology of their choice to data analysis. Open only to students in the proposed writing stage.

37.132 Ph.D. Thesis

Prerequisite: consent of instructor.

Postsecondary and Continuing Education

37.133 Individual Study (Higher Education)

Prerequisite: consent of instructor.

37.134 Policies and Politics in Higher Education

Study and analysis of major selected issues, policies, and politics in American higher education. Required of master's level major, open to nonmajors.

37.135 Introduction to Continuing Education

Philosophy and scope of adult education movement in United States.

37.136 Principles of Instruction for Postsecondary Faculty

Principle and methods of course planning, instruction, and evaluation appropriate to postsecondary adult education. Interned primarily for students who will be teaching vocationally-related courses in two-year institutions.

37.137 Teaching of Adults

Adult education and consideration of recent variations in teaching techniques for adults

37.138 Adult Education in Other Socioeconomic Contexts: Workshops

Study of educational programs with special emphasis on development of educational programs for low-income, rural, or minority groups.

37.139 Adult Education Workshop in Rural Communities

Adult education workshop in rural communities.

37.140 Popular High School Self Development Workshop

Design and to provide high school instructors with ways to organize their discipline areas or in some aspect of professional education, workshops topics may include project planning, seeking administrative and educational assistance for the development of high school programs.

37.141 Seminar in Vocational and Technical Education

Current trends and topics in Vocational and Technical education. Emphasis on improving and developing vocational education and programing; students and faculty invited to bring topics for consideration. May be repeated.

37.142 Community College Teaching Internship

Full semester period of supervised part-time teaching at a community college, concurrent employment gives student knowledge of evaluation procedures and procedures, selection and design of roles as an educator.

37.143 Curriculum Development Application to Community College and Health Centers

Comprehension of a societal curriculum planning, community education in general, and training to higher education and college administrators.

37.144 Seminar in College Teaching (Professorial)

Principles and methods of courseplanning, instruction.
Psychological and Quantitative Foundations/EDUCATION

and evaluation appropriate to collegiate level instruction. Intended primarily for students with a strong major in education.

72550 History and Philosophy of Education 3 cr.

Identification of major theories and developments in American higher education, and analysis of ideas, people, and institutions which have influenced these developments. Same as PS 252.

72552 Introduction to Planning, Policy Analysis, and Evaluation 3 cr.

Basic theories and techniques, emphasis on academic and related educational policy issues.

72553 Organizational Analysis of American Higher Education 3 cr.

Theoretical and concepts of organizational behavior related to the structure, organization, and administration of American higher education.

72554 Education and Public Policy 3 cr.


72555 Higher Education Management 3 cr.

Centered on the variables which influence the decision-making processes in American higher education. Emphasis on the organization and administration of public and private universities, including: university administration roles, organization, and administrative theory, and related university instructor.

72559 Administration of Technical- Educational Programs 3 cr.

Administrative role in public high school and postsecondary educational administration; legal, financial, and staffing aspects of vocational-technical and semiprofessional educational programs.

72561 Development of Continuing Education Programs 3 cr.

Tasks involved in developing and delivering continuing education programs, general principles of program planning, program evaluation, and selected topics in program planning and evaluation.

72562 Problems and Issues in Continuing Education 3 cr.

Perspectives, institutional roles, interactions between lifelong learning programs, and program planning.

72573 Intensive Seminar 3 cr.

Perspectives, institutional roles, interactions between lifelong learning programs, and program planning.

72585 Individual Instruction in Higher Education 3 cr.

Perspectives, institutional roles, interactions between lifelong learning programs, and program planning.

72597 Master's Project 3 cr.

Preparation for the research project. The student may select topics appropriate to the advisor's current research interest. Must be used only once, during the concentration program.

72599 Research in Higher Education 3 cr.

In-depth study of an area of research with special emphasis on the development of critical thinking and research skills. Written and oral reports in the form of a draft are required for all research projects. Prior approval and selection of the research proposal. Must be used only once, during the concentration program.

72599 Seminar on Education for the Profession 3 cr.

Orientation to the profession and the educational needs and interests of current and future teachers. A wide range of experiences, each student study education for a selected profession. Must be used only once, during the concentration program.

72599 Seminar on Academic Management 3 cr.

Selected issues in the management of academic units and programs.

72599 Seminar on Continuing Education 3 cr.

Perspectives, institutional roles, interactions between lifelong learning programs, and program planning.

72599 Curriculum Development in Higher Education 3 cr.

Basic educational models and techniques of design and implementation appropriate to the development of educational programs.

72599 Educational Planning 3 cr.

Planning processes and applications in higher education institutions, state, and federal levels; analysis and appraisal of exemplary institutional and agency plans. Same as PS 254.

72599 Administrative Decision-Making in Higher Education 3 cr.

Analysis of administrative problems in higher education. Proposal and development of alternative solutions. Same as PS 255.

72510 The Law and Higher Education 3 cr.

Examination of selected topics in higher education. Emphasis on the policy and legal aspects of higher education. Must be used only once, during the concentration program.

72503 Practices in Higher Education 3 cr.

Perspectives, institutional roles, interactions between lifelong learning programs, and program planning.

72550 Seminar on Higher Education 3 cr.

Perspectives, institutional roles, interactions between lifelong learning programs, and program planning.

72550 Seminar on Higher Education 3 cr.

Perspectives, institutional roles, interactions between lifelong learning programs, and program planning.

72550 Seminar on Higher Education 3 cr.

Perspectives, institutional roles, interactions between lifelong learning programs, and program planning.

Psychological and Quantitative Foundations

Chair: Lowell A. Sch名列


Members: professors Kathryn L. Alexander, Stephen Alan, Stephen Dantler, David C. Lounsbury, David A. Rudolph, David S. Thomas, Diane Werhmk, Cathly L. Wilson, Carol Wartkuh

Adjunct professors Robert D. Schmidt, Richard Fargoon, Harlan, David L., Michael Fischman, Timothy A. Kravitz, Elizabeth S. Fox, Carolyn E. Minter, Ronald J. Osgood, Kathleen Tappan, amn. C. Leitzen, William B. Coffman, Carol Shulman, James D., Brian L. Boud

Department Chair: David C. Gordon

Program Office: 72500

The division offers programs in five areas: educational psychology, counseling psychology, reading disabilities, educational measurement and statistics, and instructional design and technology. The general goals of these programs are to help students acquire the knowledge and skills necessary to function effectively in settings which require the application of psychological and quantitative principles, and to extend knowledge and understanding of the teaching/learning process. Although the major emphasis in the M.A. and Ed. S. programs is on the first of these goals and that in the Ph. D. program is on the second, there is some emphasis on both goals in all programs.

Undergraduate Course Work in Educational Psychology, Measurement and Statistical Analysis

The division offers an undergraduate minor in educational psychology, graduate programs in educational psychology, measurement, and statistical analysis.

The purpose of the minor is to provide an enriched background in educational psychology, educational testing, and research methods in education. A division advisor selected by the student will aid in choosing courses totaling 18 or more semester hours, of which 12 semester hours must be in 100-level courses. The minor does not lead to certification as a public school teacher.

One of the general education requirements for graduation from the College of Liberal Arts is successful completion of a course designed to develop skills in quantitative or formal reasoning (see the "College of Liberal Arts" section of the Catalog). 72-25 Elementary Statistics and Inference may be used to satisfy this requirement. Students who wish to use the course for this purpose should enroll under its cross-listed number, 225. 25.

Master of Arts in Educational Psychology

This program provides an overview of educational psychology as an area of scholarly inquiry. It includes course work in the components of learning and teaching, educational measurement, and research methods. The program does not prepare the student for entry into a specific vocation, research, educational testing, and understanding of the psychological principles on which educational guidance is based. Students may take this degree with or without thesis. The degree without thesis requires a minimum of 32 semester hours of course work. The degree with thesis requires a minimum of 28 semester hours of course work plus two to four semester hours of thesis credit. Both programs require 72:143 Introduction to Statistical Methods or the equivalent.

Students plan the remainder of the program in consultation with their advisors, choosing courses from the following four areas: teaching and learning, measurement, educational measurement, and research, and social foundations of education. Students must take at least one course in each of these areas and a concentration (in at least two courses) in each of these areas. The faculty
Master of Arts in Educational Measurement and Statistics

A master's degree in this field prepares students for positions that require a basic knowledge of educational testing, program evaluation, and data analysis. Both positions occur in research centers, testing organizations, large school systems, and state educational agencies. The program also is appropriate for graduate students who wish to take the knowledge of measurement and research methods to educational and psychological development.

The degree may be taken without thesis (32 semester hours minimum) or with thesis (minimum of 28 semester hours). A minimum of 12 semester hours of thesis credit; all students must complete a core of courses totaling 18 to 20 semester hours. Included in this core are a graduate-level survey course in educational psychology, elementary and intermediate courses in classical statistical methods, an introduction to Bayesian statistical methods, a course in educational measurement, and courses in the development and use of evaluation instruments.

The elective credits, totaling 10 to 12 semester hours, must include at least one course in elementary, secondary, or post-secondary education. The remaining elective may be chosen from the fields of psychology and educational psychology, statistical methods, educational measurement, computer programming and data processing, mathematics, and counseling.

The final comprehensive examinations typically include three-examinations in educational measurement and in applied educational psychology. In the case of the M.A. committee, the student may take two examinations in these fields plus a two-examination in educational psychology or a substitute area. The three-examinations assume a minimum of three courses in the area; two-hour examinations assume a minimum of two courses in the area.

Grade-point-average requirements for admission to the program are the same as those established by the Graduate College. Normally, if the candidate's score for either the quantitative or verbal section of the Graduate Record Examination (GRE) Aptitude Test is less than 500, the applicant will not be admitted. However, if there is evidence of superior ability, the faculty may allow acceptance on a conditional basis. Applicants should have at least one course in college mathematics. Some work experience as a teacher or researcher is highly desirable. The faculty reviews applications as they are received.

Master of Arts in Reading Disability

This program provides training in the diagnosis of reading disabilities and in the prescriptive teaching of reading. Graduates of the nonthesis program can qualify for certification as reading clinicians. They typically return to classroom teaching or take positions as reading clinicians, supplementary reading teachers, or reading consultants. Graduates of the thesis program typically expect to enter doctoral programs in the field of reading.

The nonthesis program requires a minimum of 32 semester hours including the following core courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP-170</td>
<td>Introduction to Psychology of Reading</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>TP-173</td>
<td>Diagnostic and Prescriptive Approaches to Reading Instruction</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>TP-150</td>
<td>Introduction to Educational Measurement</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>TP-251</td>
<td>Individual Intelligence Testing</td>
<td>3-4 s.h.</td>
</tr>
</tbody>
</table>

Students must also complete at least four courses, 3 hours of practicum courses chosen with the advisor's approval from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE-171</td>
<td>Reading Clinic Teaching Techniques</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>TE-172</td>
<td>Reading Clinic Teaching Practicum</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>TE-271</td>
<td>Advanced Reading Clinic Techniques</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>TE-272</td>
<td>Advanced Reading Clinic Practicum</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>TE-365</td>
<td>Reading Clinic Supervision</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>TP-270</td>
<td>Teaching in a Reading Laboratory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>TP-255</td>
<td>Reading Clinic Teaching Practicum—Secondary Level</td>
<td>4-6 s.h.</td>
</tr>
</tbody>
</table>

All students must pass a minimum of 14 semester hours in elective courses, chosen with the advisor's approval from the fields of speech pathology and audiology, educational psychology, special education, elementary or secondary education.

The thesis program requires a minimum of 30 semester hours including the following core courses or equivalents:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP-143</td>
<td>Introduction to Statistical Methods</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>TP-243</td>
<td>Intermediate Statistical Methods</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>TP-270</td>
<td>Advanced Psychology of Reading</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>TP-273</td>
<td>Reading Clinic: Diagnostic Practicum</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>TP-163</td>
<td>Introduction to Linguistics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>TP-353</td>
<td>M.A. Thesis in Educational Psychology, Measurement, or Statistics</td>
<td>2-4 s.h.</td>
</tr>
</tbody>
</table>

Elective courses are chosen from the same fields enumerated for the nonthesis program.

For both the thesis and nonthesis programs, the comprehensive examinations typically include a three-hour examination in reading disability and a 90-minute examination in related fields. With the advisor's approval, the nonthesis student may substitute a comprehensive project for one or more of the written examinations. The project will involve the investigation of a problem comparable to those encountered by a reading clinician or consultant in the field.

The grade-point-average requirement for admission to the program is the same as that established by the Graduate College. When the student's total score in the verbal and quantitative parts of the Graduate Record Examination (GRE) Aptitude Test is below 1000, and no other evidence of superior ability is available, the applicant will be rejected or admitted only on a conditional basis. Applicants must have two years of approved teaching experience. The faculty reviews applications as they are received.

Master of Arts in Instructional Design and Technology

The M.A. in Instructional Design and Technology is a 35-semester-hour program designed to provide basic knowledge and skills required to work in setting design, training schools, business and industry, hospitals, government, and it may be taken either with or without thesis. Register admission requires a minimum grade-point average of 2.5 on all previous course work. Students with a grade-point average of less than 2.5 may be admitted conditionally. Regardless of admission status, all students are expected to attain a grade-point average of at least 3.0 for the first 12 semester hours of course work taken after admission.

The degree requires the following course work or approved equivalents:

<table>
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<tr>
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</tr>
<tr>
<td>TP-353</td>
<td>M.A. Thesis in Educational Psychology, Measurement, or Statistics</td>
<td>2-4 s.h.</td>
</tr>
</tbody>
</table>
Psychological and Quantitative Foundations/EDUCATION 279

7W: 103 Selection and Use of Media for Instruction
7P: 107 Axiological Bases of Instructional Design
7W: 120 Introduction to Instructional Design and Technology
7F: 153 Introduction to Educational Measurement
7W: 207 Computer Assisted Instructional Design and Technology
7W: 222 Instructional Strategies

If the degree is done with thesis the student is also required to take TP: 112 Introduction to Statistical Methods or WP: 261 Research Methods in Instructional Design and Technology. In addition, all students must complete nine semester hours of prescribed course work in one of the following areas:

Classroom instruction
Computer applications
Health sciences education
Instructional development
Media center administration
Media production
School media (Environment 39)
Training and human resource development
Visual studies

If a student has not had previous experience in instructional design, he or she must complete a prerequisite and all students are required to do a final project.

Completion of the program also requires a six-hour set of final comprehensive examinations. These may be divided into either two or three-hour parts distributed as follows:

General instructional design 2-3 hours
Area of emphasis 2-3 hours
Other 0-2 hours

Educational Specialist in Instructional Design and Technology

The Ed.S. in Instructional Design and Technology is a 60 semester-hour program designed to provide specialized training beyond that provided by the M.A. program. The Ed.S. is ordinarily considered to be a terminal degree.

Admission to the Ed.S. program is the same as to the M.A. program—i.e. a minimum grade-point average of 3.0 on all previous graduate work is required for regular admission. Applicants seeking admission to the Ed.S. program must submit a letter to the division chair at the time of filing completed admission forms with the University Graduate Admissions Office. The letter should describe the applicant's interests in the field of study and the program at The University of Iowa, areas of desired study, tentative future plans, and any additional information which may be helpful in the admissions process.

The following course work or approved equivalent is required for the degree:
M.A. core, without statistics, plus:
7P: 163 Introduction to Statistical Methods
7W: 261 Research Methods in Instructional Design and Technology
7W: 289 Survey of Research in Instructional Design and Technology

Every student must also complete 18 semester hours of prescribed course work in one of the following areas:

Classroom instruction
Computer applications
Health sciences education
Instructional development
Media center administration
Media production
School media
Training and human resource development
Visual studies

In addition all students must complete six semester hours in one area outside the College of Education.

The Ed.S. also requires a final Ed.S. project. The scope and direction of the project will depend on the program, interest, and career plans of the student involved. Comprehensive exams are the same as those for the M.A.

Doctor of Philosophy in Educational Psychology

This doctoral program prepares graduates for a variety of careers that share a concern for the application of psychological principles to educational practices. Such careers include the training of teachers at the university and college level, and research or administrative positions in educational agencies, clinics, hospitals, testing organizations, and the public schools. A concentration in a particular area of professional practice is possible. Students are required to complete a dissertation.

Doctor of Philosophy in Counseling Psychology

This program, which is approved by the American Psychological Association, provides preparation in general psychology, research methods, and therapeutic skills in order to help

socialization. In addition, the student will demonstrate substantial competence in at least one of these substantive areas. A minimum demonstration of competence requires the successful completion of a three-hour comprehensive exam based on 700 fewer than six semester hours at the 200 level. Additional requirements include the following: 7P: 220 Educational Research Methodology, a minimum of six semester hours of 200-level course work in statistics and one (one-year) level course in measurement; and ten hours of Ph.D. thesis credit. Alterations in these requirements, if acceptable, will be made by the student's committee composed of faculty members in the Education for Psychology program. Candidates who take the M.A. degree without thesis must undergo a project in lieu of the thesis. This project must be approved by three members of the Educational Psychology faculty. The candidate's program is planned jointly by the student and the adviser.

The record of every student admitted to the program is reviewed near the end of the second semester of residence. The division considers candidates graduate courses, evidence of critical and analytical skills, development during the year, and the writing for continued growth. Students who show insufficient potential or deficiencies that cannot be remedied are terminated from the program.

After candidates have completed the major portion of their course work, they must take the comprehensive examinations. Typically, these examinations consist of two parts. The first two parts of the examinations consists of two two-hour examinations or two areas. One of these must be taken from the following: human development, cognition/learning, or motivation/socialization. With the approval of the exam committee, the candidate may substitute a project in lieu of one three-hour examination.

An applicant for admission to the program must hold an advanced degree from an accredited institution. The graduate grade-point average requirement for admission is the same as that established by the Graduate College. Normally, if the applicant's score on the verbal and quantitative sections of the Graduate Record Examinations (GRE) Aptitude Test total less than 1000, he or she will not be admitted. However, if other evidence (high grade-point average, strong academic recommendation, and highly supportive recommendations) warrants it, the candidate may be admitted conditionally. Applications are reviewed as received.

Doctor of Philosophy in Counseling Psychology

This program, which is approved by the American Psychological Association, provides preparation in general psychology, research methods, and therapeutic skills in order to help
Doctor of Philosophy in Educational Psychology with Concentration in Reading Disability

This program prepares graduates for careers as college teachers, directors of reading clinics, and as supervisors of remedial reading programs in larger school systems.

The course requirements are essentially the same as those for the doctoral program in educational psychology. The elective courses, however, will include those pertinent to the area of reading and relevant courses offered by the divisions of special education, early childhood and elementary education, and secondary education, and the departments of speech pathology and audiology, linguistics, and psychology. One of the comprehensive examinations must be in the area of reading disability. The admission requirements are the same as those for the Ph.D. program in educational psychology.

Doctor of Philosophy in Instructional Design and Technology

The Ph.D. in Instructional Design and Technology is a 90-semester-hour program designed to provide a broad background for students interested in teaching, research, and leadership positions in the field. There is a relatively heavy emphasis on helping students acquire the knowledge and skills necessary for conducting sound research, for learning and instruction and for those faculty positions which require both.

The admission requirements are the same as for the Ed.D. degree except that a minimum grade-point average of 3.2 on all previous graduate work is required for regular admission. Applicants seeking admission to the Ph.D. program must submit a letter to the division chair at the time of filing completed admission forms with the University Graduate Admission Office. The letter should describe the applicant's interests in the field of study and the program at The University of Iowa, areas of desired study, tentative future plans, and any additional information which may be helpful in the admissions process.

It is also recommended that applicants for the Ph.D. degree arrange a personal interview with program faculty members after submitting admission forms.

All Students in the Ph.D. program must complete the following coursework or approved equivalent:

M.A. core without statistics plus:
Psychological and Quantitative Foundations/EDUCATION

7P-143 Introduction to Statistical Methods
7P-242 Selected Applications of Statistical Methods
7W-263 Research Methods in Instructional Design and Technology
Six semester hours of research-related course work.
In addition, the program requires completion of 18 semester hours of prescribed course work in one of the following areas:
Computer applications
Health sciences education
Instructional development
Training and human resource development
Visual studies
All students are also required to complete nine semester hours in one area outside the College of Education.
Before writing comprehensively each student must also submit a formal paper which reflects his or her ability to organize and write about a topic at the level that will be expected for the dissertation. This paper must be submitted to and approved by three members of the faculty in the Instructional Design and Technology program.
All students must successfully pass a nine-hour set of final comprehensive examinations. These examinations are divided into three-, four-, five-, and six-hour sections as follows:
General instructional design 3-4 hours
Area of specialization 3-4 hours
Others 0-3 hours

Financial Aid
The division normally employs a number of graduate students as teaching, research, and production assistants. These are normally half-time academic year appointments, and holders are expected to devote a full-time study and research load of up to 12 semester hours per semester. Candidates should address inquiries to the chair of the division.
Other types of graduate assistantships are available in the Iowa Testing Programs. Duties are varied, including such responsibilities as test development, test norming, and computer programming. Each position in the field whose pupils have participated in these testing programs. Those are not specific to the programs cited above, they should be directed to the program directors.

Courses
Educational Psychology, Measurement, and Statistics

7P-15 Elementary Statistics and INT
Axiomatic structure, sample space and logical probability; basic counting and distribution models; graphical and tabular displays of data; descriptive statistics; and introductory inferential statistics. Prerequisites: MATH 15 or equivalent. Same as 0272-125.
7P-15 Educational Psychology and Measurement II
Psychological data and data collection techniques; measurement; cut scores; and the educational testing process. Prerequisites: Preliminary 2341 or equivalent. Same as 2270-230.
7P-18 Educational Psychology and Measurement III
Factors in the development of classroom learning and performance; factors that influence the student's performance; and the interpretation of achievement test scores. Prerequisites: Preliminary 2341 or equivalent.
7P-807 Learning Characteristics
An overview of the psychology of learning: general models of ability and organization; general and experimental models of motivation and learning; general models of skill and rule learning; general models of perception, retention, and recall; and models of attitude and other ability constructs.
7P-118 Child Development
Developmental norms, age, of latency and emergence; training and environmental processes; interpersonal and personality development; infant-toddler development.
7P-117 Psychological Aspects of Instructional Design
Same as PW-10.
7P-118 Psychology of the Rehabilitation Client
Social development, rehabilitation, instruction, development of social structure, and effects of social roles on social development.
7P-113 Understanding and Controlling Human Behavior
An axiomatic approach to human behavior: biological, social, and psychological perspectives; personality characteristics, thought patterns, attitudes and future, reward, punishment, attitudes, needs, and goals; presenting new and new members; relationship between motivation and behavior in training and social situations.
7P-127 Building the Social Design of Children
Factors influencing social behavior of children: use of models: effects of competitive and cooperative social learning; use of novel condition, choosing, reinforcement, and social judgment on children's social behavior; reinforcement and social learning of children.
7P-130 Stimulating the Variability Growth of Children
Environment and activities that facilitate the children's growth and development in various areas of their development; physical, social, and mental growth. Prerequisites: Preliminary 2341 or equivalent. Same as PW-16.
7P-16 The Educational Research: School Reforms of the 1980s
7P-121 Educational Psychology
Psychological testing and mental health; developmental stages and their impact on mental health; and mental health and mental handicaps; and mental health and mental handicaps. Prerequisites: Preliminary 200.93 and PB-119.
7P-122 Adolescent and Young Adult
7P-134 Introduction to Statistical Methods
Axiomatic approach to the analysis of experimental results: descriptive statistics, introduction to probability, sampling theory, and nonparametric methods. Same as 3252-125.
7P-148 Relevance Statistics I
Correlational procedures; the role of theory, research, and the method of procedure; bivariate analysis, normal distributions, comparison of means and variances; simple regression and correlation; data analysis; analysis of variance; regression, and inferences about linear relationships. Prerequisites: Preliminary 148 or equivalent. Same as 0271-100.
7P-150 Introduction to Educational Measurement
Principles of test construction, analysis of item and test reliability, methods and techniques of qualitative and quantitative approaches to the interpretation of standardized tests.
7P-151 Experimental Testing and Public Policy
Analysis of the history and current issues of psychological models of test bias and test selection. Tests developed for professionals in law, school settings, legal, legislative, and administrative domains. Prerequisites: Preliminary 2341 or equivalent.
7P-152 Introduction to Psychology of Reading
Psychological-epidemiological analysis of the reading comprehension process. Prerequisites: Preliminary 2341 or equivalent. Same as 3254-125.
7P-154 Introduction to Psychology of Teaching
Psychological-epidemiological analysis of the teaching process. Prerequisites: Preliminary 2341 or equivalent. Same as 3254-125.
7P-155 Diagnosis and Prescriptive Approaches to Reading Instruction 6-12
Overview of current approaches to the development of reading strengths and weaknesses and the investigation of reading readiness. Prerequisites: Preliminary 117 and TB-172.
7P-161 Introduction to Teaching of Literacy
Role of learning theories in vocabulary and education, theories of language, theories of practice, and main stream, as they relate to teaching.
7P-162 Special Needs and Instruction
Supervised individual and group. Prerequisites: senior standing and permission of instructor.
7P-163 Special Needs: Child Development
Neurodevelopment. In developmental research. Competitive analysis of several theories of developmental approaches; analysis of current theories and findings. Same as PW-100.
7P-160 Developmental Aids for Children with Learning Disabilities
Same as 390-25.
7P-162 Pediatric Psychology
Same as PW-100.
7P-164 Neuropsychology of Learning Disabilities
Same as PW-147.
7P-166 Educational Research Procedures
Principles of educational research and programming. Research evaluation of current methods of educational research and programming.
7P-161 Research Writing
Review of research methods in general and special coverage of content: Pedigree of the APA. Writing of research proposals.
7P-162 Pre-Placement in Counseling Psychology
Labelling of course, learning and performance of basic skills required for integrating the skills with counseling theories and basic counseling strategies.
7P-163 Pre-Placement in Counseling Psychology
Introduction to the professional goals of counseling psychology, use of psychological facts and ethics, with major focus in topics of personality, counseling, and behavior change. Prior course: psychopathology of counseling psychology.
7P-164 Adult Teaching and Learning
For elementary school teachers and professionals. The role of teaching and learning in educational context.
7P-165 Consumer Behavior
Student learning to take own or course and in social science statistical methods beyond 7P-143, no-adjacent to
Certification requires a major of at least 30 semester hours of course work in a subject area taught in the secondary school. Course requirements for each major are available in the Division of Secondary Education Office, N293 Luckett Center. Candidates for secondary school teaching certification may also receive approval to teach in additional subject areas by completing an approved program of 20 or more semester hours of course work in those areas.

Secondary school teacher preparation programs are provided in the following areas:
- Art
- Athletic training
- Coaching
- Communication and Theatre Arts (Speech)
- English
- Foreign Languages - Spanish, French, German, Russian, and Latin
- Health Education
- Home Economics
- Journalism
- Mathematics
- Music
- Physical Education
- Reading
  - Social studies including general science, physical science, biology, chemistry, physics, and earth science
  - Social science, including social studies, economics, geography, history, political science, psychology, and sociology
- *Available as an additional approval area only. A major in another subject matter area is required for certification.

Students planning to teach art, music, or physical education typically complete a program which prepares them for both elementary and secondary level certification.

Undergraduate candidates for certification to teach in secondary schools must complete the following requirements, in addition to the requirements in their major:
- 75:91 Introduction to Teaching 2 s.h.
- 75:100 Issues in Education 2 s.h.
- 75:75 Educational Psychology and Measurement 3 s.h.
- 7W:52 Introduction to Microcomputing for Teachers 1 s.h.
- 7X:170 Human Relations for the Classroom Teacher 3 s.h.
The methods or teaching course in the major field 3-4 s.h.
Student teaching 12 s.h.
With their advisor’s approval, graduate students may elect to enroll in graduate courses in lieu of 75:91, 75:100, and 75:75. Students must complete all methods course in their major teaching field prior to student teaching.

Students in secondary education may do their student teaching at the Center for Urban Teacher Education (CUTE), through the Regents’ Exchange Program via the Consortium for Overseas Student Teaching, or in the 90-credit practical area established by the College of Education. An exception to student teaching in the customary contractual area will be considered only if the proposed student teaching site provides the student with a specific program opportunity not available in the contractual area or unless special cooperating teacher expertise is required. Additional information about the various alternatives for student teaching and application procedures may be obtained in the Office of Student Services, N010 Lurie Center. Application for student teaching must be filed in the Office of Student Services by March 15, prior to the academic year during which student teaching is desired.

Admission
Prior to taking most professional education courses (courses numbered 75, 7P, or 7X) undergraduate students must be admitted to the Teacher Education Program (TEP). Application for Admission should be filed at the College of Liberal Arts Admissions Office, 119 Schaeffer Hall. In order to be eligible for admission, students must have completed a minimum of 28 semester hours of course work with a minimum cumulative grade point of 3.0. Admission decisions will also be based on grade point average in the major, and other criteria relevant to teaching success. If at any time after admission the grade point average falls below 2.3, the student will lose eligibility for TEP. Students should consult the College of Education Admissions Office, N293 Luckett Center for additional information on admission criteria. Graduate students who have been admitted to the Graduate College for “certification only” and who have not been selected for admission to the Teacher Education Program must consult the College of Education Admissions Office for “certification only” requirements. Admission to the TEP, students will be assigned an education advisor.

Admission to Student Teaching
While admission to the TEP, which permits students to take certain College of Education courses, requires a 2.3 cumulative grade-point average, for majors higher major criteria must be met for admission to student teaching. Students should consult their secondary education advisor or the Division of Secondary Education Office for the student teaching admission requirements for their certification program.

Graduate Programs
The Division of Secondary Education offers, or jointly administers with other departments in the College of Liberal Arts, advanced degree programs in the following fields of professional interest: art education, communication and theatre arts education, curriculum and instruction, educational administration, English education, foreign language education, home economics 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 are offered. All degree offerings are listed below, grouped by program area.

Art Education
Master of Arts
The master’s degree program is administered by the School of Art and Art History with the cooperation of the College of Education. Students make application for admission to the School of Art and Art History.

The purpose of the program is to prepare highly qualified teachers of art for elementary and secondary schools and community colleges. The strong academic emphasis in this program is to assist teachers who seek to develop their creativity and potential to create a unique literature in art, education, and life and language of art.

Admission
Applicants must have completed the equivalent of the minimum course work in art required for the B.A. or B.F.A. degree in art from The University of Iowa and a certificate to teach art. Applicants must be accompanied by a representative portfolio of the candidate’s work. Applicants must have completed at least eight hours of studio work, one course with extracurricular work. The written work may be a paper prepared for the College to teach a course or it may be an original paper. Deficiencies in undergraduate art or courses recommended for teacher certification, if any, will be evaluated following admission to permit students to make up required course work concurrent with work for the degree. Candidates must meet Graduate College requirements for admission.

Degree Requirements
Studio and Art History (18 s.h.)—Either 12 semester hours of studio art and six semester hours of art history or 12 semester hours of art history and six semester hours of studio art; Art Education Seminars (8 s.h.)—The course titled “Current Issues in Art Education;” Twelve semester hours to be specified after the student denies the degree program.
Thesis—Either a written or studio thesis, if a studio thesis is elected the student must pass M.A. in the School of Art and Art History:

Comprehensive Examinations—A written and/or oral examination in art education; the student must elect a three-hour examination or a one-week research question.

Doctor of Philosophy
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 purpose of the program is to prepare college teachers and researchers in art education and supervisors of arts in state departments of education and school systems. To provide an opportunity for continuing inquiry and creative work in art history and in studio.

Admission
Students must meet the general requirements for acceptance by the Graduate College and have an M.A. degree in art education from The University of Iowa or an equivalent degree from an accredited degree college or University. Application to the program must be accompanied by a representative portfolio of the candidate's work, consisting of 12 side reproductions of art work and two examples of written work. The written work may consist of papers previously written for a course or may be original papers. These should be submitted to the office of Art Education, 13 North Hall.

In the case of course work deficiencies, the student must register for pertinent courses. One year of successful teaching experience in an elementary or secondary school is required prior to admission or the completion of the doctoral program.

Degree Requirements
At least 50 semester hours of graduate work beyond the M.A., planned with the student's advisor, including at least 15 semester hours in the School of Art and Art History, 15 semester hours in art education seminars, 15 semester hours in a related area (e.g., aesthetics, anthropology, higher education, early childhood education, psychology, sociology), and 15 semester hours in courses meeting the individual's needs (to be specified after the student begins the program). 75:306 or 75:308 Introduction to Research in Art Education; comprehensive examinations, both oral and written. The written examination consists of an in-depth research problem assigned by the examining committee and to be completed within 14 days after which an oral examination on the project is held. The written portion of the examination is not intended to relate directly to the dissertation proposal; satisfactory completion of a written dissertation for at least 13 semester hours, which constitutes a contribution to scholarship; the student is expected to prepare a dissertation proposal and defend it before the dissertation committee; an oral examination on the dissertation in the Ph.D. final examination.

Communication and Theatre Arts Education
Master of Arts
The purpose of the program is to prepare teachers and supervisors of speech communication for secondary schools.

Admission
Candidates must have a grade-point average of 2.5 for conditional admission and 2.75 for regular admission. Candidates without a prior academic background in speech communication may find it necessary to take additional courses beyond the minimum requirement. Application should be made to the Department of Communication and Theatre Arts, Communication Studies Building.

Degree Requirements
At least 30 semester hours of approved graduate courses, at least 24 of them at this institution;
A graduate level course in communication;
36:300 Introduction to Research;
A graduate-level seminar in the Department of Communication and Theatre Arts;
Six to nine semester hours of graduate courses in education, selected in consultation with the candidate's departmental advisor;
A paper or project involving substantial scholarly investigation and writing, which normally will be a part of a seminar and presented to the committee prior to the comprehensive examination;
A comprehensive examination consisting of two-three hour segments to be defined and directed by the student and an advisor at the time that the plan of study is prepared.

Master of Arts in Teaching
Designed for superior liberal arts graduates who have had few or no professional education courses, this program allows students to enrich their backgrounds by completing graduate courses in a teaching area and graduate education courses which constitute professional preparation leading to secondary teaching certification.

Admission
Applicants must have:
an accredited bachelor's degree in Speech Communication and Theatre Arts;
a minimum undergraduate grade-point average of 2.7;
satisfactory scores on the Graduate Record Examination (GRE) Aptitude Test.

Students must maintain a 3.0 grade-point average in graduate work once they are accepted into the program.

Degree Requirements
A minimum of 18 semester hours of graduate course work in Communication and Theatre Arts, including:
36:300 Introduction to Research must be taken the first time the course is offered during the student's period of residence;
A graduate seminar in any division of the department;
A graduate course in communication education;
Electives chosen in consultation with advisor.

The following sequence in the College of Education:
TP: 10-1 Educational Psychology—3 s.h.
TP: 117 Philosophy of Education or
TP: 107 History of Western Education—2.5 s.h.
75:160 Methods: Communication—3 s.h.
75:191-192 Observation and Lab Practice in the Secondary Schools—12 s.h.
75:187 Seminar: Curriculum and Student Teaching—3 s.h.
75:170 Human Relations for the Classroom Teacher—3 s.h.
Student teaching, 75:191-192, is generally scheduled only after completion of eight or more semester hours of graduate work in Communication and Theatre Arts, educational psychology and the methods course. The course 75:187 Seminar: Curriculum and Student Teaching should be taken during the student teaching semester.
Comprehensive examinations in Communication and Theatre Arts and Education similar to that required for the M.A. degree.
Curriculum and Supervision

Master of Arts

The purpose of the program is to prepare teachers and administrators for positions as consultants, directors, and coordinators in secondary school curriculum development.

Admission

Students must meet the general requirements of the Graduate College. Teaching experience is desirable.

Degree Requirements

Common Core (13-14 s.h.)

7S:186 Curriculum Foundations
2 3 s.h.

7F:117 Philosophies of Education 2 s.h.

7P:257 Educational Measurement and Evaluation 3 s.h.

or

7P:255 Construction and Use of Evaluation Instruments 3 s.h.

7S:291 Secondary School Curriculum 3 s.h.

7E:300 Design and Organization of Curriculum 3 s.h.

Research tool—selected in consultation with the adviser.

Cogitates (6-6 s.h.)—in a subject field such as English.

Electives—selected in consultation with adviser to complete a total of 30-32 semester hours.

Thesis—for students electing a thesis program.

7S:363 Masters' Degree Thesis 2-4 s.h.

Two three-hour comprehensive examinations—one in curriculum and one in a related field in education or in a cognate field. These two-hour examinations

Doctor of Philosophy

The purpose of the program is to prepare students for leadership positions in the field of curriculum for secondary schools, state departments, intermediate systems, and college teaching.

Admission

Students must meet the general requirements of the Graduate College, hold a valid teaching certificate, and have at least two years of teaching experience. Applicants must be approved for admission by a faculty review committee.

Degree Requirements

Common Core (22-23 s.h.)

7S:186 Curriculum Foundations 2-3 s.h.

7S:291 Secondary School Curriculum 3 s.h.

7E:305 Design and Organization of Curriculum 3 s.h.

7S:391 Problems of Curriculum Planning 3 s.h.

At least two advanced supervision courses 6 s.h.

in secondary or elementary school subject fields.

7P:297 Educational Measurement and Evaluation 3 s.h.

or

7P:255 Construction and Use of Evaluation Instruments 3 s.h.

7S:390 Problems in supervision 2 s.h.

Electives (20-25 s.h. to be chosen in consultation with adviser.)

Recommended electives include:

7F:130 Educational Sociology 2 s.h.

7F:117 Philosophies of Education 2 s.h.

7P:131 Educational Psychology 3 s.h.

7P:175 Introduction to Psychology of Reading 3 s.h.

7P:342 Selected Applications of Statistical Techniques 3 s.h.

7T:203 Computer Applications in Education 3 s.h.

7E:307 Theory in Administration 3 s.h.

7W:120 Introduction to Instructional Design and Technology 3 s.h.

7L:150 Exceptional Persons 3 s.h.

All doctoral candidates are required to complete at least eight semester hours of cognate work, preferably in sociology, psychology, or political science.

Dissertation and research tools—dissertation with a problem approved by the student's major advisor in the area of curriculum and instruction. Two research tools must be selected with the approval of the student’s advisor.

7E:403 Ph.D. Thesis 0-18 s.h.

Candidates take three three-hour comprehensive examinations in secondary school curriculum, secondary school administration, and one related field in education or in a cognate field.

Developmental Reading

Master of Arts

This program is designed to prepare graduate students for positions as reading specialists in kindergarten and grades 1 through 12. Successful completion of this program combined with four years successful teaching experience qualifies the student for certification as a reading specialist.

See the Early Childhood and Elementary Education sections of the Catalog for a complete description of the program.

English Education

Master of Arts in English with Specialization in English Education

The purpose of the program is to provide specialization in subject matter and professional competence in teaching for secondary school classroom teachers. Applications should be made to the director of graduate studies, Department of English.

Admission

A secondary school teaching certificate is required and an undergraduate grade-point average of 3.0 in English. Preferred undergraduate grade-point average of 3.0 or above on the GRE Aptitude Test or score above the fifteenth percentile on the reading examination. Students must maintain a 3.0 grade-point average while they are in the program.

Degree Requirements

A minimum of 30 semester hours: two-three hours in the semesters before the candidate is offered by the Department of English and one-semester in the semester of professional education courses.

Regular written comprehensive examinations based on a list of oral texts administered to Master of Arts (Library Studies) candidates in English is required.

Master of Arts

The purpose of the program is to prepare supervisors of English, department chairs, and curriculum specialists for secondary schools, and to prepare 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 certificate, and have acquired a minimum of 20 semester hours in English. Preferred: a minimum grade-point average of 3.0 or above on the English and Math on the GRE Aptitude Test. Students must maintain a 3.0 grade-point average while they are in the program.

Degree Requirements

A student will specialize in English education and one or two other areas. These include academic English, English as a second language, junior high school teaching, curriculum, reading, composition, speech and drama, language, teaching methods, research, and auditory literacy, literature for children and adolescents. An advisor and the student will plan the program of study. Nine semester hours must be earned in courses numbered 200 or above. The student will take a comprehensive examination in English education and in his/her chosen area(s).

Master of Arts in Teaching

The M.A.T. degree program is designed for students with an undergraduate degree in English who have had few or no professional education courses. Successful completion of the program enables the student to receive certification as a secondary school teacher of English.

Admission

Applicants must have a bachelor's degree in English and have a minimum undergraduate grade-point average of 3.0. Since this is a certification program candidates cannot have qualified for
certification previously. They are expected to have no more than six semester hours of course work in professional education courses prior to admission.

Degree Requirements
A minimum of 45 semester hours; 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:

TP: 117 Educational Psychology 3 s.h.
TF: 107 History of Western Education or
7F: 117 Philosophies of Education 2-3 s.h.
7S: 190 Individual Projects in Laboratory Practice 1-3 s.h.
7X: 170 Human Relations for the Classroom Teacher 3 s.h.
7S: 194 Methods: High School Reading or
7S: 195 Developing Reading Skills in Secondary Schools 3 s.h.
7S: 115 Methods: English 3 s.h.
7S: 187 Seminar in Curriculum and Student Teaching 2 s.h.
7S: 191-192 Observation and Laboratory Practice in the Secondary School 12 s.h.

A two-part comprehensive examination is required: one part covering methods, materials, and curriculum for high school English and the second part covering one-half the comprehensive examinations administered to Master of Arts (Literary Studies) candidates in the Department of English.

Doctor of Philosophy
The purpose of the program is to prepare teacher educators in English, specialists in literature for young people, specialists in reading at secondary and junior college levels, and coordinators/supervisors of language arts programs.

Admission
Students must meet the requirements of the Graduate College for admission to a doctoral program. In addition they must have a secondary school teaching certificate, grade-point average of 3.0 and GRE Aptitude Test Score above the fifth fifteen percentile on verbal test (low scores are acceptable), and two years successful teaching experience. A student admitted to the program is expected to provide evidence of the successful completion of a substantial research paper for a course included in the first 15 residence hours. Students must maintain a 3.0 grade-point average as they are in the program. Their candidacy is reevaluated annually.

Degree Requirements
A minimum of 73 semester hours is required.
Two courses selected from a cognate area in education. Suggested areas are educational psychology, educational statistics and measurement, elementary mathematics education, history or philosophy of education, instructional design and technology, counselor education, secondary school curriculum, secondary school administration, and special education.

Three two-hour comprehensive examinations: one in secondary mathematics education, the second in mathematics, and the third in a related area.

**Master of Science in Mathematics with Education Option**

The purpose of the program is to prepare certified teachers with advanced specialization in mathematics and mathematics education. The program is especially recommended for students considering work for the Ph.D. in Mathematics Education. This program is administered by the Department of Mathematics. Application should be made to the Department of Mathematics. Admission requirements are the same as for the M.A. in education.

**Degree Requirements**

Minimum of 24 semester hours in the Division of Mathematical Sciences including a two-semester sequence in analysis and a two-semester sequence in algebra.

Two courses in mathematics education:

Complete an examination of six hours over the required courses in analysis, algebra, and education. The examination will assess the candidate's knowledge of mathematics and his or her knowledge of the principles and philosophy relating to the teaching of secondary school mathematics.

**Doctor of Philosophy**

The program for a Ph.D. in mathematics education is administered by the College of Education. The 72 semester hours include work toward the master's degree. (All credit must be updated if taken more than ten years previously.) Minimum course requirements are for exceptional students. Typically, a Ph.D. will involve 80 to 90 semester hours.

The purpose of the program is to prepare supervisors, teacher education personnel, community college personnel, and researchers in mathematics education.

Admissions

Applicants must have an undergraduate major in mathematics or the equivalent; a master's degree in mathematics, mathematics education or education; a 3.0 grade-point average or above; a current teaching certificate; and a minimum of two years of teaching experience.

**Degree Requirements**

The mathematics education program has the following degree requirements:

A minimum of 36 semester hours of graduate work in the Division of Mathematical Sciences (mathematics, statistics, and computer science), including 22M:119, 22M:118, 22M:120, and 22M:121. Courses jointly listed in education will not fulfill this requirement. Students who have completed their mathematics requirement at another institution must complete a minimum of six semester hours of coursework in mathematics at The University of Iowa which are to be chosen with the approval of the advisor.

Competence in two areas of mathematics including statistics and computer science, and algebra or analysis (both may be chosen). This competence will be determined by satisfactory performance on master's degree examinations or their equivalent.

A minimum of 24 semester hours of course work in the College of Education. Courses meeting this requirement are to be selected from mathematics education and from other professional education courses appropriate to the candidate's career plans.

At the completion of the program, the student must:

- Have a cumulative grade-point average of 3.0 or above on all graduate work in mathematics.
- Have a grade-point average of 3.0 on all University of Iowa graduate work in mathematics.
- Have a cumulative grade-point average of 3.0 on all graduate work.
- Have a cumulative grade-point average of 3.0 on all University of Iowa graduate work.

Three three-hour written comprehensive examinations, one in mathematics education and two examinations selected from other fields of education or mathematics. An oral examination follows the written examinations. It is the student's responsibility to plan a program with faculty members in the cognate areas to select courses which will prepare the student for these examinations.

Competency in one computer language and in educational statistics is required. A dissertation on a research problem in mathematics education is a prospectus of the proposed research must be presented to the dissertation committee prior to undertaking the study. Upon completion of the dissertation, an oral examination will be conducted in defense of the dissertation. Normally, a student will be required to spend a minimum of ten semester hours of dissertation credit.

**Music Education**

Both the Master of Arts and Doctor of Philosophy programs in music education are administered by the School of Music in cooperation with the College of Education. Application is made to the School of Music.

**Master of Arts**

The purpose of the program is to provide students with deeper insights into music, the theory and practice of music education, and the role of music in the school curriculum.

**Admission**

The student must be a certified music teacher or in the process of completing certification requirements. A grade-point average of 2.5, excluding grades in ensembles, is required for admission to regular status.

**Degree Requirements**

General requirement:

25:321 Introduction to Graduate Study in Music

25:145 Counterpointal Forms

25:147 Tonal Forms

25:303 Music History

Specific hour and course requirements in the theory area are determined by scores on the advisory examinations.

**Music History and Literature**:

25:301 Advanced History and Literature of Music I

25:302 Advanced History and Literature of Music II

Specific hour and course requirements in the history and literature area are determined by scores on the advisory examination.

**Music Education (10-12 hrs.)**:

75:144 Psychology of Music

75:206 General Music Programs in Public Schools

75:240 Supervision and Administration of Music Programs

Electives to be selected in consultation with the advisor.

Two semester hours of ensemble credit.

Two to four semester hours of applied music.

The amount of elective credit applicable toward the M.A. degree is dependent upon the choices carried on the music advisory examinations and the amount of credit earned in music education elective courses.
In the semester in which the student wishes to complete the degree, the candidate must take a final written master's degree examination (12 semester hours). Areas of concentration covered in the examinations include music education, music theory, and music history and literature.

Doctor of Philosophy

The Doctor of Philosophy is designed to prepare students for teaching, research, or administrative functions in the following types of positions:

- College positions—teachers of music education classes and activities; band, choir, and orchestra directors; and administrators of music departments and schools of music.
- Public school positions—music supervisors, research and curriculum consultants, and directors of city or district school music programs.

Admission

Application is made to the School of Music. For admission to the Ph.D. program in music education, a student must have a 3.25 grade-point average (excluding grades in ensembles), have a score above the 50th percentile on the verbal ability section of the GRE Aptitude Test, hold or be prepared for a valid teaching certificate, and have a minimum of two years of successful music teaching experience.

In addition to the specific admission requirements stated above, an appraisal of teaching acumen, success, potential, and writing ability is made by the music education faculty, and qualifications for admission are left determined.

Degree Requirements

The Ph.D. degree is based on the course of study (as determined by course grades and evaluations on the comprehensive and final examinations) and not on the accumulation of semester hours. Course titles, course requirements, and semester hours listed below are to be considered minimum requirements for the typical student in preparation for the satisfactory completion of the comprehensive and final examinations.

Music (21-29 s.h.)

- General:
  - 25-321 Introduction to Graduate Study in Music 2 s.h.
  - 25-295 Musical Acoustics 3 s.h.
  - 25-145 Conventional Forms 3 s.h.
  - 25-415 Tonal Forms 3 s.h.
  - Elective (25-148-152) 3 s.h.
  - Music History and Literature 3 s.h.
  - 25-301 Advanced History and Literature of Music 3 s.h.
  - 25-302 Advanced History and Literature of Music 3 s.h.
  - Elective (25-203-314) 3 s.h.
  - Applied and Ensembles 4 s.h.
  - Electives 0-2 s.h.

Music Education (22-24 s.h.)

- 75-340 Supervision and Administration of Music Programs 3 s.h.
- 75-144 Psychology of Music 2 s.h.
- 75-149 Behavioral Research in Music 3 s.h.
- 75-206 General Music Programs in Public Schools 3 s.h.
  - Electives 4-6 s.h.
  - 75-449 Social and Psychological Factors in Music Education 3 s.h.
  - 75-141 Seminar: Contemporary Issues in Music Education 3 s.h.
  - 75-342 Seminar: Special Topics in Music Education 3 s.h.

Education (8 s.h.)

- 7F-143 Introduction to Statistical Methods 3 s.h.
- 7F-242 Selected Applications of Statistical Techniques 3 s.h.
- Elective 2 s.h.
- "M.A. level requirements"

Electives

Selected from consultation with the student's advisor on basis of advisory examination scores and the student's professional needs and goals. Students take courses from applied music, ensemble theory, history and literature, music education, aural skills, and psychology to total 19 to 25 semester hours.

Dissertation

Students earn a minimum of 12 semester hours for work on a dissertation.

Comprehensive Examinations

The comprehensive examination is an inclusive evaluation of the student's mastery of selected fields of study. Candidates must demonstrate maturity and scholarship in the areas of theory and practice of music education, research design and technique, specialized music performance, history and literature of music, and music theory and analysis.

The examination typically is divided as follows: music education theory and practice and research techniques, music theory and analysis, music history and literature, and specialized music performance area.

Physical Education and Dance

Master of Arts

Requirements for this program are described in the "College of Liberal Arts" section of the Catalog, under "Department of Physical Education and Dance."

Doctor of Philosophy

This program is also described in the "College of Liberal Arts" section of the Catalog.

Field House Program in Physical Education

Master of Arts

See "Physical Education" in the "College of Liberal Arts" section of the Catalog.

Doctor of Philosophy

The Ph.D. in Physical Education program is also described in the "College of Liberal Arts" section of the Catalog.

Science Education

The following advanced degrees are offered in Science Education:

- Master of Arts in Teaching
- Master of Science (with or without thesis)
- Educational Specialist
- Doctor of Philosophy

All programs are described in the "College of Liberal Arts" section of the Catalog under "Science Education."

Social Studies Education

Master of Arts

The purpose of the program is to provide an opportunity for interdisciplinary work in history, social science, or related areas for classroom teachers, high school department officers, and supervisors, as well as others interested in acquiring greater competency in the social sciences and greater proficiency in teaching and supervision.

Admission

Applicants must have a minimum of 20 semester hours of undergraduate credit in the area of history and the social sciences from an accredited institution, a cumulative grade-point average of 3.0, 3.0-grade-point average in history and social science courses, preferred GRE Aptitude Test score of 1000 composite of verbal and quantitative.

Degree Requirements

Thirty-eight semester hours distributed among history, social sciences, or related areas, with a minimum of ten semester hours in each of the fields chosen.

Thirty-eight semester hours distributed among the disciplines listed above and education.

Nine semester hours of the total 38 semester hours must consist of graduate courses numbered 700 or above, distributed in the fields selected for concentration. A minimum of two of the department's hours of 88-201, 88-202, or 78-293 must be completed within the forty-five months of the student's matriculation and the course work in social studies education, unless other course work with these faculty members has been completed; Thesis (if this option is selected)—A research or investigative problem in
Special Education/EDUCATION

75.368 Current Research Explorations in Science Education  2 s.h.
75.369 Problems in Supervision  3 s.h.
75.372 Problems of Curriculum Planning  3 s.h.
75.810 Field Service Project in Secondary Education  3 s.h.
75.830 Educational Specialist Research in Secondary Education  3 s.h.
75.400 Seminar: Child Art and Education  2 s.h.
75.402 Research in Art Education  3 s.h.
75.407 Research Science Education  3 s.h.
75.410 Ph.D. Seminar: English Education  3 s.h.
75.430 Music Education: Advanced Observation and Lab  2 s.h.
75.450 Mental Education: Advanced Observation and Lab  2 s.h.
75.451 Seminar: Research in Secondary Education  2 s.h.
75.452 Seminar: Individual Research Projects  2 s.h.
75.455 Ph.D. Thesis  3 s.h.

Special Education
Chair: Clifford E. Neve

Undergraduate Programs
The Division of Special Education expects its graduates will continue to find opportunities as teachers of special classes in the public schools or as resource persons for teachers working with handicapped children in regular classrooms. Opportunities in this latter area reflect the trend in special education toward the accommodation of handicapped children in regular classrooms with supplemental help rather than the segregation of handicapped children in special classes.

The University of Iowa program in special education aims to give the B.A. or B.S. student a knowledge of the characteristics of exceptional children, education programs currently provided for exceptional children, methods of teaching exceptional children, and practical experience with exceptional children.

A student majoring in special education may be admitted to one of three certification programs:
1) to teach the mentally retarded at the elementary level (State of Iowa Approval 81) and the option of also qualifying to teach the physically handicapped;
2) to teach the mentally retarded at the secondary level (State of Iowa Approval 81, Endorsement 20);
3) to teach preschool handicapped (State of Iowa Endorsement 09).

The elementary-level program requires that the student also complete the requirements for certification in elementary education (State of Iowa Endorsement 10). At the secondary level the student must complete the regular secondary education foundations program and complete the major in special education, including student teaching with the mentally retarded at the secondary level. Students interested in teaching preschool handicapped must complete a major in early childhood education.

Program Requirements
Elementary Mental Retardation
First Year
75.35 Introduction to Assessment in Special Education  1.2 s.h.
75.130 Exceptional Persons  3 s.h.
75.135 Mental Retardation  3 s.h.
75.92 Introduction to Microcomputing for Teachers  1 s.h.
Second Year
75.31 Teaching Mildly Mentally Retarded: Elementary  3 s.h.
75.33 Psycholology with Mildly Handicapped  2 s.h.
75.136 Teaching Moderately Mentally Retarded  2 s.h.
75.93 Practical with Moderately Handicapped  2 s.h.
Third Year
75.137 Supervised Teaching with Mentally Retarded  7 s.h.
Students completing this program will be recommended for State of Iowa Approval 81 (Mental Disabilities K-9).

Elementary Physically Handicapped
First Year
75.139 Orientation to Rehabilitation of Physically Handicapped  3 s.h.
3.15 Introduction to Speech and Hearing Processes and Disorders  3 s.h.
75.92 Introduction to Microcomputing for Teachers  1 s.h.
Second Year
75.136 Methods of Teaching Physically Handicapped  3 s.h.
Third Year
75.137 Supervised Teaching Physically Handicapped  7 s.h.
Students completing this program are recommended for State of Iowa Approval 84 (Physical Disabilities K-9).

Supervisors and juniors in special education are eligible to apply for the Janet R. Zober Memorial Tuition Stipend which will be awarded to the recipient during the junior or senior year. The recipient of this one-semester stipend is chosen on the basis of financial need, demonstrated scholastic ability, judgment, and promise of success in a professional teaching career in special education. Reference will be given to individuals competing the elementary physical disabilities program.

Secondary Mental Retardation
First Year
75.30 Introduction to Psychology: Special Education  2 s.h.
75.130 Exceptional Persons  3 s.h.
75.135 Mental Retardation  3 s.h.
75.136 Testing Issues in Education  2 s.h.
75.91 Introduction to Teaching  2 s.h.
75.85 Educational Psychology and Measurement  3 s.h.
75.91 Audiovisual Equipment for Instruction  1 s.h.
75.92 Introduction to Microcomputing for Teachers  1 s.h.
34.1 Introduction to Sociology: Problems  3 s.h.
34.2 Introduction to Sociology: Problems  3 s.h.
(undergraduates cannot take this course by correspondence)  
7P:172 Introduction to Psychology of Reading 3 s.h.
7P:191 Selective and Use of Media for Instruction 3 s.h.
3A:141 Juvenile Delinquency 3 s.h.
or
3A:140 Criminality 3 s.h.
7U:131 Introduction to Learning Disabilities 3 s.h.
7U:132 introduction to Behavioral Disorders 3 s.h.
7X:170 Human Relations for the Classroom Teacher 3 s.h.
A course on American History or American Government 2 s.h.

Third Year
7U:192 Supervised Teaching with Mentally retarded 15 s.h.
Students completing this program are recommended for State of Iowa Endorsement 20 (Secondary Teaching) and Approval 81 (Mental Disabilities 7-12).

Preschool Handicapped
First Year
7U:30 Introduction to Assessment in Special Education 1-2 s.h.
7U:135 Exceptional Persons 3 s.h.
7U:133 Mental Retardation 3 s.h.
7U:139 Orientation to Rehabilitation of Physically Handicapped Child 3 s.h.
3-15 Introduction to Speech and Hearing Disorders 3 s.h.
7W:92 Introduction to Microcomputing for Teachers 1 s.h.

Second Year
7U:130 Methods of Teaching Preschool Handicapped 3 s.h.
7U:36 Practicum with Preschool Handicapped 2 s.h.
7U:136 Teaching Moderately Mentally Retarded 2 s.h.

Third Year
7U:193 Supervised Teaching with Preschool Handicapped 7 s.h.

Students completing this program will be recommended for State of Iowa Endorsement 09 in Preschool Handicapped

Undergraduate Admission
Fifty-five students who have completed at least one year of college course work are admitted to special education each year. Admission decisions are based on cumulative college grade point average and experience with handicapped.

Examples of acceptable experience (volunteer or paid) with handicapped persons: counseling in a summer camp program for the handicapped, work with handicapped sponsored by community or religious organizations, extensive child-sitting experiences with handicapped children, and teacher aid experiences in classes for the handicapped.

Documentation forms are available from the Division of Special Education Office. Documentation forms and the application to the Teacher Education Program must be submitted by May 15.

Graduate Programs
The purpose of the graduate programs in special education is to train new personnel and to retrain existing staff so that both groups can better provide appropriate levels of service to handicapped children. Most applicants to the graduate program have undergraduate preparation as teachers either in regular or special education. Applications from students without valid teaching certificates will be reviewed by the division admissions committee.

Graduate programs are offered for certification only, and at the M.A., Ed.S., and Ph.D. degree levels, initial certifications or additions to present certificates are available at the graduate level in elementary and secondary learning disabilities or behavioral disorders, school psychology, work-study coordination, administration of special education and teacher education.

Master of Arts
Most students admitted to the M.A. program in special education are seeking the M.A. as an introduction to a teaching office. Behavioral disorders or the learning disabled.

The M.A. program prepares students to function as resources, integrated, and self-contained classrooms. The program requires a minimum total of 28 semester hours. A list of required courses is available from the division office.

To be admitted to the M.A. program, students pursuing certification in special education must already be eligible for certification in either elementary or secondary education. Candidates with prior successful teaching experience are given preferential treatment.

Some students who do not wish to seek certification may be selectively admitted to the M.A. program in special education. Numbers admitted depend on the resources available.

Educational Specialist in Special Education
The purpose of the program is to provide advanced graduate training for professionals in the field of special education. This may include individuals in consultation, supervisory work, and work-study coordination in special education. The program requires a minimum of 60 semester hours in addition to the general graduate admission requirements listed below.

Graduate admission requirements include a master's degree in special education or equivalent. Preparation and certification in special education are required, and a minimum of one year full-time teaching experience before admission to the program.

Educational Specialist in Special Education Administration
The primary objective of the program is to provide sufficient training and experience to enable graduates to obtain entry-level positions in administration. The content of the program is oriented to middle management positions, such as supervisors and assistant directors. Successful completion of the program qualifies the person for certification in Iowa to serve as a director of special education (State of Iowa Endorsement 48) and also qualifies the person for (State of Iowa Endorsement 01) certification in general school administration. Graduates are certifiable and employable as administrators of special education generally throughout the Midwest and the nation. The program requires a minimum total of 60 semester hours of credit.

Admission to the program is limited on the basis of resources available. From five to eight new students are admitted each year. In addition to the general requirements below, certification requirements include a master's degree and admission to the program is sought by exceptional children, and classroom experience as a teacher (or equivalent experience).

Educational Specialist in School Psychology
The purpose of this program is to provide course work and internship training in the areas of education and psychology in preparation for candidates to be competent school psychologists. Successful completion of the program qualifies the person for certification to serve as a school psychologist (State of Iowa Endorsement 49). The program requires a minimum total of 60 semester hours.

The deadline for receipt of applications for admission to the school psychology program is February 15. Approximately ten students are admitted each year. It is preferred that the applicant has a score of at least a 3.5 grade-point average on previous course work.

Doctor of Philosophy
The purpose of the Ph.D. program in special education is to prepare students as consultants, school psychologists, directors of special education, and university teacher trainers. The program
permits students to study and practice more extensively in their area of interest in special education. The program requires a minimum total of 90 semester hours.

In addition to the general admission requirements listed below, requirements for admission to the Ph.D. program are a master's degree or equivalent; a minimum of one year of full-time teaching experience with exceptional children except the school psychology program. The admissions committee gives great weight to applicants with several years of experience.

Facilities
Special facilities available to students in special education include the University Hospital School for mentally and physically disabled and the University Psychiatric Hospital/Child Psychiatry Program (for children and youth with behavioral disorders).

Financial Aid
A limited number of teaching and research assistantships are available to full-time students in M.A., Ed.S., and Ph.D. programs. The Janet Zober Memorial Scholarship is available to an undergraduate student in special education.

General Admission Requirements
Graduate admission requirements of the Division of Special Education conform to those used generally by the College of Education, with the following exceptions:

Completion of the Graduate Record Examination (GRE) Aptitude Test before admission to the program (combined scores of 1000 or above are preferred),

Documentation of having worked successfully with children and youth.

Courses
7003 Introduction to Assessment in SpecEd 3.0
Students develop an in-depth understanding of various assessment methods and techniques, and student progress. An introduction to behavior modifications. Placement requires admission to graduate special education program.

7121 Teaching Mobility Mentally Retarded Elementary 3.0
Methods of developing programs, teaching, and evaluating students with mental retardation. Focus on home-school relationships. Prerequisites: 7003, 7013, and 7014.

7122 Teaching Mobility Mentally Retarded Secondary 3.0
Methods of teaching and learning skills in academic and occupational areas. Classroom organization, management, and supervision. Seminar with permission. Prerequisites: 7003, 7014, and 7015.

7130 Practicum with Mildly Handicapped 3.0
Supervised practicum with mildly handicapped for approximately 70 hours. Prerequisites: 7003 and 7015.

7134 Instruction in Methods for the Mentally Handicapped 3.0
Supervised practicum with moderately handicapped for approximately 70 hours. Prerequisites: 7003 and 7015.

7135 Practicum with Moderate Handicapped 3.0
Supervised practicum with moderately handicapped for approximately 70 hours. Prerequisites: 7003 and 7015.

7137 Integrating Mildly Handicapped into Regular Classrooms 3.0
Developed for prospective teachers working with mildly handicapped students. Includes knowledge of exceptional children and the skills to develop and provide for their learning needs.

7141 Interdisciplinary Programs for Handicapped 3.0
Introduction to theories and principles of interdisciplinary programming. Includes descriptions of different disciplines involved, roles of professionals, cooperative services programs, team management, individual program planning, curriculum development, and evaluation. Prerequisites: 7003 and 7015.

7142 Methods of Teaching Practically Handicapped 3.0
Focus on working with students with a variety of disabilities within a special education program. Offered spring semester. Prerequisites: 7003, 7013, 7014, and 7015.

7144 Secondary Methods: Job Placement and Sampling for the Handicapped 3.0
Guidance curriculum teaching techniques and delivery systems which handicapped individuals become capable of professional development, teaching techniques, techniques of job and task analysis, agencies designed to assist the handicapped with work training and job training in order to prepare them for meaningful employment. Prerequisites: 7003, 7013, 7014, and 7015.

7145 Characteristics and Strategies: The Exceptional Child 3.0
Identification and description of exceptional children. Development of strategies useful for assisting the handicapped student in the regular classroom setting.

7146 Diagnostic Methods and Materials for the Exceptional Child 3.0
Application of diagnostic and evaluative techniques for assessing the handicapped student in the regular classroom setting.

7147 Instruction in Intensive Special Services Delivery 3.0
A multidisciplinary approach to defining and designing special services for the handicapped student. Focus on the identification and selection of appropriate teaching strategies to solve problems that have a multidisciplinary or related service component.

7150 Exceptional Persons 3.0
Survey of educational problems and school programs for transfers and veterans in special education.

7151 Introduction to Learning Disabilities 3.0
Description of the child with specific learning disabilities. History, theories, definitions, learning approaches, programs, and special topics of interest and reality today. Examination of students and evaluating cognitive processes.

7153 Emotional and Behavioral Problems 3.0
Explores emotional and behavioral issues, definitions, behavior problems of categorization, origins of disabilities, special program approaches, school administration, and program implementation for elementary and secondary students.

7210 The Culturally Different in Educational Settings 3.0
Problems in teaching culturally different children of school age. Relevant research on impact of
Supervised Teaching with Learning Disabled

Student teaching experience with learning disabled elementary or secondary level. Prerequisites: special education major and consent of instructor.

Supervised Teaching with Behaviorally Disabled

Student teaching experience with behaviorally disabled at elementary or secondary level. Prerequisites: special education major and consent of instructor.

Supervision in Special Education (1 hr)

For students enrolled in student teaching practicum in teaching disabilities or behavioral problems. Provides the opportunity to observe and evaluate the teaching of behaviorally disabled. Prerequisite: consent of instructor. Corequisite: T 7126 or T 7128.

Characteristics and Programs for Severely Behaviorally Disordered Children and Youth

Characteristics of the most severe behaviorally disordered and psychosocially impaired children and youth. Examination of effective instructional strategies and applications for the classroom. Programs for this severely disturbed population will be investigated. Prerequisites: T 7120 or consent of instructor.

Research Methods in Special Education

Research methods for behaviorally disordered children and youth. Skills in data collection, management, summarization, program supports, and assessment. Prerequisites: T 7120 and T 7228, or consent of instructor.

Administration and Supervision of Special Education

For prospective directors of special education and school administrative personnel. Provides a foundation for and self-analysis in roles performed by directors of special education. 1 hr. T 7228.

Psychometric in School Psychological Services

Supervised practicum in psychological and evaluative evaluation in school settings. May be repeated. Prerequisites: T 7228, T 7242, T 7241, and consent of instructor.

Assessment of Learning Difficulties

Administration of individual educational assessment instruments and interpretation of test results. Design and implementation of instructional plans and practices. Prerequisites: T 7120 or consent of instructor.

Behavioral Personality Assessment of the Learning-Disabled Child

Understanding of the variables which influence a child's behavioral and social adjustment, and the role of the personality structure of the child. Prerequisite: consent of instructor.

Industrial Intelligence Testing

Administration of industrial intelligence tests and the interpretation of test results in psychological testing, factors which influence performance. Prerequisites: T 7222 or T 7122, and consent of instructor.

Integration of Assessment Information

Supervised practice in the integration of educational, psychological, social, and medical information into written reports. Students expected to work with patients and adolescents to obtain this closure. PAs may take this course for credit only if they are enrolled in the School Psychology M.A. program. Prerequisites: T 7228, T 7243, T 7241, T 7242, and consent of instructor.

Consultation Theory and Practice

Study of various models of consultation, such as behavior and organizational development. Same as T 7229.

Advanced Laboratory Practice with Exceptional Children

Observation, experimentation, and individual instruction to develop professional skills in the areas of planning, guiding, and evaluating, and applying techniques to establish a sound behavioral program. Prerequisite: consent of instructor.

Individual Internship in Special Education

Permits specialized study in areas not included in regular courses. Prerequisite: consent of internship.

Internship in School Psychology (9 hrs)

Supervised internship in psychological diagnosis, consultation, and counseling in school and other settings. For Ed. S. and Ph.D. students in school psychology. Prerequisites for Ph.D. students: same courses as for Ed. S. or equivalent. Prerequisites for Ed. S. students: T 7227, T 7228, T 7243, T 7241, T 7242, and consent of instructor.

Senior Seminar: Current Issues in School Psychology

Readings and discussions of the current issues in school psychology such as testing and teacher-student relations. Prerequisite: consent of instructor.

Senior Research in Special Education

Seminar on the current research in special education. Prerequisite: consent of instructor.

Organization Development and Change

Skills and strategies for current issues such as program development and change, grant writing, conflict resolution, and criteria for change. May be repeated. Same as T 7228.

Problems in College Teaching

Problems encountered, under supervision, in teaching college courses in special education. Intended for doctoral students requiring in teacher training. Prerequisites: consent of instructor.

Supervision of School Psychology Practicum

Internship

Designate students gain experience supervising school psychology practicum or internship students.

Field Services Project in Special Education

Internship

Provides part-time or full-time experience as a line in school districts or state education agencies. Develops skills in the supervision and administration of special education services to young children with serious emotional disturbance.

Special Educational Research

Research involving design, data analysis, and writing up of results as determined by the requirements for the project and the course objectives. Prerequisite: consent of instructor.

Pd. Thesis in Special Education

Prerequisite: consent of instructor.
College of Engineering

Engineering is the profession in which a knowledge of the mathematical and natural sciences is applied to develop ways to utilize economically the materials and forces of nature for the benefit of mankind. The major aim of engineering is the creation of a new process, product, material, or system that is useful to our society. This activity demands a high degree of creativity coupled with a full understanding of engineering fundamentals, good judgment, and a practical sense of economics.

The College of Engineering prepares young men and women for one or more of the many career opportunities in the engineering profession. Such opportunities include positions in design, production, development, research, management; and consulting. Engineers are employed in industrial organizations, governmental agencies, and in private practice.

The College of Engineering has two major responsibilities. The first responsibility is to provide high quality undergraduate engineering programs by maintaining contemporary engineering curricula and laboratories, as well as support services such as academic advising and engineering career counseling. The second responsibility is to provide graduate programs in modern areas of engineering that lead to the Master of Science and Doctor of Philosophy degrees. Graduate education involves intensive research activities of a creative nature which are expected to result in original contributions to the literature at the Ph.D. level.

Programs Offered

The College of Engineering offers programs leading to the Bachelor of Science in Engineering (B.S.E.) degree in the major fields of biomedical engineering, chemical engineering, civil engineering, electrical engineering, industrial engineering, and mechanical engineering, as well as a program leading to the B.S.E. degree without designation of a major. Programs leading to the Master of Science and Doctor of Philosophy degrees are offered in the fields of chemical and materials engineering, civil and environmental engineering, electrical and computer engineering, industrial and management engineering, and mechanical engineering.

Any of the undergraduate programs offered by the College of Engineering may be combined with a program leading to a bachelor’s degree in the College of Liberal Arts and a bachelor’s degree in the College of Engineering. The combined degree program may be normally completed in about five years. In addition, a minor in the College of Business Administration or a minor or minors in any degree-granting, with departmental or approved program in the College of Liberal Arts may be combined with any of the undergraduate programs offered by the College of Engineering.

The undergraduate programs in chemical, civil, electrical, industrial, and mechanical engineering are accredited by the Accreditation Board of Engineering and Technology (ABET).

Undergraduate Programs

Degree Requirements

The Bachelor of Science in Engineering (B.S.E.) degree requires a minimum of 128 semester hours of credit including satisfaction of the specific requirements of the major program as described in the following sections. The candidate for the B.S.E. degree must be enrolled in the College of Engineering for at least the last 30 semester hours, or 45 of the last 60 semester hours, or a total of 90 semester hours and must have a minimum grade-point average of 2.0 on all college work used to satisfy the degree requirement as well as on all work undertaken at The University of Iowa. In addition, the candidate must have completed 32M-35 Engineering Calculus I and 32M-36 Engineering Calculus II, or their equivalents, a grade of C- or better, in each course.

Each student who wishes to be considered for graduation must file an application for degree with the Office of the Registrar before the deadline date during the session in which the degree is to be conferred.

If a student does not graduate on the date indicated in the application, he or she must file another application for a degree for the next applicable session. Students do not need to be registered to apply for a degree.

Admission Requirements

To qualify for admission to the College of Engineering as a freshman, an Iowa resident applicant must have completed the American College Tests with a composite standard score of 24 or above and a standard score of 24 or above in mathematics (or equivalent SAT scores). Successfully completed at least one...
and one-half units of algebra, one unit of plane geometry, and one-half unit of trigonometry.

Ranked in the upper one-half of his or her high school graduating class.

Non-resident freshmen applicants must have completed the same units of mathematics as required for resident applicants, and

Ranked in the upper 30 percent of his or her graduating class; and

Completed and the American College Tests with a composite score of 25 or above and a math subsection score of 23 or above (or equivalent SAT scores).

High school physics and chemistry are pertinent knowledge to the identification and a formal transcript of college work undertaken at other institutions. Each applicant must have:

Completed at least one semester of calculus or its equivalent; and

Maintained a cumulative grade-point average of at least 2.25.

Fullfilment of the minimum requirements for admission does not ensure admission to the College of Engineering. From the applicants, the College of Engineering selects those who appear to be best qualified for the study and practice of engineering.

Undergraduate Curriculum

The undergraduate curricular programs in engineering are designed to assure an adequate foundation in mathematics, basic and engineering sciences, the humanities and the social sciences, and engineering design. Added to this base is preparation in an engineering specialty appropriate to the challenge presented by today’s rapidly developing technological problems. The overall objective of the curricular programs is to provide an integrated educational experience directed toward the development of the ability to apply pertinent knowledge to the identification and solution of practical problems in each of the designated areas of engineering specialization. The specific objective of the curriculum is to prepare students for the practice of engineering.

The curriculum is structured into four parallel stems extending through the entire four years of undergraduate study. The stems are mathematics, basic and engineering sciences, humanities and social sciences, and engineering analysis and design. The mathematics, basic and engineering sciences, and humanities and social sciences develop the background required for engineers. The practice of engineering requires the ability to utilize this education to determine practical solutions to engineering problems. This ability is developed in the analysis and design stem.

The course sequence in this stem begins with 5:1 Introduction to Engineering in the freshman year and terminates with senior-level design courses during the senior year.

Approximately one-half of the courses in the four stems are common to all of the programs. This group of common courses is called the engineering core and consists of courses in mathematics, chemistry, physics, rhetoric, and engineering science and design. Most of the core courses are scheduled in the first two years. This feature permits the first semester of the freshman year to be entirely common and the first three semesters to be arranged so that a student may follow any program major, transfer between majors when eligible, or not declare a major during this period, with only minor adjustments in scheduling. This gives students time to become familiar with the various major areas before choosing a specific engineering program.

In addition to the core program and the humanities and the social sciences sequence, which is also common to each program, each degree program supplies a required group of courses which provides a common depth and breadth of knowledge to every student in each of the curricular programs. These courses provide the common background which the faculty expect of every graduate in each of the respective programs. The remaining courses are technical electives chosen by the student in consultation with his or her academic adviser. These courses allow the student to develop additional depth in areas of special interest and are ordinarily taken at the senior level.

The curriculum for the freshman year is:

**First Semester**
- 4:13 Principles of Chemistry I 3 s.h.
- 10:1 Rhetoric 4 s.h.
- 10:2 Rhetoric 4 s.h.
- 22M:35 Engineering Calculus I 4 s.h.
- 5:1 Introduction to Engineering 2 s.h.
- 5:3 Engineering Graphics 2 s.h.
- **Total** 15 s.h.

**Second Semester**
- 4:16 Principles of Chemistry Lab I 1 s.h.
- 10:2 Rhetoric 4 s.h.
- 5:4 Engineering Calculus II 4 s.h.
- 5:4 Engineering Compositions 3 s.h.
- 5:7 Statistics 2.5 s.h.
- **Total** 14 or 15 s.h.

A maximum of four semester hours is allotted for satisfaction of the rhetoric requirement. Students who qualify for 10:3 are able to satisfy the requirement with the single course, while those required to complete the eight-semester-hour sequence of 10:1-10:2 may complete only four semester hours toward their engineering program.

The courses listed above are required of all students in engineering. 4:14 Prerequisite courses are recommended during the second semester for biomedical or chemical engineering majors. Students of the College of Liberal Arts industrial engineering should review the science requirement specified for their major before selecting any social science courses.

**Humanities and Social Sciences Requirements**

The goal of the humanities and social sciences electives is to provide more effective preparation for professional responsibilities by integrating humanities and social sciences into the undergraduate engineering curriculum. Support of this goal, the student is to select, with the adviser’s approval, a minimum of 16 semester hours of humanities and social sciences electives, which to include at least six semester hours of course work in the humanities and at least six semester hours in the social sciences. Because the social science courses of this curricular stem will be a significant component of the major, they can be selected from a broad range of programs.

The humanities and social sciences electives may be selected from those approved to satisfy the general requirements of the College or the foreign civilization and culture requirements of the major.

**Elective Courses**

These courses may be selected from any of the following departments or schools:

- American studies
- Art
- History
- Classics
- Asian languages and literatures
- Communication and theatre arts
- English
- History
- Literature
- Science
- The arts
- Music
- Philosophy
- Religion
- Linguistics
- Other departments approved by the College of Engineering faculty, students should consult with their college for a list of approved upper-division hours of advanced (100-level) course work. These hours can be used to fulfill the requirements for minors or to increase the depth of knowledge in an elected subject of study. This advanced course work will build upon the previously completed elementary course in the same department. These hours will not satisfy any of the humanities or social sciences requirements unless the courses are at or beyond the second-year level. Studio courses in art and music will not fulfill the requirement.

The social science electives may be selected from those approved to satisfy the social sciences requirement of the College of Liberal Arts general education requirements and/or appropriate courses from the following departments: anthropology, economics, geography, philosophy, political science, sociology, and mass communication, and social work, or other departments.
Approved by the College of Engineering faculty. Students may select courses from departments not included above with the approval of the assistant to the dean. To assure an adequate depth of knowledge in a chosen area of study, students shall select a minimum of three semester hours of advanced (100-level) course work. This requirement will logically build on the background previously acquired in an elementary course.

Combined College of Engineering-College of Liberal Arts Program

Students may earn two University of Iowa baccalaureate degrees in a combined curriculum in the colleges of Engineering and Liberal Arts. To enter this program, a student must be eligible for admission to the College of Engineering but may begin the program in either the College of Liberal Arts or the College of Engineering. Students who enter this program will be advised by the assistant to the dean of the College of Engineering and by an associate dean of the College of Liberal Arts. Students interested in the combined degree program should declare their interest by contacting a representative of the Dean's Office in either the College of Engineering or the College of Liberal Arts. A plan of study must be developed and approved by the advisers from both colleges. It is critical to enroll in the proper mathematics and engineering courses early in the program to minimize the time required to complete the combined degree program.

The courses in the combined program can normally meet the baccalaureate requirements of both colleges in about five academic years. However, the exact length of time to complete the combined degree program will be determined by the major areas of study selected in liberal arts and engineering.

Students selecting this program will be required to complete the general education requirements and the requirements for the major, and the residence requirements in the College of Liberal Arts. The specific engineering courses taken by the student will vary, according to the engineering specialty selected. Since the courses in science, mathematics, and the social/humanities are regularly accepted for credit by both colleges, the student is in many cases satisfying the requirements for both colleges in the major of a particular course.

Two Bachelor's Degrees in the College of Engineering

Recent College of Engineering graduates and current students may earn two bachelor's degrees in engineering. The requirements for the second degree are to complete at least 30 additional credit hours of residence course work beyond the requirements of 128 semester hours for the first degree program with a minimum grade point of 2.0. The additional credit hours must include all courses required by the program selected for the second degree, including the senior level design course sequence of the second degree program as well as any specific socio-humanscic elective requirements. The technical electives selected for the second degree program must be of such a quality and level that the student will meet at least a minimal level of competency normally expected of graduates of that program.

A student must file an application for admission to the second degree program approved by the faculty of that program and submitted to the Office of the Dean prior to the time the student initiates the course work in the second degree program. The proposed academic plan of study should include a list of the courses to be taken in the second program along with a list of the courses completed and to be completed for the first engineering degree program. The approved plan will be submitted to the Office of the Dean before the student begins course work in the second program and will be placed in the student's permanent file. Any changes in the plan must be approved by the student's faculty advisor in the second program and by the department chair (the current petition form may be used for this purpose) and submitted to the Office of the Dean for inclusion in the student's permanent file.

Minors

Students graduating from the College of Engineering may earn a minor in the College of Business Administration or a minor or minors in any degree-granting department or combined program in the College of Liberal Arts. Students interested in a chemistry, physics or mathematics minor may not use courses required in the engineering curriculum to satisfy the minor requirements in these three areas. A student's minor will be entered on the student's permanent record.

Students must inform the Registrar's Office of their fulfillment of minor requirements at the time of applying for a degree to assure that the minor designation is included on the graduate's transcript.

Minor in the College of Business Administration

Requirements for a minor are: two economics courses, two accounting courses, a marketing course, a management course, a finance course, and a legal environment course. In addition to these required courses, a student normally would also complete a calculus course, a computer course, and a probability and statistics course. Engineering majors satisfy the mathematics, statistics, and computer science requirements with courses 22M:35, 57-4, and 225-39. A 2.25 grade-point average in the courses applicable to the minor is required. Students who wish to complete a Master of Business Administration degree later should select courses which will satisfy M.B.A. requirements.

Minor in the College of Liberal Arts

Requirements for a minor are: a minimum of 16 semester hours in the minor department, at least 12 of which are in advanced courses acceptable to that academic area. Students should confer with the minor department to identify acceptable courses. The student must achieve a 2.0 grade-point average in the courses applicable to the minor. Courses to be counted toward the minor may not be taken on a pass-fail basis. Students interested in physics, chemistry, or mathematics minor may not use courses required in the engineering curriculum to satisfy the minor requirements in these areas.

Cooperative Education Program

Cooperative education involves the integration of academic work with practical experience in an organized program. Participating students spend alternate periods in full-time academic study on campus and in full-time engineering-related employment in business, industry, or government.

While the student can earn a substantial portion of college expenses during the work periods, the success of the program depends on the work experience having significant educational value as well. This is assured by careful monitoring of the work experience provided by participating employers and by matching student interest and ability to the work situation. The insight gained by involvement in the practical application of subject matter studied in the classroom usually results in improved motivation during the study periods and a corresponding improvement in academic results.

Another important aspect of the experience gained, although it is difficult to evaluate, is the increased awareness of the value of educational considerations involved in any engineering project.

The co-op phase ordinarily begins during or immediately following the sophomore year and continues until the beginning of the senior year. The total time for the degree program under this option is normally five years and includes the equivalent of at least one full year of work experience. This option is an option available to qualified students on a voluntary basis.
University Undergraduate Academic Advising Center

The Undergraduate Academic Advising Center helps students who have not selected a program of study. Included in this group are students who may be considering engineering, among other fields of study, but who are not yet ready to declare a specialized major. For help in choosing a program, students are assigned an advisor from the center rather than from a specific department. These students meet frequently and regularly with their assigned advisor for help with various academic matters. These range from building a schedule of courses for the next semester to choosing a career path. For the convenience of students, the offices of the advisors are located in the residence halls. For more information, contact the Director, Undergraduate Academic Advising Center, Burge Hall, The University of Iowa.

Academic Standards

Semester Load Limit

A normal academic load is about 16 semester hours of course work for a semester, eight for a summer session. No student may register for more than 18 semester hours in one semester, or nine in a summer session, without the permission of the assistant dean.

Classification of Students

Students in the College of Engineering are classified by the number of semester hours of credit earned and applicable to a baccalaureate degree program, according to the following table:

- Freshman—fewer than 28 semester hours
- Sophomore—28 to 55 semester hours
- Junior—56 to 89 semester hours
- Senior—90 or more semester hours

Grading System

The college uses the four-point grading system, in which grade points are awarded on a scale of 4.0. A full description see the "General Information" section of the Catalog.

Academic Probation and Good Standing

A student enrolled in the College of Engineering who fails to attain the following minimum semester and cumulative grade-point averages based on all work taken in residence at the University of Iowa shall be placed or continued on academic probation:

- Freshman—1.8
- Sophomore—1.9
- Junior—1.95
-Senior—2.0

A student whose semester and cumulative grade-point averages equal or exceed those appropriate to his or her classification is considered to be in good standing in the college.

A student will be removed from, or placed on, academic probation only at the end of a semester. A student will not be permitted to register without specific approval following two consecutive semesters on probation. A student who has not made satisfactory improvement in scholarship may be dismissed from the college. A student dismissed from the college for poor scholarship may petition the assistant to the dean for permission to re-enroll after an interval of two regular semesters.

Dropping and Adding Courses

Courses may be added with permission of the advisor and the instructor during the first three weeks of the semester (for first and one-half weeks of the summer session).

Courses may be dropped with permission of the advisor and the instructor at any time during the first ten weeks of the semester. Only under compelling circumstances may courses be dropped after the tenth week. In this case, special approval must be granted by the advisor, the course instructor, and the associate dean. Under no circumstances will a student be permitted to drop after the beginning of the scheduled final examination period.

Cancellation of Registration

A student in good academic standing who changes his or her registration during the final four weeks of a regular semester, or during the final three or two weeks of a twelve- or eight-week summer session, respectively, will not be permitted to enroll for the semester immediately following without specific approval from the assistant to the dean.

A student on scholastic probation who cancels his or her registration at any time without good cause will be considered as having been dismissed for poor scholarship.

Cancellation cards for students enrolled in the college will be signed by the assistant to the dean only after recommendation of the student's advisor and program chair.

Pass-Nopass Option

A maximum of two courses taken in the colleges of Liberal Arts or Business Administration on a pass-nopass basis may be applied toward satisfaction of the humanities and social sciences requirement. Students wishing to take such courses in liberal arts or business administration on a pass-nopass basis must meet the conditions and follow the procedures specified by those colleges. The pass-nopass option may not be used for courses taken to satisfy the rhetoric requirement.

Students enrolled in courses taught in the College of Engineering may choose to be graded on a pass-nopass basis under the following conditions:

- The signatures of the advisor and instructor must be obtained on the proper form and the completed form submitted to the registrar by the student within the time period established by university policy.
- The mark of P (pass) will be awarded where the final course grade earned was A, B, or C. The mark of N (nopass) will be given for grades of D or F. Marks of P and N will not be used in computing the grade-point average and the mark of N will not count as earned hours.

No course work taken in the College of Engineering under a pass-nopass option may be used to satisfy requirements for an engineering degree.

Second-Grade-Only Option

A student may elect to repeat a course with only the new grade being counted in his or her grade-point average. This option can only be elected prior to the time of completing a course for which the highest grade is a prerequisite. The option may be elected to no more than three courses and it may be applied only once to a given course. Transfer students may apply the option on a per-subject basis. For example, a student transferring no more than 42 semester hours of applicable engineering course work may use this option for a maximum of three courses, while a student with between 42 and 88 semester hours of credit may use this option for no more than six courses. The student may repeat no more than 88 or more semester hours of transfer credit may use this option for only one course. Students wishing to exercise this option should apply to the assistant to the dean.

Satisfactory-Fail Courses

The noncredit professional seminar courses, which are required in each of the professional programs, are offered on a satisfactorily-fail basis. No other engineering courses are offered on this basis. An F (fail) grade is earned for such courses will not satisfy any portion of the professional seminar requirement.

Incomplete and No Report Grades

A mark of I (incomplete) or N (no report) which is not replaced by a final grade prior to the announced deadline within the student's next regular semester of registration will be replaced by a final grade of F (fail), except that students with incomplete grades in the spring semester are exempt from completing the work during the succeeding summer session.

Second-Grade-Only Option

A student may elect to repeat a course with only the new grade being counted in his or her grade-point average. This option can only be elected prior to the time of completing a course for which the highest grade is a prerequisite. The option may be elected to no more than three courses and it may be applied only once to a given course. Transfer students may apply the option on a per-subject basis. For example, a student transferring no more than 42 semester hours of applicable engineering course work may use this option for a maximum of three courses, while a student with between 42 and 88 semester hours of credit may use this option for no more than six courses. The student may repeat no more than 88 or more semester hours of transfer credit may use this option for only one course. Students wishing to exercise this option should apply to the assistant to the dean.

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A mark of I (incomplete) or N (no report) which is not replaced by a final grade prior to the announced deadline within the student's next regular semester of registration will be replaced by a final grade of F (fail), except that students with incomplete grades in the spring semester are exempt from completing the work during the succeeding summer session.
Recognition for Academic Achievement
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 students in the next highest five percent. Ranking is based on the student's grade-point averages for all college-level study undertaken to their final registration.

To be eligible for this form of recognition, the student must take his or her final 60 semester hours of study in residence in the college, and must have completed at least 42 semester hours of study at the college before his or her final registration. Students in the combined engineering-liberal arts program are eligible for this recognition regardless of the college in which they complete their residency requirements.

Dean's List
Engineering students achieving grade-point averages of 3.5 or above during a given semester on 12 or more semester hours of graded work with no I or O grades still standing on the current or past semester's record, are recognized by inclusion on the dean's list for that semester.

President's List
Students earning a 4.0 grade-point average in any consecutive semesters (excluding summer sessions) on at least 12 or more semester hours of graded work each of the two semesters with no I or O grades still standing, are included by inclusion on the president's list.

Other College Policies
Advanced Placement
Students who have pursued college-level courses in high school through the Advanced Placement (AP) Program of the College Board, and have achieved satisfactory scores on the college examinations administered through the AP Program will be awarded college-level credit. Credit earned through an AP level calculus course in the AP Program may be applied to the engineering course requirement of 23M.33 Engineering Calculus I. Credit earned through other AP courses may be also applied to other engineering course requirements as appropriate in content and level as well as credit for those requirements has not already been earned by other exams or by course enrollment. Questions about AP credits should be directed to the assistant to the dean.

CLEP Credit
Credit earned through the College-Level Examination Program (CLEP) may be applied to meet appropriate requirements in engineering. For example: up to seven semester hours of credit earned on the social science general exam and/or on the subject exams on separate social science topics may be applied to satisfy a portion of the social science requirement. Similarly, up to seven semester hours of credit in the general and/or separate subject exams in the humanities may be applied to satisfy a portion of the humanities requirement. However, no more than a total of ten semester hours of CLEP credit can be applied to the total humanities and social sciences requirements for engineering. Credit earned on other CLEP subject exams may also be applied to meet other course requirements as appropriate in content and level on a non-duplicate basis. Questions about CLEP exams and credits should be directed to the assistant to the dean.

Credit by Examination
Students who have acquired knowledge in engineering subject matter from sources other than formal course requirements may be granted the opportunity to obtain credit toward graduation by examination. For example, credit for an engineering-core course may be earned by achieving a satisfactory test score on a comprehensive examination similar to a final exam for that course. Conditions and limitations of this policy are established by the faculty of the College of Engineering. A student wishing to apply for such an examination should contact the assistant to the dean.

Credit by Variations
Students with course credits obtained at an unaccredited institution may request the validation of this credit up to a maximum of 12 semester hours. Credit may be validated upon the request of the student who has completed at least 24 semester hours of credit at The University of Iowa, which will include appropriate courses for which the work to be validated are prerequisites.

Students with unaccredited work who wish to utilize the validation of credit should contact the assistant to the dean during the first semester of enrollment in the College of Engineering.

Credit from Other Colleges
Course requirements in engineering may be satisfied by credits earned from courses taken at other accredited colleges or universities only at the time of application for admission to the College of Engineering. If a transcript from each college attended is submitted to the office of admissions and after admission has been granted, the credit is evaluated by the assistant to the dean or, if during the student's first semester of enrollment in the College. Satisfaction of engineering course requirements by transfer courses will be considered for approval by the assistant to the dean only on a course-by-course basis. There is a match in the content and level of the transfer courses, and the grades earned for such courses are C or better. Students wishing to satisfy the engineering social sciences and humanities requirement of the University of Iowa Rhetoric requirements by transfer work should contact the assistant to the dean for details. Students planning to attend a two or four year institution before transferring to the College of Engineering would be well advised to discuss the planned transfer with officials at both schools before enrolling in a transfer program. The College of Engineering does have recommended college lists for most Iowa community colleges and some four year colleges. The course lists are available by contacting the assistant to the dean. Once enrolled in the College of Engineering, all course work taken at other institutions must be pre-approved by the assistant to the dean if that credit is to be applied to meet engineering degree requirements.

Course Substitutions
For students in the College of Engineering, the substitution of a required course by an alternate 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 majoring. In the petition involves a required engineering core course, then it must also be approved by the student's department chair and the College Curriculum Committee. Course substitutions involving the engineering core courses are to occur infrequently due to their rigid nature and circumstances. Substitutions of courses not required by the student's department major, are governed by the program faculty and approval of these course substitutions is only needed by the program faculty chair. All petitions must be forwarded to the Office of the Dean for inclusion in the students' records.

Auditing Courses
Students in the College of Engineering may register for a course for zero credit (audit) with the permission of the course instructor and the advisor. The mark of W will be assigned to those registered for the course for zero credit where attendance and performance are satisfactory. If unsatisfactory, the mark of W will be changed to the mark of F upon completion of the course. W will not be recorded on the student's permanent record. Students who master a course with a mark of W will not meet any requirements for a grade of credit toward graduation. Auditing may not be used as a prerequisite option. Students intending to register for a course on an audit basis, the course would be entered on the registration card in the usual manner except that zero credit hours would be indicated. The instructor's authorizing signature and the registrar's department chair will also be required on the reverse side of the registration card. To change
registration from audit to credit or credit to audit, a drop-add form is used. These changes must be made during the first three weeks of a semester (or one and one-half weeks of a summer session).

Student Academic Misconduct
Regulations dealing with cases of cheating or plagiarism are determined by a college policy. In cases of cheating on exams or quizzes, the policy recommends that the instructor reduce the student's grade, end the assignment of a failing grade. When a course grade has been reduced to F, the student may not drop the course nor use the Second Grade Option to eliminate the failing grade.

At the beginning of each semester, course instructors shall individually announce and explain their policies on acceptable levels of student-student collaboration on graded work, which includes homework assignments, lab or design projects. When a policy is violated, a zero shall be assigned for the total portion of the course grade allocated to the requirement in which the violation occurred. The instructor shall send a written report of any disciplinary action to the Office of the Dean and the report shall be placed in the student's file. The student shall be notified by the Office of the Dean of any disciplinary action reported and shall be informed of appeal procedures if the student wishes to protest the action.

Student Complaints Concerning Faculty and Administration
In cases where complaints do not involve alleged student academic misconduct, students 'complaints with faculty should first attempt to resolve the issue with the particular instructor. If a satisfactory outcome, the student should discuss the issue directly with the chairman of the faculty member's department. Students who are uncomfortable dealing directly with a faculty member or a department chairman may seek assistance from the Faculty Ombudsman when attempting to resolve a complaint. However, it is anticipated that grievances generally can be satisfactorily resolved at this level or at the dean's level. If the student is not satisfied with the outcome of the procedure, the student should discuss the complaint with the dean of engineering.

Student Organizations and Activities
The College of Engineering student body is organized as the Associated Students of Engineering. This organization provides a forum for the discussion and carrying out activities involving the entire college, such as student and faculty picnics held each fall and spring, the homecoming parade, the MECCA Week, and sponsoring of a nationally prominent speaker during National Engineers' Week. The organization also acts on college-wide matters of general student interest.

Engineering students publish their own student journal, the Black Student Engineering. All positions are staffed by students, with faculty serving only in an advisory capacity.

Student branches of the American Institute of Chemical Engineers, the Institute of Industrial Engineers, the American Society of Civil Engineers, the American Society of Mechanical Engineers, and the Institute of Electrical and Electronics Engineers are active at the University of Iowa.

The U chapter of Tau Beta Pi, a national honorary society for students in all engineering fields, gives special recognition to superior students in their junior and senior years. Senior and graduate engineering students who have special ability in research are eligible for election to Sigma Xi. Pi Lambda Upsilon, honorary chemistry and chemical engineering society; Chi Epsilon, honorary civil engineering society; Alpha Kappa Psi, honorary electrical engineering society; Alpha Phi Mu, honorary industrial engineering society; and Pi Tau Sigma, honorary mechanical engineering society, recognize the work of outstanding students in specific fields.

Student organizations dedicated to providing support and assistance in the professional development of more equitable enrollments of women and minorities in the college, and the National Society of Black Engineers and the student chapter of the Society of Women Engineers. A local chapter of Tau Beta Pi, a national professional engineering fraternity, is active in service to the college and draws its membership from students throughout the college.

Professional Registration
Registration as a professional engineer is governed by the laws of each state. The minimum requirements include graduation from an accredited engineering curriculum of at least four years, followed by at least four years of practical experience.

In Iowa the agency that controls and monitors the licensing procedure is the Iowa Board of Engineering Examiners. The first step in the procedure for students enrolled in an accredited program is to pass an examination in engineering fundamentals given at the University near the time of graduation. Graduates of accredited programs must complete at least one year of professional experience to be eligible to take the engineering fundamentals exam. Following graduation and the successful completion of the engineering fundamentals exam, the graduate receives an Engineer-in-Training (E.I.T.) certificate. The final step in the procedure is to pass the advanced exam in a specialty area following a minimum of four years of approved professional experience. At this point the graduate engineer is registered "Professional Engineer."

Graduate Programs
The general rules and regulations for the graduate programs are established by the Graduate College. However, the specific admission and degree requirements for each graduate engineering program are included in the sections devoted to the individual programs. Also included in those sections is a description of the financial aid available in each department and also a description of the principal areas of study and research.

College Facilities

Engineering Library
The Engineering Library is a center of college activity. Its collection includes 65,000 books and 850 periodicals. It is equipped with microfilm and microfiche readers, and provides study spaces for 100 library users.

Computer Aided Engineering (CAE) Laboratory
This college facility is used for teaching and research purposes. The laboratory contains interactive computer graphic terminals connected to a PRIME 750 mini-computer, digital printers, line printers, and a protection system. It also contains several stand-alone microcomputers. Instructions are given in computer aided graphics and design at the undergraduate and graduate level. Software is available for graphics applications, optimal design and analysis, and finite element analysis, structural analysis, and design. Computer-aided design and analysis of mechanical and structural systems, office and plant layout, chemical engineering process flow sheet preparation, and computer graphics. The main cluster of graphical terminals and associated computer terminals is located in Room 1209 Engineering Building. A large projection screen for instructional and program demonstration purposes is located in Room 2128 EB.

Computer Based Education (CBE) Laboratory
The Computer Based Education (CBE) Laboratory of the College of Engineering contains a collection of video graphics terminals and hard copy terminals as well as slide projectors. These facilities provide access by students to the Weig Computing Center's Prime 860 and HP-2000 minicomputers and IBM 3033 mainframe computer for both interactive computing and remote ( batch) job entry. "$\text{ENGINEERING}$
Iowa Institute of Hydraulic Research
The Iowa Institute of Hydraulic Research (IIHR), a unit of the University of Iowa's College of Engineering, has been widely acknowledged for many years to be an international leader in numerous areas of fluid mechanics and hydraulic engineering. It was formally organized in 1934 to coordinate capabilities, facilities, and resources available at the University for research or problems in engineering hydraulics and hydrology, and soon broadened its scope of activities to include fluid mechanics.

Active programs of basic and applied engineering research, conducted in five modern, well-equipped laboratories, with total floor space exceeding 72,000 square feet, currently are being pursued at IIHR. Research in: (1) Turbulent Flow: boundary layers [with emphasis on thick and three-dimensional boundary layers] viscous aerodynamics; computational fluid mechanics and hydraulics; ship hydrodynamics; geophysical fluid dynamics; water- resource systems; river engineering; sediment-transport mechanics; aquatic engineering; hydraulic structures; biological fluid mechanics; water-quality dynamics; hydraulic-energetics dissipation; and pump intakes.

High-level involvement of graduate students is a hallmark of practically all IIHR projects. Because of its close association with the College of Engineering, IIHR's involvement in fluids engineering for industry, and its broadly based industrial research programs, IIHR provides advanced-degree students and postdoctoral trainees unique opportunities for valuable research, educational, and engineering experiences.

Center of Materials Research
The Center of Materials Research was founded on the philosophy that technologies of the future require the integration of a variety of disciplines in order to transcend traditional methods of research and development. The center is at present strongly focused on programs of fundamental and applied research in biorelated engineering with particular emphasis on biomaterials and biocompatibility. Supported projects include: traumatic head and spinal injuries; hemodynamics; cardiac mechanics; prosthetic heart valves; bone and ligament biomechanics; bone cement; total joint replacement; pulsatile electromagnetic effects on tissue; and biomedical image analysis and processing.

Graduate and undergraduate student participation in interdisciplinary research and development is encouraged and supported by the center. The faculty members of the center also engage in numerous consulting activities for industry, government, and other universities.

Center for Computer Aided Design
The Center for Computer Aided Design was founded in 1985 to provide valuable support to both the research and development of design methods utilizing modern computer technology.

The research program of the center is focused on mechanical system dynamic analysis and design, control system analysis, structural optimization, and dynamic computer graphics. A research faculty consisting of a PRIME 750 super minicomputer, a dynamic graphics system, and other related computer support equipment supports the faculty, staff, and students associated with the center.

Faculty, staff, and students participating in the center are developing and distributing computer software to government and industrial agencies for use in a broad spectrum of mechanical and structural design activities.

Course Numbering System
The title of each course offered by the College of Engineering is preceded by a two-digit prefix and a three-digit suffix, separated by a colon.
Not all of the following courses are required for each engineering major. For course requirements in a specific major, see the curriculum listing in the section for that major. None of the following courses are available to engineering majors unless specifically permission is obtained from the assistant to the dean.

51 Introduction to Engineering 3
Survey of various branches of engineering, engineering approach to solving everyday problems. Prerequisite: 2202; 2
51 Engineering Graphics 3
See course catalog section necessary in connection engineering including orthographic projection, geometric construction, computer-aided drawing, section methods, three-dimensional problems, and plans and sections. Introduction to computer graphics with emphasis on surface design using the PAKEN program. Prerequisites: 2202; 2
51 Engineering Computing 3
Digital computer programming using FORTRAN, fundamentals and logic operations, loops, subroutines, input/output, flow charts, and program development techniques with emphasis on engineering applications. Corequisite: 2254; 3
51 Statics 3
Vector algebra, forces, couples, equilibrium, force equilibrium, Newton's laws, friction, equilibrium of particles and frame bodies. Applications to civil engineering, mechanical engineering, and aerospace engineering. Corequisite: 2254; 3
51 Dynamics 3
Vector calculus, Newman's laws, dynamics of particle motion, mechanism systems and rigid bodies in plane motion, application. Prerequisites: 51.1 and 2254; 3

51 Introduction to Electrical Science 3
Introduction to fundamental ideas of electricity and magnetism. Kinetics of light and light beams, light reflection, refraction, and wave interference. Application to light, current, and atomic theory. Corequisite: 2254; 3
51 Linear System Analysis 3
Treatment of linear systems in a systematic approach. Application to all types of physical systems. Prerequisites: 51.10 and 2251; Corequisite: 2254; 3
51 Engineering Management Science 3
Basic principles of engineering economy, flow of money, cash flow equivalent, depreciation, inflation, and investments, risk assessment, and how to evaluate present worth and annual cost; cost of returns, benefit-cost ratio, replacements analysis, break-even analysis, and capital rationing. Prerequisite: 2254; 3
51 Weather Science 3
Foundation course dealing with interaction between structures and properties of materials at atomic, micro, and macro levels. Prerequisite: 415; Corequisite: 2254; 3
51 Thermodynamics 3
Basic principles of classical thermodynamics, including first and second laws, reversibility, irreversibility, Carnot cycle, properties of pure substances, closed, steady systems and second law efficiency of ideal steam Rankine cycle for engineering applications. Prerequisite: 415; 3
51 Principles of Electronic Instrumentation 3
Basic principles of operation of devices, conductors and semiconductors, criteria of selection of materials and devices in electronic circuits, and various technologies, analog and digital integrated circuits with emphasis on applications. Laboratory included. Prerequisite: 51.11; 3
51 Mechanics of Deformable Bodies 3
Elementary methods of deformable bodies, stress, strain, application to beams, columns, shafts, and problems of statics of elastic solids, tension, bending, torsion, combined and friction loading. Prerequisite: 51.17; Corequisite: 2254; 3
51 Mechanics of Fluids and Transfer Processes 3
Laws governing fluid flow and transport processes. Thomson of momentum, mass, and energy. Application of second law of thermodynamics, heat transfer, fluid flow processes, ventilation, air conditioning, and environmental control systems. Engineering applications including measurement of flow properties. Prerequisites: 2254; 3, 51.10, and 51.18 (or composition). Corequisite: 2254; 3 (for chemical engineering majors only).

51 Principles of Design 3
Properties and characteristics of the chair design problems involving the identification, modeling, and analysis of design problems and efficient solution to design problems. Prerequisite: 51.12; 3
51 Biomaterials 3
Probabilistic and statistical aspects of engineering design. Topics include probabilistic methods, decision making under uncertainty, reliability and risk, and various aspects of strength and safety and reliability analysis. Emphasis on model construction, stochastic methods, and random variables. Corequisite: 51.21 and 2254; 3

The past two decades have seen a tremendous growth of technological activity in biology and medicine. As engineers have increasingly become involved with projects in the life and health sciences, there has been an increased need for them to become more familiar with the fields of biology and medicine. Recognition of this need has led to the emergence of a new interdisciplinary engineering activity designed to bridge the gap between the biomedical and the biomedical engineering profession.

Students who complete this program may pursue career opportunities in industry (the design and development of biomedical instrumentation, diagnostic aids, life support systems, prosthetic and orthotic devices, medical imaging systems), in government (Veterans Administration, Environmental Protection Agency, Food and Drug Administration), or they may elect to continue their formal education in the engineering, medical, or legal professions.

Several engineering college faculty members have joint appointments in the College of Medicine. Both biomedical engineering undergraduates and graduate engineering students participate actively with college faculty members and their colleagues in the life and health sciences on projects of mutual interest.

Courses which have been designed primarily for the biomedical engineering program are identified by the digit 1 in the course number following the prefix. Course descriptions are provided at the end of this section.

The curriculum outlined below is built upon the course program as described in the earlier sections and is designed to build upon a core program as described in the earlier sections and is designed to build upon a core program that has been developed to prepare students for the challenges and opportunities associated with careers in the biomedical engineering profession.
been carefully designed to enable the student to satisfy the entrance requirements of the Graduate College and, with the addition of a three-course sequence in organic chemistry, the College of Medicine.

**Curriculum**

**Sophomore Year**

First Semester:

- 22M:37 Engineering Calculus III (3 s.h.)
- 57:11 Kinetics (3 s.h.)
- 57:11 Introduction to Electrical Science (3 s.h.)
- 57:15 Materials Science (3 s.h.)
- Humanities or social science elective (3 s.h.)

Total: 16 s.h.

Second Semester:

- 22M:38 Differential Equations for Engineers (4 s.h.)
- 37:3 Principles of Animal Biology (5 s.h.)
- 57:12 Linear Systems Analysis (3 s.h.)
- 57:16 Thermodynamics I (4 s.h.)

Total: 16 s.h.

**Junior Year**

First Semester:

- 225:38 Probability and Statistics for Engineering and Physical Sciences (3 s.h.)
- 57:18 Principles of Electronic Instrumentation (4 s.h.)
- 57:15 Mechanics of Deformable Bodies (3 s.h.)
- 57:28 Elements of Design I (3 s.h.)
- 29:81 Intermediate Engineering Physics I (3 s.h.)
- 59:1 Professional Seminar: Biomaterial Engineering (0 s.h.)

Total: 16 s.h.

Second Semester:

- 57:20 Mechanics of Fluids and Heat Transfer I (4 s.h.)
- 57:22 Process Design II (3 s.h.)
- 29:82 Intermediate Engineering Physics II (3 s.h.)
- 72:104 Biomaterial Engineering Physiology (4 s.h.)
- 59:1 Professional Seminar: Biomaterial Engineering (0 s.h.)
- Humanities or social science elective (3 s.h.)

Total: 17 s.h.

**Senior Year**

First Semester:

- 51:85 Biomaterial Engineering Design I (3 s.h.)
- Biomedical Engineering Electives (9 s.h.)
- Humanities or social science elective (3 s.h.)
- 59:1 Professional Seminar: Biomaterial Engineering (0 s.h.)

Total: 16 s.h.

Second Semester:

- 51:86 Biomaterial Engineering Design II (3 s.h.)
- Biomedical Engineering Electives (9 s.h.)
- Humanities or social science elective (3 s.h.)
- 59:1 Professional Seminar: Biomaterial Engineering (0 s.h.)

Total: 15 s.h.

**Special Facilities and Laboratories**

**Biomaterials Laboratory**
- This laboratory is equipped to experimentally investigate various aspects of the biomechanics of the human head and spine.

**Biomechanics Laboratory**
- The laboratory is equipped to test mechanical properties of biomaterials and thin sectioning of hard tissues and prostheses for histology.

**Hemodynamics Laboratory**
- The Hemodynamics Laboratory is equipped to study cardiovascular fluid dynamics, particularly low flow valve prostheses and flow in the human aorta.

**Applied Mechanics Laboratory**
- This laboratory is equipped to study the biomechanics of small bore specimens under complex dynamic loading conditions.

**Biomedical Image Processing and Computing Laboratory**
- This laboratory has an EYECON image processing system which is used to digitize analogical slides, photographs, X-rays, and CAT scan images—with a resolution of each at 4,000 dots and can distinguish 256 colors.

**Courses**

**51:00 Cooperative Education Training Assignment**

- Biomaterial Engineering I (3 s.h.)

**51:01 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:02 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:03 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:04 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:05 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:06 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:07 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:08 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:09 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:10 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:11 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:12 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:13 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:14 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:15 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:16 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:17 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:18 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:19 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:20 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:21 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:22 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:23 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:24 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:25 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:26 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:27 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:28 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:29 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:30 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:31 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:32 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:33 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:34 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:35 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:36 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:37 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:38 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:39 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:40 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:41 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:42 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:43 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:44 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:45 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:46 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:47 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:48 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:49 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:50 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:51 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:52 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:53 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:54 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:55 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:56 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:57 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:58 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:59 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:60 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:61 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:62 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:63 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:64 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:65 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

**51:66 Biomaterial Engineering seminar**

- Biomaterial Engineering seminar (0 s.h.)

P571: Spectroscopy Process 1.5 h

B571: Thermodynamics 1 h
Best models for the structure, property relationships of metals, polymers, ceramics, and complex inorganic materials. Interactions between materials and property structures. Prerequisites: P571, P572. Prerequisite: B571.

P573: Dynamics on Nanostere 1.5 h
Physics used to manipulate objects, and relate to nanomaterials. Property relationships and the use in opto- and opto-electronic performance. Prerequisites: P571, P572.

Chemical and Materials Engineering

Department chair: Gregory B. Carlucci
Faculty: professors Keith Bentley, James C. Cates, and the director of chemical and materials engineering.

Undergraduate Program

The Bachelor of Science in engineering education degree program prepares the student for work in design, supervision, development, or sales. The curriculum includes extensive training in chemistry, a sequence of mathematics courses, and the core engineering core courses, which provide a strong foundation. Undergraduate students have the opportunity to work with faculty, members and graduate students on current research topics.

Curriculum

Sophomore Year

Fall Semester

2M37 Engineering Calculus III 4 s.h.
17-18 Dynamics 3 s.h.
57:11 Introduction to Electrical Science 3 s.h.
57:15 Materials Science 3 s.h.
Humane or social science elective 3 s.h.
Total 16 s.h.

Second Semester

2M38 Differential Equations for Engineer 4 s.h.
57:12 Linear Systems Analysis 3 s.h.
57:20 Mechanics of Fluids and Transfer Processes 4 s.h.
52:41 Process Calculations 3 s.h.
28:91 Intermediate Engineering Physics I 3 s.h.
Total 17 s.h.

Junior Year

First Semester

4:131 Physical Chemistry I 3 s.h.
29:82 Intermediate Engineering Physics II 3 s.h.
57:21 Principles of Design I 3 s.h.
52:42 Design & Energy and Momentum Transfer 4 s.h.
57:18 Principles of Electronic Instrumentation 4 s.h.
52:91 Professional Seminar: Chemical Engineering 0 s.h.
Total 17 s.h.

Second Semester

4:132 Physical Chemistry II 3 s.h.
4:144 Physical Measurements 3 s.h.
52:43 Chemical Engineering Thermodynamics 3 s.h.
52:44 Mass Transfer Operations 3 s.h.
52:91 Professional Seminar: Chemical Engineering 0 s.h.
Total 16 s.h.

Senior Year

First Semester

4:121 Organic Chemistry I 3 s.h.
52:45 Chemical Reaction Kinetics 3 s.h.
52:85 Economics and Confinement 3 s.h.
52:47 Unit Operations Laboratory 2 s.h.
Humane or social science elective 3 s.h.
52:91 Professional Seminar: Chemical Engineering 0 s.h.
Total 14 s.h.

Second Semester

4:122 Organic Chemistry II 3 s.h.
4:145 Chemical Reaction Laboratory 3 s.h.
52:48 Unit Operations Laboratory 2 s.h.
52:86 Chemical Engineering Process Design 3 s.h.
Humane and social science elective 3 s.h.
52:91 Professional Seminar: Chemical Engineering 0 s.h.
Total 17 s.h.

The humanities and social science electives must be selected to satisfy the humanities and social science requirements of the College of Engineering.

Graduate Program

The Department of Chemical and Materials Engineering offers a major leading to the Master of Science and Doctor of Philosophy degrees. Through course work and research, graduate students gain an understanding of the principles of engineering science and then apply those principles to contemporary problems such as energy, environment, and materials. The emphasis is on research since the vast opportunities available for graduates are in research and development. About one-third of the courses is devoted to a research project, and a thesis is required for each degree. All candidates in advanced degree programs are required to assist faculty members in teaching or research as part of the graduate training.

Research is currently being carried out in air pollution; catalysis; diffusion; flow through porous media; membrane and bio-separation; fine particles, reaction kinetics, and transport phenomena. Many research projects are funded by external agencies such as National Science Foundation, EPA, NASA, and private industries. The following areas are described briefly below:

Air Pollution

The study of transport phenomena of atmospheric processes including the analysis and numerical modeling of chemically reactive flows and combined mass transfer systems is ongoing. This research may help assess regional pollutant control and energy utilization strategies.

Fine Particles

A group of professors and graduate students is engaged in research on materials in finely divided form such as dust, powders, and aerosols. The goals of this group are to describe mathematically the particle size and shape and then to relate these to the onset of the particle and their behavior. Potential applications include atmospheric pollution phenomena.
Chemical reactions, crushing and grinding, crystallization, grain dust explosions, storage and flow of granular solids, and analysis of machine wear.

Flow Through Porous Media
Knudsen flow and surface diffusion through various microsized media are being studied. Practical applications are in gas separations, catalysts, and solar refrigeration.

Kinetics, Catalysis, and Reaction Engineering
Hybrid multiphase catalysts are being investigated which combine the advantages of homogeneous and heterogeneous catalysts. Other topics of current interest include fluidized bed reactions, transport in porous media, diffusion and reaction in arbitrarily shaped particles, design of novel systems for simultaneous reaction and separation, and parameter estimation by dynamic response of heterogeneous reactors.

Separation Processes
The purpose of this research is the design, development, and optimization of separation processes. Particular emphasis is placed on methods that can achieve separations when conventional methods fail. Current research is focused on novel membrane, electrophoresis, and chromatography processes for use in biotechnology and chemical industries.

Master of Science
A thesis and a minimum of 30 semester hours of graduate work are required, including at least 24 semester hours completed in residence at The University of Iowa. Work completed in Summer and Winter quarters, as residence credit may not exceed eight semester hours.

However, six semester hours may be completed in residence at another recognized graduate college or by Correspondence Study at The University of Iowa.

The minimum course work requirement is 24 semester hours (eight courses), and the remaining 12 semester hours may be devoted to research. To be eligible for the M.S. degree, the student is expected to maintain a minimum grade point average of 3.0. Each M.S. degree candidate must defend his or her thesis at the final oral examination. Although it is possible to obtain an M.S. degree within one year, many students spend three to four semesters to complete the requirements.

Doctor of Philosophy
The Ph.D. degree is granted primarily on the basis of achievement rather than on the accumulation of semester hours of credit. However, the candidate is normally expected to have completed three academic years of residence, or two years if he or she already holds a recognized master's degree. In any case, the degree candidate is required to have completed at least 72 semester hours of graduate credit.

A Ph.D. candidate is expected to maintain a minimum grade point average of 3.5.

All doctoral students are required to pass a written and oral comprehensive examination prior to candidacy for the degree. The Ph.D. comprehensive examination may be a special design project, or at the discretion of the examining committee, it may consist of a written examination covering graduate work. These examinations are supervised by members of the examining committee. The examinations may be repeated. The rules for the comprehensive examination may be found in the manual of the Graduate College. There is no foreign language requirement. A final examination, which is a defense of the thesis, completes the doctoral program.

Graduate Admission Requirements
Full admission to graduate study in this program is granted to students having a B.S. degree in chemical engineering with satisfactory grades from a recognized American college or university. Graduates from foreign universities are also accepted, depending on an evaluation of their records. For the M.S. program, a grade-point average of at least 3.5 is required. For the Ph.D. program, the minimum grade-point average is 3.0 based on 12 or more semester hours of graduate work or 2.7 based on the entire record of college work if the student has less than 12 semester hours of graduate work.

The final oral examination may be granted if the above requirements are not fulfilled and approval is obtained from the chair of the chemical and materials engineering program. A grade-point average of at least 2.3 is required for conditional admission. Also, applicants should take the verbal, quantitative, and advanced parts of the Graduate Record Examination (GRE) Aptitude Test, and scores of 500 should be submitted with the application.

Graduate courses in chemical and materials engineering are designated for the student who has an undergraduate background in chemical engineering or the materials area. However, exceptional students from other areas also may apply for admission to the M.S. or even the Ph.D. program in chemical and materials engineering. Such a student needs to take certain undergraduate courses at UI so as to allow him or her to perform in the graduate courses with minimum difficulty. Since these undergraduate courses are in the nature of prerequisite courses, they do not carry credit toward a graduate degree.

Financial Assistance
A number of fellowships, assistantships, and scholarships are available to graduate students who qualify. These are awarded on a competitive basis.

Special Facilities and Laboratories
Undergraduate Instruction
Engineering Core
Materials Science Laboratory
This is equipped with optical microscopes and facilities for metallographic preparation including a darkroom. Mechanical testing instruments and hardness testing machines are also available. Heat treatment and sintering furnaces are made available in a nearby laboratory. Teaching aids include metallography specimen kits, dislocation in LiF kits, and crystallography packages.

Required Course Laboratories
Unit Operations Laboratory
This is primarily an instructional laboratory for senior undergraduate students and involves experimentation in important phenomena, heat transfer, fluid flow, chemical engineering unit operations, and reaction kinetics and catalysis. The laboratory includes pilot plant equipment such as classification column interfaced with a microprocessor, film evaporator, shell-and-tube heat exchanger, packed column for gas absorption, paste-and-plate filter press, agitation agitator, and a cabinet dryer. Other equipment includes stirred-tank reactors, packed-bed reactor, centrifugal pump, gas chromatograph, refractometer, mixing unit, and a variety of instrumentation for measuring flow, pressure, temperature, and weight, etc. A small shop is also available to students for use under the supervision of a technician.

Chemical Engineering Laboratory
In this laboratory there is equipment for measuring and controlling process variables such as flow, level, and temperature. Equipment includes an analog computer, data chart recorders, two microcomputers, and pneumatic process controllers. The laboratory also makes use of remote computer terminals for simulating control systems.

Graduate Facilities and Laboratories
Reaction Engineering Laboratory
A laboratory for graduate research in the area of heterogeneous catalysis, gas-solid reactions, and multiphase reactors. At present the laboratory contains a complete Beryllium reactor unit suitable for catalytic studies at high temperature and pressures. It is
Environmental Engineering and Science

The environmental engineering curriculum has two basic streams, one engineering and the other applied science. The curriculum maintains a heavy emphasis on interdisciplinary research and academic activities with other programs and colleges on campus, including the Institute of Hydraulic Research, the Institute of Agricultural Medicine and Environmental Sciences, the College of Business, Law, and Liberal Arts. Course work and research permit a general program of study or specialization in one of three areas: water quality management, air quality management, or solid waste management.

Hydraulics and Water Resources

The hydraulics and water resources curricula are associated with the Civil and Environmental Engineering and the Institute of Hydraulic Research, whose faculty is world-renowned. The senior staff members of the institute and professors in the program and devote about half-time to teaching. The institute offers unique opportunities for students to participate actively in 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 water resources curriculum also has ties to the Institute of Economic Research, the Institute of Urban and Regional Research, and the colleges of Business, Law, and Liberal Arts.

Structures, Mechanics, and Materials

The structures, mechanics, and materials curricula are associated with the Civil and Environmental Engineering, which offers courses in design, analysis, research, or a combination of these. Special emphasis exist in the areas of time-dependent behavior of reinforced and prestressed concrete structures, optimal design of structural systems, computer aided design, solid modeling, and constitutive equations for metals and geotechnical materials. Course work and research in structural analysis, structural design, soil mechanics, and foundations, optimal design, and mechanics of materials are available.

Transportation

The transportation curriculum includes work in planning, design, construction, and management of highway systems and facilities. A cooperative relationship exists with the civil engineering program in urban transportation offered by the Center for Transportation Studies (see "Transportation Studies").

Master of Science

The Master of Science programs in civil and environmental engineering are designed to permit further concentration in the area or areas of the student's choice. Graduates are placed in advanced technical positions in industry, consulting firms, or government, or they may continue their graduate study. Current and projected demand for M.S. graduates is excellent.

In general, the plan of study, with or without thesis, must include a minimum of 30 semester hours credit, with not more than six semester hours of credit allowed for any thesis. An additional six semester hours are required for the thesis-based environmental engineering curriculum.

Each student, with the approval of his or her advisor, develops a plan of study which satisfies special requirements of the curriculum chosen by the student.

All candidates for the degree are expected to have a minimum grade-point average of 3.0 and are required to pass written and oral examinations.

Doctor of Philosophy

The doctoral degree is granted primarily on the basis of achievement, rather than on a prescribed course of study. Requirements as to semester hours of course work vary somewhat among the various areas of specialty. The candidate will normally 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 which contributes to knowledge in the field. In some specialty areas, qualifying examination is required during the second semester for students who have not earned an M.S. in one of the many graduate programs in engineering.

All doctoral students are required to pass a written and oral comprehensive examination prior to formal admission to candidacy for the degree. This examination is normally taken when substantially all of the student's course work has been completed.

The program culminates in a final examination, in which the candidate must successfully defend his or her dissertation.

Doctoral candidates are expected to maintain a grade-point average of 3.2 throughout the doctoral program.

The program also cooperates in interdisciplinary doctoral programs with the program in Applied Mathematical Sciences (see the "Division of Applied Mathematical Sciences" section in "Liberal Arts").

Graduate Admission Requirements

Each curriculum of the program is quite flexible, and students may be admitted from all disciplines of engineering as well as from the mathematical and geologic sciences.

An applicant for the master's degree program is expected to have a cumulative undergraduate grade-point average of at least 2.5; initially, 3.0 is preferred.

For admission to candidacy for the doctorate, the minimum grade-point average is 3.2 based upon previous graduate work. Applicants whose grade-point averages are slightly lower are invited to correspond regarding admission eligibility.

All applicants must meet the general admission requirements of the Graduate College (see "Graduate College").

Financial Assistance

A significant number of research assistantships are available on a variety of research projects as are a limited number of teaching assistantships. Selection of recipients is based on scholastic achievement and research interest.

Special Facilities and Laboratories

Undergraduate Instruction Engineering Core

57-2 Principles of Design I

In this course, students use the computer-aided design (CAD) software to design the undersea vehicles used in the Future Oceanic Environment Laboratory which is described under "College Facilities.

For information about laboratories affiliated with one of these programs as managed by other departments, see the "College Facilities" section of this document.

Required and Elective Course Laboratorizes

53-30 Soil Mechanics

The soils laboratory is equipped for determining the classification, shear strength characteristics, stress-strain properties, and strength of soils.

53-150 Principles of Environmental Engineering

The Environmental Laboratory and the Environmental Laboratory Water Treatment Plant are used in training and research on unit operations and processes of water treatment and concepts in environmental chemistry and microbiology.

53-153 Environmental Chemistry Laboratory

The laboratory for environmental chemistry is a part of the Environmental Laboratory. Standard water and wastewater quality tests are conducted in bench and scale unit processes are operated and analyzed.

53-155 limnology

The laboratory for limnology is a part of the hydrology laboratory. Typical aquatic organisms are studied in the laboratory and several field exercises are conducted on streams and lakes in the area.
Graduate Program

Electrical and computer engineering offers curriculums leading to the Master of Science and Doctor of Philosophy degrees. Thesis and non-thesis M.S. programs are available, and either may precede Ph.D. studies. Excellence in scholarship and research is stimulated through close contact with the faculty throughout the period of graduate study and through programs tailored to fit individual needs.

Each student selects an adviser and, with the adviser, plans an individual program, bounded only by a few broad guidelines imposed by the Graduate College and by the program. Close interaction and co-operation between departments exist both within and outside the college, especially in aeronautical engineering, mathematics, physics, computer science, and biomedical engineering. The principles of concentration are areas of interest and special fields of investigation. These topics include plasma physics, acoustics, and aeronautical engineering. Each student selects an adviser and, with the adviser, plans an individual program, bounded only by a few broad guidelines imposed by the Graduate College and by the program. Close interaction and co-operation between departments exist both within and outside the college, especially in aeronautical engineering, mathematics, physics, computer science, and biomedical engineering. The principles of concentration are areas of interest and special fields of investigation. These topics include plasma physics, acoustics, and aeronautical engineering.

Waves and Materials

Plasma physics, electro-optics, and acoustics investigations utilize specialized laboratories in both the Physics and Astronomy and Electrical and Computer Engineering. Collaborative research with the physics department is directed toward topics in nonlinear plasma physics of a theoretical and experimental nature. These topics include plasma confinement and stability, and non-linear wave phenomena such as solitons and shocks. A plasma physics laboratory is available to support this activity. An electro-optic laser laboratory and an ultrasonic facility are used to conduct graduate research in the areas of optical/acoustics, especially electro-optics, surface acoustic waves, and nonlinear wave phenomena in ultrasonic materials. A microelectronics laboratory is a valuable adjunct to this activity. Topics of interest include acousto-optic interactions, ultrasonic solitons, parametric phenomena, electro-optic signal processing, and SAW devices.

Computer Systems

Research emphasis is directed toward highly reliable and distributed computing. Areas of interest include fault-tolerant computing, distributed systems, coding theory, and VLSI design. The work is supported by the availability of a computer network laboratory, and by computer facilities and VLSI design software. Current projects include design of high-performance computing systems, design of high-performance computer networks, fault diagnosis in multi-queue systems, and design of easily testable very large scale integrated circuits. Close ties with the Department of Computer Science are maintained.

Signal and Image-Processing

Cardiovascular signal and image processing, signal processing associated with speech and hearing, estimation theory, and adaptive signal processing are currently active areas. Collaborative efforts involve biomedical engineering, physiology, and the College of Medicine. A digital signal processing laboratory, and a new cardiovascular image processing laboratory, the latter located at the cardiovascular center in the University Health Center, are available to support this research. Recent problems include image signal processing, detection of cardiac motion, recognition and spectral analysis of sound, detection of I.E.D. anomalies in victims of near-death, and surgical or medical techniques in ultrasonic processing of images in cardiac cavities.

Statistical and Computer-Based Control Systems

Current research emphasizes optimal control, learning and adaptive control, control-repairing systems, and optimal control, and robotics. Work is also being done in estimation, identification, and control for linear dynamic systems and in control systems research laboratories. This research supports this effort. Topics include applications of stochastic processes to problems in control and communication systems such as spectral estimation, localization, and control for stochastic dynamical systems.

Master of Science

There are two M.S. degree options, an M.S. with thesis and an M.S. without thesis. The thesis option requires 30 semester hours of course work including at least 12 semester hours in electrical and computer engineering courses. The thesis option requires 30 semester hours of course work with a minimum of the 12 semester hours in electrical and computer engineering courses. The M.S. thesis hour requirements do not include courses required for electrical engineering undergraduates. With thesis, up to eight semester hours of the 30 semester hours may be research credit. Without thesis, at least three semester hours of 551/18 Individual Investigations: Electrical and Computer Engineering are required in addition to the 12 semester hours in electrical and computer engineering. This independent study is to be a special project completed under the supervision of the student's advisor.

The candidate for the master's degree in electrical and computer engineering must also successfully complete a final examination which is conducted by a committee of at least three faculty members, of which the adviser is chair. One part of the final examination is to consist of an oral defense of the thesis. For these candidates, or of the materials in 551/18 Individual Investigations: Electrical and Computer Engineering, for nonthesis candidates. At the time of graduation, the candidate for the master's degree must have acquired a baccalaureate grade-point average of 3.00 or higher.

Doctor of Philosophy

Requirements are

Selection of a program advisor and filing of a tentative plan of study with the program during the first year.

At least 72 semester hours of credit in a program acceptable to the advisor and an examination committee, with at least 45 semester hours of credit earned in formal courses, including 30 semester hours 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 project.

Successful completion of a final oral defense of the thesis, and a cumulative grade-point average of 3.25 or higher.

The Ph.D. qualifier examination, taken just after the student has completed 30 semester hours of graduate work, is an oral examination and requires the student to solve problems from our out of open-ended areas plus one individual area. The qualifier examination has two purposes: to eliminate at a very early point students who are not qualified to pursue Ph.D. studies, and to inform the student of the general area of study. After this examination is passed, the student's advisor and the college committee has primary responsibility for the design of the dissertation plan of study. The qualifier examination is given twice a year, and the student has two chances to pass it. A comprehensive examination includes a dissertation proposal, which is submitted within three calendar years of the qualifier, and the program ends with a final oral thesis defense.
Graduate Admission Requirements

The normal requirement for admission to the graduate program is a grade point average of 2.7 grade-point average on all courses in electrical and computer engineering, mathematics, and physics for M.S. students, 3.0 for Ph.D. Students. A U.S. student with a grade point average less than 2.7 but better than 2.5 in courses in electrical and computer engineering, mathematics, and physics may be admitted in such cases, additional course work without graduate credit may be required. Each application is reviewed on an individual basis. Exemptions and waivers of prerequisites from the normal standards.

Financial Aid Assistance

A number of fellowships, traineeships, assistantships, scholarships, and industrial grants are available to graduate students who qualify. These awards are on a competitive basis.

Special Facilities and Laboratories

Undergraduate Instruction

Engineering Core

Electrical and computer engineering provides core instruction for the college in systems, electrical, and electronics. A key part of this core consists of laboratories in the Electrical and Engineering Instrumentation Laboratory, which provide students with the facilities where they can experience hands-on learning with the equipment in the engineering educational environment. The laboratories are equipped with oscilloscopes, signal generators, analog and digital measuring equipment, and a variety of measuring instrumentation.

Required and Elective Course Laboratories

The undergraduate laboratories consist of the traditional electronics laboratories as well as specialized laboratories for microelectronics, microprocessors, and construction of hybrid solid state devices.

Graduate Facilities and Laboratories

The department has a microcomputer system in the computer engineering laboratory which contains two PDP 11/34 microcomputers. The computer laboratory is a multi-user operating system, and the other single-user facility. Analogy equipment in this laboratory consists of 510 disk drive, 11 magnetic tape drives, 10 asynchronous communications ports, analog to digital and digital to analog converters, RAMTEX color image display system, a TV camera, video digitizer, and digitizing board.

A second department microcomputer system consists of two VAX 11/750 microcomputers, each equipped with a large disk drive and fast flash point accelerometer, and linked together with Ethernet.

Courses

Special Courses

Using computer Electronic Teaching Exercise: Qualifying Engineering scientific computing, students participating in the Computer Engineering Program will choose courses from the user-defined program that is the student's program of study. Prerequisite laboratory: 91.32 and 91.33.

Principles of Electrical Engineering I

Several design problems in electrical engineering are designed with emphasis on the theoretical and practical aspects of integrated circuit design. The objectives of this course are to develop an understanding of the design of integrated circuits, several design techniques and digital electronics, and to develop an understanding of the design of digital systems. Prerequisite: 21.31 and 21.33.

Principles of Electrical Engineering II

A design course dealing with the design of circuits, after which advanced students will be exposed to the design of integrated circuits. The course is offered in separate sections for advanced students. Prerequisites: 21.53 and 21.63.

Principles of Electrical Engineering III


Principles of Electrical Engineering IV

Principles of Electrical Engineering IV is a required course for all students. Requires demonstration of the microcomputer project and a final engineering report. Coursework: 21.85. Prerequisite: computer science. Conclusion: 21.55, 21.65, and 21.75. Prerequisite: 21.44.

Principles of Electrical Engineering V


Principles of Electrical Engineering VI

Principles of Electrical Engineering VI is a required course for all students. Requires demonstration of the microcomputer project and a final engineering report. Coursework: 21.85. Prerequisite: computer science. Conclusion: 21.55, 21.65, and 21.75. Prerequisite: 21.44.

Principles of Electrical Engineering VII


Principles of Electrical Engineering VIII


Digital Systems and Computers

Introduction to Computer in Electronic Engineering

Introduction to computer science fundamentals of computer organization, machine language, programming, assembler and assembly language programming, assembly language for programming, and programming in assembly language.Prerequisites: 21.44 and computer science. Conclusion: 21.55, 21.65, and 21.75. Prerequisite: 21.44.

Introduction to Digital Design

Introduction to digital design and digital electronics. The course covers digital design techniques, digital logic circuit design, system control, and digital logic design. Techniques include Boolean algebra and state diagrams. Lab offered. Prerequisites: 21.55 and 21.65 or 220C or 220C.

Introduction to Software Design

An introduction to PASCAL programming language algorithms. The course covers an introduction to computer programming, data structures, and data abstraction. Lab offered. Prerequisites: 21.55 and 21.65 or 220C or 220C.

Switching Theory

It is the purpose of this course to introduce the student to the design of digital systems. The course covers the basic techniques of logic design, digital system design, and digital system design. Lab offered. Prerequisites: 21.55 and 21.65 or 220C or 220C.

Computer and System Organization, engineering, electronics, and automatic design. Prerequisites: 21.55 and 21.65 or 220C or 220C.

Signal Processing

Digital Electronics

Introduction to digital systems. This course is an introduction to digital systems. The course covers digital logic circuit design, system control, and digital logic design. Techniques include Boolean algebra and state diagrams. Lab offered. Prerequisites: 21.55 and 21.65 or 220C or 220C.

Analog and Linear Integrated Circuits

Principles of integrated digital and analog integrated circuits. The course covers digital logic circuit design, system control, and digital logic design. Techniques include Boolean algebra and state diagrams. Lab offered. Prerequisites: 21.55 and 21.65 or 220C or 220C.

Principles of Digital Logic Design

Principles of digital logic design. The course covers digital logic circuit design, system control, and digital logic design. Techniques include Boolean algebra and state diagrams. Lab offered. Prerequisites: 21.55 and 21.65 or 220C or 220C.

Introduction to VLSI Design

Introduction to VLSI design. The course covers the design of digital systems. The course covers the design of digital systems. Lab offered. Prerequisites: 21.55 and 21.65 or 220C or 220C.

Principles of Digital Signal Processing

Principles of digital signal processing. The course covers the design of digital systems. The course covers the design of digital systems. Lab offered. Prerequisites: 21.55 and 21.65 or 220C or 220C.

Principles of Digital Logic Design

Principles of digital logic design. The course covers digital logic circuit design, system control, and digital logic design. Techniques include Boolean algebra and state diagrams. Lab offered. Prerequisites: 21.55 and 21.65 or 220C or 220C.

Principles of Digital Logic Design

Principles of digital logic design. The course covers digital logic circuit design, system control, and digital logic design. Techniques include Boolean algebra and state diagrams. Lab offered. Prerequisites: 21.55 and 21.65 or 220C or 220C.
Communications
56:06 Communication Systems
56:17 Undergraduate digital signal representation, processing with logic systems and filters, amplifiers, frequency and audio-visual performance, the presence of noise, digital communication, Prerequisites: 259:13 and 57:06.
56:18 Communication Theory
56:19 Digital communications, information theory and modulation, antennas and energy, digital communication noise and error correction, Prerequisites: 288:14, 35:17, and 57:06.
56:21 Statistical Communication Theory
56:21 Representation of signals, signal processing, elementary theory of noise and interferometry, Prerequisites: 288:14, 259:13, and 57:06.
56:25 Introduction to Information and Coding
56:25 Quantitative measurements of information; sources and channels, error detection, control methods; data transmission, information theory, Prerequisites: 56:20 and 259:13.
56:26 Controls
56:26 Control Systems
56:26 Introduction to linear feedback control systems, transfer function, time and frequency domain analysis of system characteristics and stability, Prerequisites: 259:13 and 57:06.
56:30 Control Theory
56:31 Feedback concepts, systems, and control; design and analysis, computer systems, control components, Prerequisites: 56:26.
56:32 Advanced Control Theory
56:32 Nonlinear control stability, optimization techniques, nonlinear methods, design and analysis of control systems, Prerequisites: 56:31.
56:33 Random Process in Control and Engineering
56:33 Basic concepts of probability and random variables, some basic probability distributions, random processes, spectral analysis, analysis of random processes in linear systems, digital signal processing, applications in systems analysis, Prerequisites: 259:29, 35:17, and 57:06.
56:34 Computer-Based Control Systems
56:34 Feedback and systems, design and analysis of digital control systems, review of real and imaginary, control systems, programming for real-time digital control, some examples of optimal and adaptive control, filtering and identification, Prerequisites: 56:32 and 56:33.
56:35 Digital Control Systems
56:35 Introduction to the digital control systems, design and analysis of digital control systems, theory and implementation, experience in computer control systems design, Prerequisites: 56:34.
56:36 Power System Analysis
56:36 All fundamental aspects of power systems, transmission, loadability and stability, economic operation, power synthesis, component design and operation, analysis of time and frequency domain, Prerequisites: 56:35.
56:38 Optical Control
56:38 Theory of optimal control, existence of optimal control, sufficient conditions for an optimal control, side constraints, and inequality, variational methods, Prerequisites: 56:19 and 57:06.
56:39 Electromechanical Control Systems
56:39 Design of electromechanical systems, analysis and design of components for mechanical systems, limit switching, control of motion, design of systems with mechanical components, Prerequisites: 56:19 and 57:06.
56:40 Waves and Materials
56:40 Electromagnetic Theory
56:40 Waves and materials, Maxwell's equations, Maxwell's equations, propagation, application including oscillation, Prerequisites: linear and circular theory, Prerequisites: 259:13 and 57:06.
56:50 Electromagnetic Materials and Devices
56:50 Introduction to the propagation of electromagnetic waves, design of antennas, design of waveguides, design of filters, Prerequisites: 56:40 and 57:06.
56:55 Statics and Dynamics of Electrical Systems
56:55 Principles of statics and dynamics of electrical systems, properties of linear systems, Prerequisites: 56:40 and 57:06.
57:01 Linear and Non-Linear Waves
57:01 Introduction to wave propagation in linear systems, properties of waves, propagation, mathematical, wave theory, computer applications in waves, Prerequisites: 56:40 and 57:06.
57:03 Control Theory
57:03 Control Theory, digital and nonlinear systems, Prerequisites: 56:40 and 57:06.
57:04 Modern Wave Optics
57:04 Modern Wave Optics, treated in a series, Prerequisites: 56:40 and 57:06.
57:06 Electro Optics
57:06 Electro Optics, treated in a series, Prerequisites: 56:40 and 57:06.
57:08 Graduate Seminar, Advanced Topics, and Research
57:08 Graduate Seminar, Advanced Topics, and Research, Prerequisites: 56:40 and 57:06.
57:10 Readings in Electromagnetic and Computer Engineering
57:10 Readings in Electromagnetic and Computer Engineering, Prerequisites: 56:40 and 57:06.
57:13 Contemporary Topics in Electrical and Computer Engineering
57:13 Contemporary Topics in Electrical and Computer Engineering, Prerequisites: 56:40 and 57:06.
57:21 Special Problems Electrical and
57:21 Special Problems Electrical and Computer Engineering, Prerequisites: 56:40 and 57:06.
57:22 Special Projects Electrical and
57:22 Special Projects Electrical and Computer Engineering, Prerequisites: 56:40 and 57:06.
57:23 Senior Thesis
57:23 Senior Thesis, Prerequisites: 57:06.
57:24 Graduate Seminar, Advanced Topics, and Research
57:24 Graduate Seminar, Advanced Topics, and Research, Prerequisites: 56:40 and 57:06.
57:25 Readings in Electromagnetic and Computer Engineering
57:25 Readings in Electromagnetic and Computer Engineering, Prerequisites: 56:40 and 57:06.
57:28 Special Problems Electrical and
57:28 Special Problems Electrical and Computer Engineering, Prerequisites: 56:40 and 57:06.
57:29 Special Projects Electrical and
57:29 Special Projects Electrical and Computer Engineering, Prerequisites: 56:40 and 57:06.
57:30 Senior Thesis
57:30 Senior Thesis, Prerequisites: 57:06.
57:31 Graduate Seminar, Advanced Topics, and Research
57:31 Graduate Seminar, Advanced Topics, and Research, Prerequisites: 56:40 and 57:06.
57:34 Readings in Electromagnetic and Computer Engineering
57:34 Readings in Electromagnetic and Computer Engineering, Prerequisites: 56:40 and 57:06.
57:37 Special Problems Electrical and
57:37 Special Problems Electrical and Computer Engineering, Prerequisites: 56:40 and 57:06.
57:38 Special Projects Electrical and
57:38 Special Projects Electrical and Computer Engineering, Prerequisites: 56:40 and 57:06.
57:39 Senior Thesis
57:39 Senior Thesis, Prerequisites: 57:06.
57:44 Engineering
57:44 Engineering, Prerequisites: 56:40 and 57:06.
57:45 Master's Thesis
57:45 Master's Thesis, Prerequisites: 56:40 and 57:06.
57:46 Doctoral Thesis
57:46 Doctoral Thesis, Prerequisites: 56:40 and 57:06.
57:47 Readings in Electromagnetic and Computer Engineering
57:47 Readings in Electromagnetic and Computer Engineering, Prerequisites: 56:40 and 57:06.
57:48 Special Problems Electrical and
57:48 Special Problems Electrical and Computer Engineering, Prerequisites: 56:40 and 57:06.
57:49 Special Projects Electrical and
57:49 Special Projects Electrical and Computer Engineering, Prerequisites: 56:40 and 57:06.
57:50 Senior Thesis
57:50 Senior Thesis, Prerequisites: 57:06.
57:51 Graduate Seminar, Advanced Topics, and Research
57:51 Graduate Seminar, Advanced Topics, and Research, Prerequisites: 56:40 and 57:06.
57:54 Readings in Electromagnetic and Computer Engineering
57:54 Readings in Electromagnetic and Computer Engineering, Prerequisites: 56:40 and 57:06.
57:57 Special Problems Electrical and
57:57 Special Problems Electrical and Computer Engineering, Prerequisites: 56:40 and 57:06.
57:58 Special Projects Electrical and
57:58 Special Projects Electrical and Computer Engineering, Prerequisites: 56:40 and 57:06.
57:59 Senior Thesis
57:59 Senior Thesis, Prerequisites: 57:06.

Engineering
Degree Options: B.S.E. without degree in a major.

The increasing emphasis on interdisciplinary and non-traditional career objectives in engineering emphasizes the desirability of having available a degree program which combines a strong background in engineering fundamentals with the flexibility of choosing a major elective sequence that can satisfy specific educational goals of individual students. The primary objective of the engineering program is to provide such an option for those students whose goals cannot be achieved within the framework of the traditional degree programs.

The engineering program provides the opportunity for students to develop an individually tailored course of study. Moreover, a proper balance between breadth and depth must be maintained in order to result in a well-rounded education. To accomplish this, the curriculum contains core courses of sufficient breadth and depth to guarantee an excellent background in engineering fundamentals. The remainder of the program consists of a guided elective sequence.

The major portion of the elective program is to be scheduled for the final three semesters and coasts from principles acquired in the engineering core courses. In consultation with an advisor, the student's elective sequence is planned to achieve a coordinated program which satisfies the specific objectives of the student. The sequence is selected not later than the fifth semester of study and must be approved by the student's committee. The committee is also responsible for monitoring the progress of all students in the program and offering suggestions and advice as required.

Joint Program with Urban and Regional Planning
A cooperative program between Engineering and Urban and Regional Planning is available for students who are interested in multidisciplinary positions in the public sector. Those positions would usually require a broad background of both urban and engineering policy analyst courses. Examples of positions for which a background of this type would be advantageous are public works departments and engineers. But the students, and the study plans and objectives. For more information see "Urban and Regional Planning" in the "Libra Arts" section of the Catalog.
<table>
<thead>
<tr>
<th>Curriculum</th>
<th>Sophomore Year</th>
<th>Industrial and Management Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sophomore Year</strong></td>
<td>First Semester</td>
<td><strong>First Semester</strong></td>
</tr>
<tr>
<td>22M:37 Engineering Calculus III</td>
<td>4 s.h.</td>
<td>57:10-Dynamics</td>
</tr>
<tr>
<td>57:16 Thermodynamics I</td>
<td>4 s.h.</td>
<td>57:11 Introduction to Electrical Science</td>
</tr>
<tr>
<td>57:11 Introduction to Electrical Science</td>
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<td>57:14 Management Engineering</td>
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<tr>
<td>57:15 Materials Science</td>
<td>3 s.h.</td>
<td>57:15 Materials Science I</td>
</tr>
<tr>
<td>57:10 Dynamics</td>
<td>3 s.h.</td>
<td>22M:37 Engineering Calculus III</td>
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<td>Total</td>
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</tr>
<tr>
<td><strong>Second Semester</strong></td>
<td>22M:38 Differential Equations for Engineers</td>
<td></td>
</tr>
<tr>
<td>57:12 Linear Systems Analysis</td>
<td>4 s.h.</td>
<td></td>
</tr>
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<td></td>
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<tr>
<td>57:18 Principles of Electronic Instrumentation</td>
<td>4 s.h.</td>
<td></td>
</tr>
<tr>
<td>29:31 Intermediate Engineering Physics I</td>
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<td>Total</td>
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<tr>
<td><strong>Junior Year</strong></td>
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</tr>
<tr>
<td>First Semester</td>
<td>225:39 Probability and Statistics for Engineering and Physical Sciences</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>29:82 Intermediate Engineering Physics II</td>
<td>3 s.h.</td>
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<tr>
<td>57:20 Mechanics of Fluids and Transfer Processes</td>
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<td>57:21 Principles of Design I</td>
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<td><strong>Second Semester</strong></td>
<td>29:83 Thermodynamics</td>
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<td>57:22 Principles of Design II</td>
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<td>57:14 Management Engineering science</td>
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<tr>
<td><strong>Senior Year</strong></td>
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<td>Design course</td>
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<td>Second Semester</td>
<td>Design course</td>
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<td>Technical electives</td>
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<tr>
<td>Total</td>
<td>15 s.h.</td>
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</tbody>
</table>

The humanities and social science electives must be selected to satisfy the humanities and social science requirements of the College of Engineering.

**Industrial and Management Engineering**

Program chair: J. H. Buck


Requirements: 1. Each student must complete the following courses: 2. The student must complete a minimum of 100 hours of technical elective work.

Degree offered: B.S., B.Eng.

Industrial and management engineering is concerned with the design, development, and implementation of systems involving the optimal use of resources-human, material, energy, information, and finance. This involves the design of systems that range from small subsystems to extremely large systems, including the most complex and varied technologies. The student is encouraged to pursue a major in an area of interest.

**Undergraduate Program**

The undergraduate curriculum in industrial engineering requires a strong foundation in engineering science, mathematics, economics, and social sciences. This curriculum is designed to provide students with the knowledge and skills necessary for success in the industrial engineering field. The curriculum is divided into three main parts: general education, engineering science, and industrial engineering.

**Curriculum**

**Sophomore Year**

<table>
<thead>
<tr>
<th><strong>First Semester</strong></th>
<th>22M:37 Engineering Calculus III</th>
<th>4 s.h.</th>
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<td></td>
<td>57:10 Dynamics</td>
<td>3 s.h.</td>
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**Industrial and Management Engineering**

Program chair: J. H. Buck


Requirements: 1. Each student must complete the following courses: 2. The student must complete a minimum of 100 hours of technical elective work.

Degree offered: B.S., B.Eng.
**Technical elective** 6 s.h.
Total 16 s.h.

The economics elective may be selected from:

6E: 100 Price, Employment, and Production Theory 3 s.h.
6E: 103 Microeconomics 3 s.h.
6E: 111 Labor Economics 3 s.h.
6E: 173 Managerial Economics 3 s.h.

The basic or engineering science elective may be selected from:

57: 19 Mechanics of Deformable Bodies 3 s.h.
57: 20 Mechanics of Fluids and Transfer Processes 4 s.h.
29: 83 Modern Physics 3 s.h.
A biological science course 3 s.h.

*Strongly recommended social science electives.*

The humanities and social science electives must be selected to satisfy the requirements of the College of Engineering.

**Technical electives.** At least 9 or 12 hours are to be selected from the following list. The final three semester hours are to be chosen with the approval of the academic advisor.

56: 143 Advanced Human Factors Engineering 3 s.h.
56: 148 Advanced Managerial Psychology 3 s.h.
56: 151 Microcomputer Applications 3 s.h.
56: 153 Engineering Administration I 3 s.h.
56: 155 Quantitative Investment Practice 3 s.h.
56: 156 Engineering Economic Decisions 3 s.h.
56: 164 Reliability Theory and Practice 3 s.h.
56: 166 Production Systems 3 s.h.
56: 173 Stochastic Operations Research 3 s.h.
56: 176 Regression Analysis 3 s.h.
56: 178 Digital Systems Simulation I 3 s.h.
56: 198 Investigations in Industrial Engineering arr.
56: 195 Contemporary Topics in Industrial and Management Engineering arr.

**Graduate Program**

Graduate programs in industrial and management engineering are tailored to meet the needs of the individual. Each student's program of study will be based on his or her background, career objectives, and sound academic practice. The program is highly flexible; the goal is academic excellence.

There are four principal areas of academic focus in the graduate program in industrial and management engineering: Human factors engineering/ergonomics, information and engineering management, production and quality management, and operations research and applied statistics. Human factors studies concentrate on applying the psychological, physiological, and sociological sciences to problems in manufacturing and service systems. These problems concern fitting the jobs and the organization to the people who perform those jobs within the organization as well as managing the motivating people. Courses in the 40 series cover these topics. Information and engineering management studies concentrate on computerized information systems, software design, administration, and engineering economics as covered by courses in the 50 series. The production and quality management area consists of facilities design, quality assurance, reliability, and production control. This area of concentration is covered by courses in the 60 series. Studies in operations research and applied statistics concentrate on mathematical programming, heuristic optimization, statistical analysis, and digital systems simulation. Courses in the 70 series cover these topics. Many graduate students tend to focus on one of these specialty areas, while others distribute their studies over two or even all four areas.

Students in the graduate program participate in research in the areas of their academic concentration. Current research in human factors engineering/ergonomics consists of investigations into the effects of visual and auditory information on human information processing, performance time statistics with cognitive loads, and the effects of visual information on human performance. Other ergonomic research is directed to use computer simulation to solve human workload problems. Industrial inspection, computer-aided systems problem solving, and techniques of ergonomic data collection and analysis. Some current research in information and engineering management consists of facilities design, quality assurance, resource allocation, economics of parallel processing, entrepreneurship, governmental redistricting, methods of identifying accident causes through incidence data, and economic risk analysis. Production and quality management research is currently focused on computer-aided layout and scheduling, material handling systems, flexible manufacturing systems, numerically controlled process paths, and inventory record accuracy-assurance procedures. On-going research in operations research and applied statistics is centered in optimization, improvements in robust regression, computer simulation and random number generation, and the development of programming techniques for discriminant classification problems. Other research is directed toward extending the capabilities of computer graphics.

**Master of Science**

Two M.S. programs are available—a thesis and a nonthesis program. Students considering eventual admission to a Ph.D. program are strongly advised to select the thesis option. The M.S. thesis option requires a minimum of 30 semester hours of coursework of 100 level or 200 level courses, including at most eight semester hours of research. Those students who elect the nonthesis option are required to complete a minimum of 36 semester hours of course work at the 100 or 200 level, including at least nine semester hours at either the 200 level or at the 100 level with the designation "advanced" or "contemporary topics" in the course title. A tentative plan of study for each student is determined through consultation with his or her advisor; the final plan of study is reviewed by the student's examining committee. Approval of the student's industrial and management engineering program chair, and the Graduate College dean.

Enrolling students in all programs will need a background in computer programming, probability, statistics, and mathematics equivalent to that required in accredited undergraduate engineering programs. Both verbal and written skills in the English language are essential. Engineering management and human factors students will find psychology and engineering economics useful preparation. Compensatory course work may be required for students with nonengineering backgrounds.

The master's degree program will contain a minimum grade point average of 3.0 on all graduate course work (both 100 and 200 level courses). The University of Iowa is eligible for the M.S. degree. The nature of the final examination will be specified by the examining committee. It may be comprised of both written and oral parts. The examination will explore further the student's course preparation and/or an appropriate individual investigation.

**Doctor of Philosophy**

Typically, Ph.D. programs in industrial and management engineering consist at least 72 hours of study including research for the dissertation. Part-time Ph.D. study is discouraged. There is no foreign language requirement or special requirement for research techniques. Admission to degree candidacy will require a minimum grade point average of 3.25 on all graduate work taken at The University of Iowa and the demonstration of a capacity for individual achievement. Upon completion of the course work specified by the Ph.D. adviser and examining committee, the student will be admitted to the comprehensive examination, which includes both written and oral parts. Part of the dissertation proposal will usually include the presentation of a dissertation proposal, so that the comprehensive
Special Facilities and Laboratories

Engineering Core
For information about laboratories affiliated with core courses coordinated by other departments, see the subsections for each of the other engineering departments.

Required and Elective Course Laboratories
Industrial and management engineering occupies the north wing of the fourth floor in the Engineering Building. Most classes and seminars meet there. Faculty, graduate student offices, and laboratories are also located there. These laboratories are described below.

Computer-Based Education Laboratory
Provides on-line interaction with the University’s computer systems for both standard computations and computer graphics applications.

Microcomputer Systems Laboratory
Contains microcomputers to support activities in the information and production systems areas of education and research. New software packages for statistical analysis, computer graphics, project management, and other purposes are available.

Integrated Systems Laboratory
Provides a facility and equipment for several course and research needs including industry-based laboratory exercises, design projects, and research development. Various forms of testing devices, photographic equipment, television recording and playing equipment, small-scale robots and machine tools, sensing devices, and reconﬁgurable materials handling physical simulators are available.

Human Factors Laboratory
For conducting human factors ergonomics research and education. Contains a powerful minicomputer with numerous features and peripherals for the real-time collection and analysis of human performance data as well as alternative forms of information displays and human response recorders.

Manufacturing Laboratories
Located in the west basement area of the Engineering Building, these laboratories provide machine tools for various forms of metal removal and joining, melting and heat treating, surfaces, forming equipment, nondestructive and destructive testing devices, tool force dynamometers, various forms of metrology devices, and microscopic equipment for instruction and research in manufacturing processes.

Courses

Special Courses
55.06 Cooperative Education Training Assignment: Industrial Engineering. Students pursuing a degree in Industrial Engineering may be assigned to work experience assignments on the basis of their academic record. This may be done as a means of completing the requirements for the degree or in connection with the program on the student’s personal record. Prerequisites: acceptable academic achievement in the program and approval of the student’s academic advisor.

55.31 Professional Seminar in Industrial Engineering. Professional aspects of industrial engineering presented through various case scenarios to guest speakers, seminar discussions, and field trips. Prerequisite: consent of instructor. Permission of Industrial Engineering faculty advisor and senior. Student should register for one semester credit in the fall semester before graduation. Prerequisites: prior senior standing.

45.05 Individual Investigations: Industrial Engineering. Independent projects for industrial engineering by undergraduates such as a laboratory study, engineering design project, analysis and simulation of an engineering system, computer analysis, research, and research. Prerequisite: consent of adviser.

Manufacturing
55.30 Manufacturing Materials. Metals used in manufacturing are studied at the atomic level. Offered in odd-numbered years. Prerequisites: a minimum of 18 credit hours of chemistry, organic and inorganic, and knowledge of material properties. One lecture and three laboratory periods. Offered spring semesters. Prerequisite: 57.15.

55.18 Manufacturing Processes. Methods of processing important industrial materials including casting, welding, machining, and forming, manufacturing tools and techniques, numerical control, planning in manufacturing operations. Offered fall semesters. Prerequisite: 57.15.

Human Factors- Ergonomics
55.12 Human Factors Methods. Procedures of analysis and design required to integrate human factors into engineering systems. Also discussed methods of human performance measurements and on methods design. Laboratory projects. Offered spring semesters. Prerequisite: 25.225 or 255.132.

55.13 Human Factors Engineering. Design of machine systems and development of optimum work environment by applying principles of behavioral science emphasis on sensory and perceptual processes, motion and equipment, and methodology. Offered fall semesters. Same as 50.133.

55.14 Human Factors Psychology. Discussion of selected research areas in human factors engineering. Offered spring semesters of odd years. Prerequisites: 55.12 and 55.140 or consent of instructor.

55.15 Human Factors in Manufacturing. Application of psychological principles to human relations and supervision discussion of motivation, leadership, communication, group dynamics, human factors in production. Offered fall semesters of even years. Same as 57.153.

55.16 Advanced Human Factors Psychology. Discussion of selected recent literature on motivation and human relations of seminars in current year. Prerequisite: 55.140.
and to be successful in the final examination administered by the student's committee. The requirements for the M.S. degree may be completed within a calendar year for a full-time student. However, students with assistantship duties or other constraints may require between one and 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 baccalaurate degree. All graduate students on campus are required to attend the mechanical engineering graduate seminar. There is no foreign language requirement. Part-time Ph.D. study is discouraged and students who cannot study full-time on campus will rarely be admitted to the Ph.D. program.

One of the Ph.D. degree requirements is a minimum grade-point average of 3.25 on all graduate work done at The University of Iowa. Upon completion of the course work specified in the plan of study and upon the advisor's recommendation, the student will be admitted to the comprehensive examination given by the student's committee. The comprehensive examination shall be conducted within 28 months from the date of starting course work for the Ph.D. degree. During this written and oral examination, the student will be examined over all elementary, intermediate and advanced material relevant to his or her degree program. The oral examination will be held after the student on his or her own preparation for the proposed dissertation research project in addition to the student's course work. The oral examination is generally taken within one month after the written examination.

Having successfully completed the comprehensive examination, the student normally begins dissertation research under the direction of his or her dissertation advisor, who will succeed in the dissertation. The doctoral dissertation is required as a part fulfillment of the Doctor of Philosophy degree.

Requirements for the Ph.D. degree can generally be completed in three to four years beyond master's degree for students holding assistantship appointments in the department.

**Graduate Admission Requirements**

Students who have earned a baccalaureate degree in an engineering curriculum or a curriculum in the mathematical sciences, with a minimum grade-point average of 2.75 are eligible to enter the Master of Science degree program in mechanical engineering. GRE Engineering letters and scores on the Graduate Record Examination (GRE) Aptitude Test are also taken into account in admission decisions.

Students who have earned a baccalaureate or post-baccalaureate degree in an engineering curriculum or a curriculum in the mathematical sciences are admitted to the Ph.D. degree program. Those students who have a minimum undergraduate grade-point average of 3.0, reference letters, scores on the GRE Aptitude Test, research interest, previous graduate study grade-point average, and other factors are also considered in the admission process. Students with a Ph.D. objective who enter with a baccalaurate degree must first be admitted to the M.S. program.

Admission as a Ph.D. student is conditional until the student successfully completes a qualifying examination that is administered by his or her committee during the second semester of studies after initiating course work for the Ph.D. degree. Students graduating with the M.S. degree from the mechanical engineering department at The University of Iowa may request that the M.S. final examination also include the Ph.D. qualifying examination. The decision on whether the student's performance in this examination is adequate for admission as a Ph.D. student shall be made by the students committee and the department chair. After the student passes the Ph.D. qualifying examination, a Ph.D. committee is selected by the student and his or her advisor, to be approved by the department chair and the graduate dean. The Ph.D. committee shall include at least five faculty members, of whom at least one must be from outside the Department of Mechanical Engineering.

**Financial Assistance**

Financial support is available to M.S. as well as Ph.D. students. Teaching assistantships are available to students who are contributing to research and teaching assistance from the Department of Mechanical Engineering. The Iowa Institute of Hydraulic Research, the Center for Machine Research, the Center for Computer Aided Design, and the College of Medicine. These awards may be made on a semester, academic year, or calendar year basis. Awards and reappointments are competitive and are based upon the student's potential contribution to the research and teaching goals of the program. Students who fulfill their assistantship responsibilities adequately and continue to make satisfactory progress toward their degree objectives will receive recognition in the awarding of new assistantships.

Advanced doctoral students may also qualify for higher-graded assistantship positions. All applications for financial support should be directed, at the time of enrollment, to the chair of the Department of Mechanical Engineering.

For more details on the Graduate Program in Mechanical Engineering, reference may be made to the Graduate Handbook for the Department of Mechanical Engineering, available in the department office.

**Special Facilities and Laboratories**

**Undergraduate Instruction**

**Engineering Core**

The laboratories for fluid flows and transport processes contain a small wind tunnel, a water flume, a water flume for four water channels with porous media, three air jet tables, various air, water, and oil flow devices, and facilities for numerous small-scale experiments to demonstrate the principles of mass, momentum, and energy transfer.

**There is a laboratory for engineering graphics practice.**

For information about laboratories affiliated with core courses coordinated by other engineering departments, see this subsection for each department.

**Required and Elective Course List**

The laboratory for M.E. experimental engineering provides undergraduate students with exposure to contemporary sensors, signal conditioners, instrumentation, and computer-aided data acquisition systems.

**Mechanical Engineering Projects**

The Mechanical Engineering Projects provides for either group or individual project activities in mechanical engineering design, construction of mechanisms, and testing.

The solar energy and heat transfer laboratory is equipped with a data acquisition system to process data on solar on computer. Experiments in solar energy applications and heat transfer measurements are made in this laboratory.

**Graduate Facilities and Laboratories**

The fluid mechanics courses are closely connected with the research and consulting activities of the institute, particularly in the areas of fluid mechanics, hydraulic engineering, flow instrumentation, and some aspects of thermal sciences related to diffusion and dispersion of waste heat in water.

In the thermal engineering laboratories, research is conducted in the solar energy, thermal radiation, combustion, and heat transfer laboratories in the Engineering Building.

The mechanical engineering systems laboratories are equipped to give students a wide variety of engineering design experience in using modern methods of measurement and analysis, including computers, a variety of strain gauges, a photo-electric laboratory, and other conventional instrumentation.
Mechanical Systems

5.11 Mechanical Systems

1.3 a) Construction of strength, stiffness, and reliability in the design of mechanical systems. Introduction to computer-aided design. Programming techniques. Preparatory: 5.7.11.

5.11a Intermediate Mechanics of Deformable Solids

1.3 a) Use of computer-aided design, modeling, design, simulation, and analysis techniques. Use of finite element analysis to design and develop mechanical systems. Preparatory: 5.11.3.

5.11b Advanced Topics in Mechanical Engineering

1.3 a) Advanced topics in the design and analysis of mechanical systems. Preparatory: 5.11.a.

5.11c Advanced Mechanical Design

1.3 a) Advanced topics in the design and analysis of mechanical systems. Preparatory: 5.11.a.

5.11d Advanced Thermal Systems

1.3 a) Advanced topics in the design and analysis of mechanical systems. Preparatory: 5.11.a.

5.11e Advanced Topics in Fluid and Heat Transfer

1.3 a) Advanced topics in the design and analysis of mechanical systems. Preparatory: 5.11.a.

5.11f Fluid Flow and Heat Transfer

1.3 a) Advanced topics in the design and analysis of mechanical systems. Preparatory: 5.11.a.

5.11g Advanced Topics in Mechanical Engineering

1.3 a) Advanced topics in the design and analysis of mechanical systems. Preparatory: 5.11.a.

5.11h Advanced Topics in Mechanical Engineering

1.3 a) Advanced topics in the design and analysis of mechanical systems. Preparatory: 5.11.a.
The University of Iowa has been a leading center of advanced study for three-quarters of a century. Presently, nearly one-fifth of its enrollment is in the Graduate College. This unusually high ratio reflects the breadth of the University's graduate programs and resources. The strength of a graduate faculty with a long tradition of personal and professional concern for students, and the opportunities afforded graduate students for involvement, recognition, and support.

The Graduate College is responsible for the review and approval of proposals for new graduate programs and for the periodic survey and evaluation of existing programs. Through its administration of scholarships, fellowships, and research funds, the Graduate College encourages research and strengthening of departments. It offers extensive assistance to individual faculty members in finding the resources necessary for research projects. The Graduate College works with the other colleges of the University and with departments in the formulation of policies concerning selection, supervision, and support of graduate students.

The faculty of the Graduate College comprises 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 advisory to the dean of the Graduate College.

Degree Programs

The Graduate College confers the Master of Arts (M.A.), Master of Science (M.S.), Master of Business Administration (M.B.A.), Master of Arts in Teaching (M.A.T.), Master of Fine Arts (M.F.A.), Educational Specialist (Ed.S.), Master of Social Work (M.S.W.), Master of Comparative Law (M.C.L.), Doctor of Philosophy (Ph.D.), and Doctor of Musical Arts (D.M.A.) degrees.

The college currently confers degrees in the following fields:

- Accounting—M.A.*
- Afro-American Studies—M.A.*
- American Studies—M.A.*, Ph.D.
- Anatomy—M.D.
- Anthropology—M.A.*, Ph.D.
- Applied Mathematical Sciences—Ph.D.
- Art—M.A., M.F.A.
- Art History—M.A.*, Ph.D.
- Asian Civilization—M.A.
- Astronomy—M.S.*
- Biochemistry—M.S., Ph.D.
- Biology—M.S.*
- Botany—M.S.*, Ph.D.
- Business Administration—M.A.*, M.B.A.*, Ph.D.
- Business Education—M.A.*
- Chemical and Materials Engineering—M.S., Ph.D.
- Chemical Physics—M.S., Ph.D.
- Chemistry—M.S.*, Ph.D.
- Civil and Environmental Engineering—M.S.*, Ph.D.
- Classics—M.A.*, Ph.D.
- Communication—M.A.*, Ph.D.
- Communication and Theatre Arts—M.A.*, Ph.D.
- Community Dentistry and Dental Public Health—M.S.
- Comparative Law—M.C.L.*
- Comparative Literature—M.A.*, Ph.D.
- Computer Science—M.S.*, Ph.D.
- Criminal Justice and Corrections—M.A.*
- Dental Hygiene—M.S.
- Economics—M.A.*, Ph.D.
- Education—M.A.*, M.A.T.*, Ed.S.*, Ph.D.
- Electrical and Computer Engineering—M.S., Ph.D.
- Endodontics—M.S.
- English—M.A.*, M.F.A., Ph.D.
- Fixed Prosthodontics—M.S.
- French—M.A.*, Ph.D.
- Genetics—Ph.D.
- Geography—M.A.*, Ph.D.
- Geology—M.S.*, Ph.D.
- German—M.A.*, Ph.D.
- Gerontology—M.A.*
- History—M.A.*, Ph.D.
- Home Economics—M.A.*, M.S.*
- Hospital and Health Administration—M.A.*, Ph.D.
- Industrial and Management Engineering—M.S.*, Ph.D.
- Journalism—M.A.*
- Latin—M.A.*
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 an ad hoc interdisciplinary Ph.D. programs must sufficiently develop a program of study and enrol in a departmental program in the Graduate College. For details, see Section XII.E. in "Rules and Regulations of the Graduate College." in this section of the Catalog.

Aging Studies Program

The Aging Studies program is a multidisciplinary no-degree program administered by the College of Liberal Arts in cooperation with other colleges of The University of Iowa. The program is designed to complement graduate degree programs for students with academic, professional, research, or service career interests in aging. An entry is made on a student's transcript certifying completion of an approved curriculum in Aging Studies. For further details, see "Aging Studies Program" in the 'College of Liberal Arts' section of the Catalog.

Applied Mathematical Science

The program in Applied Mathematical Sciences is a broadly based interdisciplinary program leading to the Ph.D. degree. Students combine study of theoretical and applied aspects of a mathematical science (mathematics, statistics, or computer science) with study in a science (behavioral, biological, or social). See "Applied Mathematical Sciences" under 'Division of Mathematical Sciences' in the "College of Liberal Arts" section of the Catalog for a list of faculty and a further description of the program.

Center for International and Comparative Studies

The Center for International and Comparative Studies (CICS) was first established as a center in 1987 to coordinate and support the University's teaching and research programs concerned with international studies. In March 1984 CICS received Regental recognition as a Center with the responsibility to serve as a physical, intellectual, and administrative focus for a variety of international activities, including teaching, research, faculty exchanges, publication, fund-raising, and outreach to the public. At present CICS administers six interdisciplinary programs: African Civilizations, African Studies, Global Studies, Intra-American Development, Latin American Studies, and Women in Development. Faculty members and students in these programs are drawn from schools and departments across the University. CICS works closely with the Office of International Education and Services, and both organizations are administratively linked to the vice-president for educational development and research.

Four of the six programs in CICS have priority instructional missions. African Studies, Asian Civilizations, Latin American Studies, and Global Studies (for further details, see the appropriate sections of the Catalog under 'College of Liberal Arts'). The Program for International Development promotes research, teaching, and technical assistance activities. The Women in Development Committee is primarily concerned with research and public programs.

The Center supports international studies by funding more than 60 public lectures and seminars yearly, by providing administrative facilities to grant applicants, and by furnishing a suite of offices in the Jefferson Building where students and faculty meet to hold classes and seminars. From time to time CICS provides speakers for the Iowa City Community, Foreign Relations Council and for other community organizations. CICS subscribes to numerous foreign periodicals, which are maintained in a small library in the Jefferson Building. Six times a year CICS publishes the International University News, which announces forthcoming events, and CICS publishes scholarly papers in several occasional series.

Evolutionary Ecology and Behavior


Program and Facilities

The departments of Botany and Zoology offer programs of study leading to the M.S. and Ph.D. degrees with specialization in ecology and behavior, emphasizing adaptation, the genetic basis of evolution, and natural selection.

Particular strengths of the program are behavioral and quantitative genetics, quantitative methods in ecology and behavioral ecology, animal-plant interactions, and tropical biology. There is real and strong emphasis on balance between controlled experimentation and field observation. Laboratory research may include controlled breeding experiments in which natural habitat, gene-environment interactions, and genetic covariance of neurophysiological,
behavioral, life history, or other traits are investigated. Field research emphasizes the adaptive significance of traits.

Opportunities for field research are provided locally by the Madroño Field Campus just outside Iwai, Dix, with lakes, temperate hardwood forests, and old fields. The Iowa Lakeside Laboratory on Lake Okoboji has year-round laboratory facilities, housing, and a research vessel, and provides the opportunity to study undisturbed prairie, marshland, and lake ecosystems. Three graduate-level courses are offered by the faculty, with trips to the Smokies, the Michigan dunes, the desert, the prairies, and other sites. These courses are professional as well as instructive. Since research projects are original and have led to publication.

Fieldwork by faculty and students also takes place worldwide. Recent studies have been conducted in East Africa, the Caribbean, Brazil, Mexico, Central America, the Great Smoky Mountains, the Sonoran Desert, the American Rockies, and the Florida Keys. The Smithsonian Institution Laboratory on Barro Colorado Island in Panama and the Parque Nacional de Santa Rosa in Costa Rica are among the sites used by staff and students. The University of Iowa is a member of the Organization for Tropical Studies and regularly sends students to the Tropical Biology Course in Costa Rica. In addition, the UI has a cooperation program with the University of the Andes in Merida, Venezuela.

Indoor facilities permit a wide range of studies, with varied equipment for observation and analysis, such as video-recorders, movie cameras, walk-in environment chambers, computer terminals, a GC-MS, and a new 16 computer. There is ample space for housing virtually any organ system, from mors, prairie dogs, mice, primate, orchids, primate, and other vertebrates and invertebrates. The botany greenhouse contains over 30,000 natural science specimens, with birds and mammals particularly well represented among the vertebrates.

The atmosphere at Iowa is friendly and cooperative and the approach multidisciplinary. Students may design their graduate programs to take advantage of collaboration, consultation, coursework, and independent study with members of such departments as botany, chemistry, computer science, geography, geology, mathematics, microbiology, physiology and biophysics, statistics, and zoology.

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, summer assignments, and predoctoral training fellowships are available. In addition, each year two outstanding incoming graduate students are selected one in botany and one in zoology, for the TRF award, a teaching/research fellowship. The Busby Family fellows provide student travel for study. Postdoctoral students may qualify for the Postdoctoral Assistant-in-Instruction Program or the NIH fellowship programs. For students in behavior, postdoctoral students may qualify for grant money from the University. Computer funds are available for graduate students, postdoctoral, and faculty.

For further information and application materials, contact the Department of Zoology or the Department of Botany.

Genetics
The Ph.D. program in genetics is an interdepartmental program involving members of the departments of Biochemistry, Botany, Microbiology, and Zoology, as well as a number of faculty members in clinical departments. See "Genetics" in the "College of Liberal Arts" section of the Catalog for a list of participating faculty, degree requirements, and courses offered.

Inter-University Center for Film and Critical Studies in Paris
Program coordinators: Charles P., Mannon, J. Dallallin
The University of Iowa is one of a consortium of 21 colleges and universities associated with the Brussels Council on International Educational Exchange (CIEE), which sponsors a Film Studies Program and a Contemporary Criticism and Culture Program. These two unique academic opportunities are offered at the Centre Universitaire American du Cinéma et de la Critique à Paris.

The Film Studies Program is designed to explore film theory and analysis—not to train filmmakers or technicians. The broad curriculum provides students with courses and seminars in film theory, formal structures, history, and ideology. Participants study the relationships between film and other art forms, film culture, film as language, and film and psychoanalysis. Students discuss such themes as the evolution of the early cinema: the silent films of Griffith, Lang, Eisenstein, and Keaton; the classic Hollywood films; French cinema and after the transition to sound; and European and American avant-garde cinemas. Participants study the works of Metz, Freud, Barthes, Lacan, Althusser, Foucault, and others to gain an understanding of contemporary French culture, mass media, and the visual arts.

The Contemporary Criticism and Culture Program focuses on twelfth developments in French political thought and social institutions, linguistics, social sciences, and history. It draws on recent theoretical concepts in the fields of linguistics, psychoanalysis, anthropology, history, and philosophy to analyze verbal and audio-visual representations in literature, painting, photography, film, and television. The interdisciplinary nature of this program makes it relevant not only to French majors, but also to students of other disciplines concerned with the problems of criticism and culture. It is of particular value to those who wish to explore the expediency of modernist French theory to a variety of disciplines. Approaching literature and other modes of texts in a new way, this program provides an enriching breadth to the student's critical training. A recent addition to the program is a history specialization characterized by the application to historical contexts of insights from other fields, such as linguistics, cultural geography, psychology, and economics. Particularly distinctive in the French historical approach has been a preoccupation with the long-term evolution of populations and with the sections of texts and the development of groups of ordinary people, seen in their urban or rural contexts.

A student may either concentrate in one of these programs or develop an individual program combining elements from both programs.

Joint Law and Graduate Degree Programs
Joint programs with the College of Law and a number of departments in the Graduate College have been developed under which students can simultaneously pursue degrees in both colleges. For further details see "College of Law" section of the Catalog.

Joint Programs within the Graduate College
Various joint programs have been developed whereby students simultaneously work toward two graduate degrees. Consult the
appropriate sections of this Catalog for further information. Established joint programs include:

Business Administration/Library and Information Science
Hospital and Health Administration/Urban and Regional Planning
Social Work/Urban and Regional Planning
Preventive Medicine and Environmental Health/Urban and Regional Planning

Medical Scientist Training Program
The MSTP is an interdisciplinary M.D.-Ph.D. program offered jointly by the College of Medicine and the Graduate College. See "Medical Scientist Training Program" in the "College of Medicine" section of the Catalog.

Neuroscience
The Neuroscience Program is designed to provide an interdisciplinary and interdepartmental approach to graduate education aimed at an understanding of the structure, function, and development of the nervous system and its role in behavior. Research and teaching activities cover five major areas: molecular neuroscience, cellular neuroscience, developmental neuroscience, neural systems, and behavioral neuroscience. Training is conducted primarily in the laboratories and teaching facilities of the graduate departments of anatomy, biochemistry, pharmacology, physiology and biophysics, biology, medical genetics, pathology and audiology, zoology, and the clinical departments of neurology and psychiatry.

Because of the interdisciplinary nature of neuroscience and the diverse backgrounds and interests of entering students, the program provides considerable flexibility in curriculum structure. The plan of study for each trainee is tailored individually to provide appropriate background courses in biochemistry, physiology, cell biology, and statistics as well as a selection of elective courses appropriate to individual scientific objectives. The major required courses of the program are Neuroscience I and II, a two-semester sequence designed to cover the five basic areas of neuroscience as a survey of the basic principles and current concepts of the structure and function of neural systems. First-year graduate students enroll in a special topics course designed to introduce them to the present activities of program faculty and make them aware of the variety of available training opportunities. All trainees participate in an advanced techniques course and a seminar in which state-of-the-art research approaches are considered. Trainees are candidates for the Ph.D. degree in participating departments or in a Neuroscience Ph.D. program (pending approval).

Admission
Students are admitted to the program following review of their academic credentials, including Graduate Record Examination (GRE) General/Subject Test scores, full academic transcripts, letters of recommendation, and written statements detailing the applicants' specific interests in the neurosciences.

Financial Aid
Trainees receive stipends and tuition support from institutional or extramural sources, including a Neurobehavioral Science training grant from the National Institute of Mental Health.

Application Procedures
Prospective students should contact the program office for specific information concerning admission and application materials at the following address: Neuroscience Program Office, S-660 Bowen Science Building, The University of Iowa, Iowa City, IA 52242.

Transportation Studies
This is an interdisciplinary, nongrade program dealing with the interactions of society and the various modes of passenger and freight transportation. Students participate in the program in conjunction with work toward a graduate degree in any one of a number of departments. When the graduate degree is awarded, an entry is also made on the student's transcript certifying completion of the Transportation Studies program. 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 widely varied positions in government and the private sector. The program has a strong policy orientation that enables its graduates to understand the factors affecting a particular urban or regional problem and to develop workable solutions. Students may choose to specialize in transportation, environmental quality, land use, housing, and several other areas. For further details, see "Urban and Regional Planning" in the "College of Liberal Arts" section of the Catalog.

Research Resources
The many and diverse research activities of the University are centrally administered by the Office of the Vice-President for Educational Development and Research, which has an interlocking relationship with the Graduate College.

For further information, see "Research Activities."

Financial Assistance
Approximately half of the University's graduate students receive some form of University-administered financial assistance. Eligibility requirements and application procedures are set forth in "Section VII, Graduate Appointments," "Rules and Regulations of the Graduate College." These are the primary sources of assistance.

Teaching and Research Assistantships
Available in most departments; stipends typically range between $6,500 and $7,500 for half-time assistants. Assistants are also eligible for tuition scholarships: nonresident assistants' teaching time or more than one's own and fees are reduced to resident rates.

University Teaching-Research Fellowships
For first-year graduate students entering doctoral programs; typical stipends are $8,500 a year on a year-round basis, with all tuition paid, for as many as four years; recipients have teaching and research assignments, but may carry full course loads at the same time; one year out of four and air summer, recipients have full time to pursue studies, research, or writing.

Scholarships
Up to full tuition and fees.

Graduate Fellowships $5,300 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 either the graduate student assistantships, part-time employment in research or part-time teaching assistants. Prof. O.M. and the Vice-President for Educational Development and Research maintain a library of information on public and private agencies which provide funds for research and graduate study. A considerable amount of material has been collected concerning awards for overseas study.

The many and diverse research activities of the University are centrally administered by the Office of the Vice-President for Educational Development and Research, which has an interlocking relationship with the Graduate College.
Graduate Student Senate

The Graduate Student Senate is the University graduate student body's representative organization. Members are elected annually from each department of the University having a graduate degree program. The senator's primary purpose is to serve the interests of the graduate student body in matters affecting its welfare. The senate advises the dean of the Graduate College on matters pertaining to the Graduate College.

Rules and Regulations of the Graduate College

The Academic Program

Section 1: Admission to the Graduate College

A. Application Procedure
All students seeking to apply for the first time in the Graduate College of the University of Iowa must secure a formal application statement from the director of admissions. Applicants may obtain the proper forms from the director of admissions, The University of Iowa, Iowa City, Iowa 52242.

In addition to these formal, official transcripts from each undergraduate and graduate institution attended must be submitted to the director of admissions by the designated deadline prior to the session in which admission is expected. Admission applications must arrive no later than July 15 for fall-semester enrollment, December 1 for spring-semester enrollment or May 1 for summer enrollment. These are general Graduate College deadlines. Individual departments may establish earlier admission cutoff dates.

B. Graduate Record Examination
All applicants prior to consideration for admission should take the General (Appli cation) Test of the Graduate Record Examination (GRE) or, for applicants to graduate programs in business administration, the Graduate Management Admission Test (GMAT). Applicants for whom admission data are complete, with the exception of scores on the GRE or the GMAT, may, depending on departmental policy, be admitted if they meet all other requirements. The GRE or the GMAT must be taken prior to the student's first session of enrollment. The test is given several times a year at test centers established under the direction of Educational Testing Service, Princeton, New Jersey. The judgment of acceptable levels of performance on this test and its weight in the decision on admission of a student is left to the departments. Some departments in fields where GRE subject (Advanced) Tests are available require

development to which the transfer is proposed. To initiate such action the grade-point average of the student or department, or interdepartmental degree program, for work leading to a graduate degree or certificate or professional (or personal) improvement.

2. Graduate—Students who are interested in working toward a graduate degree or certificate but who are required by a department to demonstrate their ability to do satisfactory graduate work before being admitted to regular status. To be admitted on a conditional basis, the student must be recommended by a department, which will assume responsibility for advising him or her.

b. See minimum grade-point requirements, "Section II". The student on conditional status must achieve regular status within two sessions of registration in the Graduate College by attaining a grade-point average of at least 2.0 (3.0 for doctoral students) and acceptance by the major department, or be dismissed.

3. Special—Students with a valid bachelor's degree and at least a 2.3 grade-point average who are not planning to become candidates for a graduate degree or certificate. Registration as a special student is allowed for only one semester or summer session. Before registration for any subsequent session, including another summer session, the student must file an application and be admitted by a department. A special student may be granted a degree or certificate. A student registering as a special student can take no more than two courses during a semester or eight credits during the eight-week summer session.

H. Minimum Requirements for Graduates

Graduates of any college or university accredited by regional accrediting agencies are eligible to complete the requirements for the degree in the Graduate College if their academic records meet the requirements stated. For nondonor students, a minimum grade-point average of 2.0 is required for admission to conditional status. A minimum of 3.5 is required for admission to regular status. The grade-point average is computed only on graduate work if the student has completed at least 12 graduate hours. If the student has completed 15 graduate semester hours, the grade-point average is computed over all graduate work completed. In cases in which the University has a graduate record, the University Graduate Record Examination score is a point


to be designated by the Graduate College dean. His or her papers shall be forwarded to the department concerned for examination and decision. Students applying for admission to a doctoral program with 12 or more semester hours of graduate work must meet a minimum grade-point average of 3.0 on the graduate work. For students with less than 12 semester hours of graduate work, a minimum of 2.7 is required on the entire record of collegiate work.

Departments, or committees in charge of interdepartmental degree programs, may, and often do, set higher minimum admission requirements than those set forth above for the Graduate College as a whole. Information concerning departmental or program requirements may be obtained directly from the executive of the department concerned.

For State Board of Regents' formal admission requirements, see "Appendix" of the Catalog.

I. Admission of Faculty Members to Graduate Study

Persons who hold faculty rank of assistant professor (including clinical assistant professor) or above at The University of Iowa may be admitted as special students. (See Section 2 above.) A person holding faculty rank as specified above may petition the Graduate College dean for permission to enroll as a student for work leading to an advanced degree, certificate, or professional improvement except in the department of his or her appointment or directly to the department. Such petitions must have prior approval 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.

J. Readmission

Students who are dropouts and enrollees in the Graduate College, but who then fail to register for a period of 36 months or more, must apply for readmission. They are considered dependent on departmental approval for the session in which readmission is desired. The Consideration of the application for readmission will be governed by the department and Graduate College admissions standards in effect at the time of reapplication.

Section II. Registration

A. Standard Schedule

Students registered in the Graduate College may register for no more than 15 semester hours of credit in graduate courses. In the case of a graduate and undergraduate courses, two hours of undergraduate credit may be substituted for one semester hour of graduate credit; with registration limited to a total of 15 semester hours. This equivalency applies to the calculation of academic load only. Graduate credit is not given for courses numbered under 100. The maximum for the eight-week summer session is eight semester hours; for the regular eight-week summer session the limit is ten semester hours. If two or more semester hours of undergraduate work are included.

The maximum semester-hour registration for work scheduled outside of the regular eight-week summer session will be arranged on a basis proportionate to that listed above with the approval of the Graduate College dean. Nine semester hours in the regular semester constitute full-time registration. (If follows are in the regular semester, the maximum semester hours during a semester as a condition of their appointments: One-quarter-time and one-third-time appointees are permitted to register for the maximum 15 semester hours per semester and eight semester hours during the eight-week summer session.

B. Courses Not Included in Total Registration

In addition to the full schedule, a graduate student may register for courses printed in the Schedule of Courses as carrying zero semester hours 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 department and the approval of the dean of the Graduate College.

D. Reduced Schedules for Teaching and Research Assistants and Other Appointees

1. One-half-time appointees may register for no more than 12 semester hours during a semester or six semester hours during the eight-week summer session.

2. Eight-eighths-time appointees may register for no more than 10 semester hours during a semester or five semester hours during the eight-week summer session.

3. Two-thirds- and three-quarter-time appointees may register for no more than nine semester hours during a semester or five semester hours during the eight-week summer session.

4. Seven-eighths-time appointees may register for no more than seven semester hours during a semester or four semester hours during the eight-week summer session.

5. Full-time appointees, including full-time instructors, may register for no more than six semester hours during a semester or three semester hours during the eight-week summer session.

E. Retroactive Registration

No form of retroactive registration is permitted.
I. Correspondence Courses
Correspondence study credits do not count as residence credits, nor more than nine semester hours of graduate correspondence work can be applied toward an advanced degree. Such credit must be acceptable for the student's plan of study, and must be earned by the student in the Graduate College in some instances, graduate level correspondence study credit earned after a student has received a bachelor's degree but before enrolling in the Graduate College may not be accepted toward an advanced degree with approval of the Graduate College dean upon recommendation of the major department. A graduate student may not register for correspondence courses without the approval of the executive of his or her major department and of the Graduate College dean.

J. System of Course Numbers
Courses primarily for graduate students are numbered 200 or above in each department. Courses open to and carrying credit for both graduate and undergraduate students are numbered from 100 to 196. Courses below 100 are not accepted for graduate credit. Graduate credit may not be earned for taking courses numbered below 100 by registering in such courses as readings, special projects, or independent study having course numbers of 100 or above.

K. Auditing of Courses
Upon the recommendation of the instructor and the approval of the dean of the Graduate College, graduate students may audit courses for zero credit. Auditing is permitted only for a student who is currently registered.

L. Dropping of Courses
A student may drop any enrolled courses after the deadline date established by the dean of the Graduate College. A student who drops a course shall receive the grade of F unless the student earns an S under the Credit/No Credit option. This regulation may be waived only by the Graduate College dean and the student's academic advisor and requires the student to present himself or herself at the office of the Graduate College to be removed from the student's transcript.

Section III. Traveling Scholar Program
A. Program
The program, under the auspices of the Committee on Institutional Cooperation representing 11 universities in the Midwest, provides a special student with an opportunity to take advantage of special resources available on another campus but not available on his or her own campus. Special course offerings, research opportunities, unique laboratories, and library collections are made available.

B. Procedure
1. A CIC Traveling Scholar student must be recommended by his or her own graduate advisor who can appoint an appropriate faculty member at the host institution, graduate dean at both institutions will be fully informed by the advisor and have the power to approve or disapprove.

C. Conditions
CIC Traveling Scholars will be registered at the host university and fees will be collected and kept by that institution. The student registers for 300-400 CIC Scholar at The University of Iowa.

4. Credit for the work taken willbe recorded at the home university.

5. Those desiring additional information should inquire at the office of the Graduate College.

Section IV. Academic Standing, Probation, and Dismissal
A. Nondoctoral Students
A student, except those on conditional status, shall be placed on probation if, after completing eight semester hours of graduate work, his or her cumulative grade point average on graduate work done at The University of Iowa falls below 2.0. If the student is completing eight more semester hours of graduate work at this University, his or her grade-point average remains below 2.0, he or she shall be denied permission to register; otherwise, the student shall be restored to good standing.

B. Doctoral Students
A student on regular status shall be placed on probation if, after completing eight hours of graduate work, the student's cumulative grade-point average on graduate work done at The University of Iowa falls below 3.0. If, after completing eight more semester hours of graduate work at the University, the student's cumulative grade-point average remains below the required level, the student shall be dropped from the program and denied permission to register unless he or she applies and is accepted for a non-degree or certificate program. If, after the second eight semester hours, the cumulative grade-point average is at least 3.0, 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 unless he or she receives an approved degree or certificate, nor may the student receive any graduate degree or certificate.

D. Departmental Regulations and Dissemination of Information
In addition to the above University-wide requirements, departments may establish further requirements which must determine the individual student's standing with regard to probation and disapproval. To this end, each department or program shall compile a written list of standards and procedures for work in that area. These documents shall be on file in each departmental office and the office of the Graduate College. Copies are to be available for students in the departmental offices, and departments shall make all reasonable efforts to inform students. Subsequent changes in standards or procedures shall be communicated by the department to each student and the Graduate College dean. Whenever departments revise standards for a given program, the new regulations will not apply retroactively to the disadvantage of those already in the program. In addition to notifying students that they are subject to the rules of the Graduate College as set forth in the Manual of Rules and Regulations, any standards established by the department more severe than the general Graduate College requirements shall be stated informally or be the subject of written requirements applicable to the various departmental programs of study, examination procedures and other formal evaluations. The policies with regard to awarding and renewing assistantships, time limits on programs of study, departmental registration policies, and all other departmental requirements, requirements for changes from one degree program to another within the college, and all other departmental regulations and procedures are "E" following, and other matters as appropriate. The nature of the departmental advisory system shall be explained to the incoming students.

E. Academic Progress, Departmental Probation, and Dismissal Procedures
If a student is facing impending departmental standards, the department shall warn the student of this fact in writing. The notification shall specify in what ways the student is failing to meet the standards. The student may be provided a reasonable amount of time to meet the standards prior to departmental dismissal. If conditions such as completion of probation or program completion are not met, the department shall give the student an opportunity for examination of this status and its time limits.
A student who will not be permitted to register for failure to meet standards shall be notified of this fact in writing with reasons for the action provided. Such denial may follow failure to meet conditions of admission, conditions of probation, pre-announced departmental grade-point requirements or other standards, or failure of a regularly scheduled examination or formal evaluation. If a student is disqualified for dismissal, the student has a right to a review. Each department shall establish procedures for handling such reviews. The procedures are to be approved by the Graduate College dean, and shall afford a fair and expeditious review. A description of these procedures shall be included in the departmental regulations described above. (See "Section IV. D.")

F. Graduate College Review of Departmental Dismissal

Questions involving judgment of performance will not be reviewed beyond the department level. If, however, the student feels that there has been unfairness or some procedural irregularity concerning dismissal, the student may request a review by the Graduate College. This review may be conducted by the Graduate College dean alone, or the dean may appoint a Graduate College committee consisting of both student and faculty members to conduct the review and recommend to the dean possible courses of action. The review by the Graduate College is final.

Section V

A. Transfer of Graduate Credit
Graduate work at other institutions will be examined on the student's permanent record by the registrar and a report of this examination will be made to the student and to his/her major department. Credit for these courses toward an advanced degree at Iowa must have the approval of the major department and the dean of the Graduate College.

B. Residence Transfer Credit
After admission to a departmental program in the Graduate College, residence graduate credit from another institution's graduate program may be counted as residence credit at the institution, provided such work is acceptable to the student's major department on the basis of the department's determination of its applicability toward the degree. (See "Section X.D.").

C. Reduction in Credit
For courses or seminars in independent study, thesis, or research, an instructor may report less credit than the number of semester hours for which a student is registered. However, no credit may be reported except as required by the department's requirements. Graduate students in the College of Education are encouraged to consult with their advisors to develop a credit and a schedule of courses that will be acceptable to the department and that will meet the requirements for their degree.

D. Graduate Credit for Veterans
Credit may be granted for studies pursued in war and military situations under such regulations as may be formulated by the national educational agencies and under such adaptation of standing rules as the Graduate Council may authorize from time to time to meet group or individual situations. The value of such credit in satisfying requirements for a degree will be determined by the major department with the approval of the dean.

E. Cancellation 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.

G. Grade Reports
1. Grade reports for the fall and spring terms shall be sent by the registrar to each faculty or department. In the absence of a letter grade, credit satisfactory or unsatisfactory shall be reported.

H. Grading System
A. Marks Carrying Graduate Credit
These are A, B, C, and S—satisfactory.

B. Marks Carrying No Graduate Credit
These are D—poor, F—failed, I— incomplete, W—withdrawn without credit, R—registered, and U—unsatisfactory.

C. Audit
It is assigned when a student registered for zero credit attends as an auditor throughout the course; if the student fails to meet the instructor's requirements for class attendance, W is assigned.

D. Incomplete
The grade of I is to be used only when a student's work during a session is not completed because of illness, accident, or other reasons beyond the student's control. In registrations for these sessions or under special study, the satisfactory/unsatisfactory grades may be applied. (See next paragraph, E.) I must remove that mark within the first session or registration after the ending date of the session for which it is given, or else the grade becomes F, except that students with F's from the spring semester are exempt from completing the course during the succeeding summer term.

E. Specific Deadlines
Specific deadlines for the submission of student work to the faculty and for the faculty's report on grades to the registrar will be set by the Graduate College dean for each session and printed in the academic calendar. Courses may not be repeated to remove incompletes, removal of an I is accomplished only through completion of the specific work for which the mark is given.

Grades of S and U may be used for registrations in thesis, research, readings, independent study, and special projects. S—satisfactory means that the student's work during the week of registration is satisfactory in nature or that he/she has performed work of such quality that it is equivalent to a grade of A or B. U—unsatisfactory means that he/she has not performed work of such quality that it is equivalent to a grade of C or D. A grade of S may not be used in computing grade-point averages. A grade of U may not be used in computing grade-point averages. If a student's work is satisfactory in nature or that he/she has performed work of such quality that it is equivalent to a grade of A or B, while at the same time, the student's work is satisfactory in quality, the grade will be changed from the letter grade to the appropriate grade of S. In addition, departments may ask the Graduate College to review the mark of S and U and describe above shows the final grade on the basis of the student's work during the registration. A grade of S may be granted for no less than one session and must be reviewed by the Graduate Council before being granted for longer periods. The type of grading system to be used in the above cases should always be mutually understood by the instructor and student.

F. Grades of S and U
S and U may be used for courses taken by a graduate student outside the major department or in an independent degree program provided that the instructor of the course and the student's departmental advisor approve the registration. Arrangements for satisfactory/unsatisfactory grading in these courses are accomplished by 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 last day of the second week of a summer session. No changes from letter grades to satisfactory/unsatisfactory grades or vice versa will be allowed after these dates.
It is not the policy of the Graduate College to abandon the traditional letter grades described in this section; however, in certain exceptional instances, degree candidates having a few areas of concentration involving widely different specialties of study may request the permission of the Graduate College to register in courses in another area within the same department or program on a satisfactory/unsatisfactory basis. In these instances, satisfactory/unsatisfactory cards will be used as described in the preceding paragraph.

G. Computed Grade-Point Average
This is based only upon graduate work graded: A, B, C, D, and F. (A—4, B—3, C—2, D—1, F—0)

Section VII. Graduate Appointments
A. Scholarships
Scholarships are competitive and are awarded on merit.

1. Eligibility for graduate scholarships and fellowships will include:
   (a) registration in the Graduate College;
   (b) cumulative grade-point average of at least 3.0; (c) a GRE score of a GMAT score above a point to be designated by the Graduate College dean; (d) a satisfactory rate of progress in completing the program for the degree.
2. Preference will be given to candidates; the
3. Recommendations for graduate scholarships and fellowships will be made by the Graduate College by the appropriate department chair or dean. A graduate scholarship may be awarded whether or not a student holds an assistantship or any amount of scholarship for the academic year may vary but will not 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 and are recommendation by departments to students with outstanding academic records. Fellowships must be registered as full-time students. The primary purpose of the awards is to permit an advanced student to complete his or her dissertation or creative project and take the degree. Other terms of the award will be established by the Graduate College in consultation with the Graduate Council.

C. Faculty Research Assistantships
Faculty research assistantships are awarded to qualified graduate students and serve two purposes to provide financial assistance 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 scaled in proportion, and a limited academic schedule is permitted (see "Section II D."). Appointments are made for the nine-month academic year, but appointments may be made for other periods by special arrangement. Stipends vary with the qualifications of the appointee and the amount of service rendered. Faculty research assistants appointed by the Graduate College pay their own fees. Graduate appointments beginning in August are usually made by the Graduate College dean. A recommendation of the various departments in March of each year, through applications may be considered at any time. Applications should be made on the form provided by the Graduate College, and should be accompanied by recommendations and/or a letter summarizing the student's qualifications.

D. Graduate Assistantships
These assistantships serve two purposes: assistance in the instructional program of the University and the preparation of future college teachers. In order to achieve both ends, academically superior graduate students who show exceptional promise as teachers are selected for graduate assistantships. All appointments are made by the dean of the appropriate college on recommendation of the department.

E. Eligibility for Scholarships, Fellowships, and Research Assistantships
Scholars, fellows, and research assistants on the Graduate College budget must be registered as regular students in good standing in order to hold such appointments. Appointments will be terminated when registration and/ or student status is terminated. In no instance may a student be promoted or tendered an appointment until after approval for admission to the Graduate College by the director of admissions.

F. Dismissal of Assistants
A uniform policy concerning 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. Research Associateships
Postdoctoral Fellowships
These provide for independent research. Appointment is made through the Office of the Vice-President for Academic Affairs.

H. Credit
A graduate credit is allowed for the teaching or research service for which the student receives payment as a graduate or a faculty research assistant.

I. Loans
Graduate students requiring financial assistance may apply for loans at the Office of Student Financial Aid. See "Scholarships and Loans" section of the Catalog.

J. Other Forms of Support
Many departments offer financial assistance in the forms of stipends, part-time employment on research programs, or part-time teaching. Such stipends should be addressed directly to the major department.

Section VIII. Advanced Programs Offered in the Graduate College
The work described in which the Graduate College offers degree programs are listed under the section of the "Graduate College" section of the Catalog.

Section IX. General Requirements for Advanced Degrees
A. Application for Degree
The student must file an application for an anticipated degree with the registrar not less than ten weeks after the start of the term in which he will complete the degree. This application must be signed by his or her advisor. Failure to file the application by the deadline will result in postponement of graduation to a subsequent session.

B. Enrollment in Final Session
The student must be enrolled during the session in which the degree is to be conferred, except as noted in the following. Students who must register for the session in which the degree is to be conferred are not eligible to return to the University during that session and must complete all requirements by the regular deadline.

C. The Degree Review
The student must complete all work except the final examination by the final examination may register for the postcomprehensive examination described in "Section II E." If such registration is appropriate, the Master's candidate who has completed all work except the final examination may register for the postcomprehensive examination described in "Section II E." If such registration is appropriate, the student must complete all requirements including the final examination and the degree will be conferred in the Independent Study Session. The degree will be conferred in the following semester without additional registration.

Section X. Master's Degree
A. Kinds of Degrees
Master's programs requiring a minimum of 33 semester hours lead to the Master of Arts degree, Master of Science degree, Master of Teaching degree, Master of Administrative degree, Master of Comparative Law, Master of Arts in Teaching degree, and such other
master’s degrees as are approved by the graduate faculty.

B. Plan of Study

The applicant for a master’s degree must file a plan of study approved by the advisor and the departmental executive with the Graduate College within the semester in which the degree is to be granted and by a date to be established by the Graduate College dean. The plan shall meet the requirements for the degree approved by the graduate faculty. (See also “Section IV.D. Departmental Regulations: Dissipation of Information.”)

C. Major and Related Fields

The plan of study should provide for reasonable concentration in the major field of interest and, subject to the approval of the major department may include related subjects from other departments.

D. Residence Requirement

The minimum of 30 semester hours required for the degree, at least 24 semester hours must be completed under the auspices of The University of Iowa. After admission to a departmental program in the Graduate College, various forms of extramural registration may qualify toward fulfillment of this 24-hour residence requirement (see “Section II. B. Extramural Registration” in addition to regular on-campus registration. However, at least eight semester hours on campus are required, except for those departmental programs which ensure sufficient supervision between the student and the graduate faculty and have the approval of the Graduate Council and the dean of the Graduate College for reduction of this on-campus requirement.

E. Reduction of Old Credits

Credits for a master’s degree dating back more than 10 years from the semester in which the degree is to be conferred are not counted toward fulfillment of degree requirements. This rule may be waived by the dean in cases affected by military service.

F. Limit on Professional Courses

Work taken by a student in the colleges of Dentistry, Law, or Medicine while enrolled for a professional degree may be credited to a graduate program leading to a master’s degree if it is taken after the student has earned a bachelor’s degree, or has completed work equivalent to that required for a bachelor’s degree at The University of Iowa. The work accomplished in the professional college must be directly related to the program of study in the Graduate College, and be approved by the dean of the Graduate College. Any course work taken by a student who is not registered for a professional degree in medicine, dentistry, or law that will be counted as part of the residence requirement for non-doctoral degrees in the Graduate College only when the student is registered in an appropriate joint degree program.

G. Two Master’s Degrees

The granting by this University of two master’s degrees simultaneously, or in succession requires the satisfaction of all requirements for each degree separately, including two theses where a thesis is required for each, and two examination periods with a minimum combined total of 90 semester hours of graduate credit.

H. Master’s Degree with Thesis

Not more than nine semester hours of credit for thesis research and writing shall be counted as satisfying the 30-semester-hour minimum requirement. The thesis may be an scholarly study or an artistic production. One copy of the thesis, complete and in final typed form, must be presented to the Graduate College for a check of typographical characteristics not later than four weeks before the graduation date on which the degree is to be conferred. (See the Graduate College Thesis Manual.) After approval by the Graduate College and by the thesis committee, a final copy of the thesis must be deposited with the Graduate College not later than ten days before graduation.

The thesis committee shall consist of at least three members of the graduate faculty and may or may not be identical to the final examination committee. (See “K. Examining Committee.”)

I. Master’s Degree without Thesis

A master’s degree without thesis, consisting of at least 30 semester hours of graduate study, may be awarded upon the completion of a curriculum prescribed by the department and approved by the Graduate Council.

J. Final Examination

The requirements for the master’s degree include a final examination which, at the discretion of the department, may be written or oral or both. Such an examination will not duplicate course examinations. It will be evaluated by the examining committee as satisfactory or unsatisfactory, with two unsatisfactory votes making the comment report unsatisfactory. The report of the final examination is due in the Graduate College not later than 48 hours after the examination.

If the department so recommends, a candidate who fails the examination may present himself or herself for reexamination, but not sooner than the next regularly scheduled examination period in the following semester. The examination may be repeated only once.

Upon recommendation of a department, the comprehensive examination for a doctoral degree may be substituted for this master’s examination.

K. Examining Committee

The examining committee for the master’s degree consists of three members of the graduate faculty, appointed in the Graduate College dean upon recommendation of the major department or program. At least two of whom are from the department major, if the examination covers work in a minor department, one member of the committee must be from that department. Upon recommendation of the major department, the dean may appoint additional qualified persons not necessarily members of the graduate faculty to serve as voting members of the examining committee, and, at his or her discretion, the Graduate College dean may add a member to the committee.

Section XI. Two-Year Degrees

A. Master of Fine Arts Degree

This degree is awarded for creative work in the visual arts, dramatic art, music, or literature. It is designed for students preparing themselves professionally in such fields as painting, design, mural decoration, sculpture, playwriting, acting, producing, stage design, musical performance, composition, instrumentation, poetry, prose, and translation. Central to the program, the thesis may consist of a novel, a painting, a play, a musical composition, or any other approved artistic accomplishment.

The program for the Master of Fine Arts requires at least two years of residence credit at this College. This requires a minimum of 48 semester hours of residence credit at this College, and which must qualify for residence credit at this University. A Master of Arts degree may be earned while the student is working toward the Master of Fine Arts degree, but the student must meet all requirements for each degree separately, with a minimum of 60 semester hours of graduate credit.

For other requirements see “Section X.B. Professional Practice: Two-Year Programs: B. Extramural Programs: E. Reduction of Old Credits; F. Master’s Degree with Thesis; J. Final Examination; and K. Examining Committee.”

B. Specialist in Education Degree

This degree is granted upon completion of a prescribed two-year, postbaccalaureate program designed for students preparing themselves professionally in such fields as teaching, administration, and supervision, and special services.

The minimum of 60 semester hours required for the degree, at least 24 semester hours must be completed in residence this University, of which 15 semester hours must be earned while the student is in residence. This degree is open to 24 month period or during two summer sessions.

Twelve-eight of the 60 semester hours are prescribed in the area of
specialized. The others are in cognate fields, supervised experience, and two or more semester hours of research culminated in a written report.

Courses successfully completed ten or more years prior to the final examination will be evaluated by the major department in order to determine the amount of credit that shall be awarded for such work. Evaluation of such old credits will be reported to the Graduate College but will not be included in the time of submission of the plan of study.

Other requirements and regulations applicable to the educational specialist degree are the same as prescribed for the one-year master’s degree in "Section X.B, Plan of Study; "C. Major and Related Fields; "F. Limit on Professional Courses; "J. Final Examination;" and "K. Examining Committee."

A master's degree may be earned while in residence for the educational specialist degree provided the student meets all the requirements for the master's degree in question.

C. Master of Social Work Degree

The M.S.W. degree is conferred by the University upon those students who give evidence of knowledge and competence in the professional practice of social work by meeting the following requirements:

1. A minimum of 24 semester hours in residence at The University of Iowa.

2. A minimum of 60 quarter credit hours in graduate social work, including a research requirement.

3. A final examination

A thesis is optional.

The requirement of 60 semester hours to mean that a student who can satisfy the faculty of the school of social work, in the junior or senior undergraduate years, the clear equivalent part of two parts of the graduate curriculum in social work may be permitted, upon recommendation of the faculty of the school, to qualify for the M.S.W. degree on less than 60 semester hours. In no case may a student qualify for the degree on less than 48 semester hours of graduate credit.

The curriculum is organized into four general areas: social work practice, human growth and behavior, the social services, and research. During the two-year graduate program, class work is accompanied by 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 further requirements, see "Section X.B, Plan of Study; "E. Reduction of Old Credits; "F. Limit on Professional Courses; "H. Master’s Degree with Thesis;" and "K. Examining Committee."

Section XII. Doctor's Degrees

A. Character of Degree

The Graduate College awards two doctorates: the Doctor of Philosophy and the Doctor of Musical Arts. The doctorate is the highest degree awarded by the University. The Doctor of Philosophy degree indicates marked excellence in research or other creative work, and superior comprehension in the discipline. The Doctor of Musical Arts degree indicates exceptional excellence in performance and pedagogy.

B. Prerequisites

The candidate must submit evidence of having completed a satisfactory amount of undergraduate work in the subject major for which the degree is to be awarded. In the case of deficiency, must register for prerequisite courses.

C. Residence Requirement

The doctorate is granted primarily on the basis of achievement rather than on the accumulation of semester hours of credit; however, the candidate is expected to have completed at least three years of residence in a graduate college. At least part of this residence must be spent in full-time involvement in one’s discipline. At this University, beyond the first 24 semester hours of graduate work, this requirement can be met either by enrolment as a full-time student (nine semester hours minimum) in each of two semesters, or enrolment for a minimum of six semester hours in each of three semesters during which the student holds at least 50% of full-time assistantship, certified by the department as contributing to the student’s doctoral program. For enrolments of record and assessment of fees, student registration, which reflect accurately the amount and kind of work undertaken in the Graduate College. All doctoral programs, including acceptable track/credit, will contain a minimum of 72 semester hours of graduate work.

D. Plan of Study

The development of the plan of study at the doctoral level is the responsibility of the student working together with his or her advisor. A formal plan of study must accompany the departmental request to the Graduate College for permission to conduct the comprehensive examination. The plan will provide a listing of all graduate courses taken which apply toward the degree and a listing of courses in progress or to be completed after the comprehensive examination.

E. Ad Hoc Interdisciplinary Programs

A student may propose a proposal for an interdisciplinary course of study, including the work for the comprehensive examination, under the sponsorship of at least three faculty members and the department most directly concerned, which shall be designated as the sponsoring department. Final approval of such individual programs is granted by the Graduate College dean, who may add members to the student’s supervising committee from other closely related departmental faculties. The degree will be awarded in the interdisciplinary field stipulated in the approved program and, parenthetically, the name of the sponsoring department.

F. Reduction of Old Credits

Courses taken ten or more years prior to the comprehensive examination will be evaluated by the major department in order to determine the amount of credit that shall be allowed for such work. Evaluation of such old credits will be reported to the Graduate College by the departmental executive at the time of submission of the plan of study.

G. Limit on Professional Courses

No course taken by a student in the fields of Dentistry, Law, or Medicine while enrolled for a professional degree may be credited to a graduate program leading to a doctoral degree if it is taken after the student has earned a bachelor's degree, or has completed work equivalent to that required for a bachelor's degree at The University of Iowa. The work accepted from the professional colleges must be directly related to the student’s major field of study in the Graduate College, and the plan of study must be approved by the student’s advisor and the major department. Work completed while registered for a professional degree in law, medicine, or dentistry will not be considered for the one academic year which must be spent in residence as a doctoral student on the campus of this University.

H. Joint Program for Master's and Doctoral Degrees

Those students who expect to continue their training through the doctoral degree may file a joint program for the master's and doctoral degrees. The master's examination may be combined with the comprehensive examination for the doctorate for these candidates. The examining committee will file separate reports of its actions on the final examination for the master's degree and for the comprehensive examination. Upon recommendation of the department and approval of the Graduate College dean, students who are well qualified by previous training may submit a plan of study that leads directly to the doctoral degree without requiring a master's degree as an intervening part.

I. Requirement in Foreign Languages

There is no general Graduate College requirement in foreign languages. Those departments requiring competence in one or more foreign languages will specify standards as to the extent and level of competence, as well as the methods and standards for determining such requirements will be found in the departmental statements of standards and procedures (see "Section IV.D.").
K. Postcomprehensive Registration
The student is required to register each semester after passing the comprehensive examination until the degree is awarded. If a student fails to register, the student may not be readmitted to candidacy until the student has completed an application which has been approved 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, research, and thesis necessary to complete the plan of study.

When the registrations required for the plan of study have been completed, the student may meet the continuing registration requirement by registering for 600-000 PH.D Postcomprehensive Registration and paying a social security fee for any semester in which the department (i.e., department chair or director of graduate studies) and the student's advisor determine that the student is neither making significant use of University faculty (e.g., library privileges) nor participating in consultation with the faculty. It is understood that no registration for a summer session is required when the student makes no use of University resources, unless the student is taking a degree at the end of that session or the registration is required by the department.

J. Dissertation for the Doctoral Degree
A copy of the dissertation, completed and in final form, must be delivered to the office of the Graduate College before the final examination. Any student who has been on leave for more than four weeks before the graduation date on which the degree is to be conferred, and two copies deposited there in final form ten days before graduation.

Regulations regarding the submission of the dissertation copy shall be promulgated by the dean of the Graduate College. Dissertations will be microfilmed and thus made available on a permanent basis. An abstract of the dissertation, not to exceed 300 words of text, is to be deposited with the dean by May 1 of the academic year. This abstract must be approved and signed by the dissertation advisor. The abstract is published in the journal Dissertation Abstracts International. A typed copy of the dissertation is bound and indexed at the University Library.

If the dissertation is in some nonprint form (e.g., painting, sculpture, performance in music), the University will not accept it for deposit. The dissertation advisor will approve the form of the dissertation. The dissertation advisor will also indicate if the form of the dissertation is satisfactory. No form of the dissertation will be accepted for deposit.

Written dissertations shall be made available to all members of the examining committee not later than two weeks before the date of the examination.
Upon recommendation of the major department, the Graduate College dean may appoint additional qualified persons (not necessarily members of the graduate faculty) to serve as voting members of the examining committees. A voting member may be added at the discretion of the Graduate College dean.

Section XIII. Exceptions
Petitions to waive these regulations may be made for appropriate and justifiable reasons on behalf of any graduate student through the departmental executive to the dean and the Graduate Council.

Courses

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<tr>
<th>Code</th>
<th>Course Description</th>
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<tr>
<td>598.00</td>
<td>Ph.D. Precomprehensive Registration</td>
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<td>Master's Final Registration</td>
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<td>591.11</td>
<td>CES First Program</td>
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College of Law

Program Objectives
The overall objective of formal legal education is to establish a solid foundation for a lifetime of professional growth. The educational elements necessary to build this foundation are varied. Thorough familiarity with the substance of legal principles and with the operation of legal institutions are important components, but the University of Iowa law program places an equal emphasis on the development of fundamental legal skills and an appreciation of the roles of law and lawyers in society. A writing feature of the program is the conviction that these skills can be achieved best by an education-in-program that cultivates active student participation in the learning process and creates regular opportunities for individuals and small groups to confront challenging teachers who genuinely are interested in each student’s professional development.

While many law schools rely heavily upon graduate assistants or adjunct instructors to teach lawyers’ skills, the University of Iowa is virtually unique in the award of its commitment of full-time faculty to the development of professional skills in a small-group individualized instruction format.

The University of Iowa College of Law confers upon its graduates the degree of Juris Doctor (J.D.). To be eligible for the degree, a student must satisfy the residence requirement, receive credit for more than 10 semester hours of course work, take and complete all required courses, achieve a cumulative average of 65, and satisfy the college’s five-unit research and writing requirement.

Program of Study

Full-Time Policy
The faculty believes that students receive a better legal education when they are devoting substantially all of their time to educational pursuits. For this reason, students are expected to pursue their law training on a full-time basis. This policy coincides with the accreditation standards of the American Bar Association and the Association of American Law Schools.

In extraordinary circumstances, it may be possible for a student to enroll for less than ten hours per semester. Students who believe they may be unable to attend on a full-time basis should contact the dean’s office before registering for classes.

Options for Full-Time Study
The college offers two starting dates to entering students: late May (at the beginning of the summer session) or late August (at the beginning of the fall semester). Most students elect to enter law school in the fall and expect to graduate in May of their third year of study; these students also may attend summer school at any point during their careers.

An entering class of up to 45 students is allowed to enter law school in May of the year for which it may apply. They complete nearly a full semester of work in the first eleven-week summer session, and if they remain on the “accelerated” track by attending summer school in each subsequent summer, they can graduate nine months earlier than would otherwise be possible. Thus, the accelerated student who begins law school in the summer of 1984 may graduate in August 1988. Students who begin school in the accelerated program, however, are not required to continue in the accelerated track, but may switch to the regular three-year sequence of study. Both the accelerated and regular programs consist of 90 semester hours of required and elective courses. All entering students are expected to take all courses designated as first-year courses and may not register for different courses or fewer hours without permission of the dean. No student may take a total of more than 16 hours per semester or 13 hours in summer school without permission of the dean.

Summer Session
The summer session consists of two periods of five and one-half weeks during which six to eight upperclassmen and three to five first-year courses are offered. Nonaccelerated students may attend either or both periods. Accelerated students attend the entire 11-week period.

First-Year Small-Section Program
One of the distinctive benefits of legal education at the University of Iowa is the small first-year “small-section” program, which integrates training in basic legal skills into substantive courses taught by regular, full-time faculty. The program’s purposes include giving careful attention to development of each student’s legal analysis, argumentation, research, and writing.
In the fall semester (or summer for accelerated students), the entering class is divided into sections of approximately 30 students. In the spring (or fall for accelerated students), each section contains approximately 20 students. The subject matter of the small-section course varies from year to year, but has included virtually every course in the first-year curriculum.

In the small-section course, students are given a series of challenging assignments, each with a different educational objective. Faculty members provide extensive critiques of students' performances and discuss the assigned exercises both in class and in individual conferences.

**Upper-Class Program**

In the second and third years, students have the opportunity to gain exposure to a broad array of substantive areas of the law, to concentrate course work or writing and research opportunities in particular areas of interest (e.g., through specialized courses and seminars), and to expand their training in oral and written advocacy skills, in interviewing and counseling, in negotiation, and in litigation. Very few requirements exist in the second and third years. All students must take 91-210 Appellate Advocacy I in the second year. Before graduating, all must take 91-222 Constitutional Law I and must complete an upper-class small-section course. The election procedure assures students the opportunity to enroll in a small class (usually 20 students) in a variety of substantive matters; in conjunction with the substantive material, students complete writing projects designed to teach legal drafting skills.

Also, in order to graduate, each student must earn five writing credits. The students earn two of the credits automatically by satisfactory completion of 91-210 Appellate Advocacy I and the upper-class small section. He or she can earn the remaining three credits through any combination of courses and activities that carry writing credit, including seminar papers, independent research papers, Law Review, Journal of Legal Clinic, 91-410-411 Client Counseling I-II, 91-402 Mock Court Board, and advanced appellate advocacy activities.

**Legal Clinic**

Students who have completed one-half of the work toward their J.D. degrees are eligible to participate in the College of Law's Legal Clinic Program, which offers five kinds of opportunities for students to apply their legal education to real cases under the supervision of faculty members and other attorneys. Clinic students participate in interviewing, fact investigation, negotiation, and courtroom proceedings.

Students in the Legal Aid Clinic represent indigent clients in several Iowa communities in a wide range of civil and criminal cases. Students in the Prisoner Assistance Clinic represent inmates at Iowa correctional institutions in habeas corpus and civil cases.

Students in the Complex Civil Litigation Clinic work on substantial matters relating to social welfare rights. Students in the Clerkship Program act as law clerks to trial court judges and public law offices. As such, they observe court proceedings, conduct research, and draft legal memoranda and court papers.

Finally, students in the Legislative Internship Program are assigned to work as legal assistants to state legislators and to work in other aspects of the legislative process.

In addition to those programs carrying academic credit, the College of Law participates each summer in the County Attorney Internship Program, through which students work as paid employees for county attorneys throughout the state.

A student may earn up to a total of 15 semester hours of credit in the clinic program, although students taking courses in other schools or colleges of the University may receive no more than 20 hours of credit for such courses plus clinic.

**Joint Law and Graduate Degree Program**

The College of Law has developed a program with a number of departments of the Graduate College of The University of Iowa under which students can simultaneously pursue degrees in both colleges. Under this program, if a student takes a course which is relevant to both degree courses, the course can, within limitations, be counted toward the hour requirements of both and reduce the time required to obtain the two degrees separately. Hopefully, too, the joint degree student will contribute to one discipline the insights and experiences gained in the other. Graduate departments with which joint degree programs have already been initiated include Accounting, American Studies, Anthropology, Business Administration, Computer Science, Counseling Education, Economics, Education, Educational Administration, English, Finance, Journalism, History, Hospital and Health Administration, Library Science, Philosophy, Political Science, Sociology, Social Work, and Urban and Regional Planning. Further information about joint degree programs is available from the dean of the College of Law.

A two-year program leading to a commission in the United States Air Force is available to students entering the College of Law. Information about this program may be obtained from the UI Department of Aerospace Military Studies.

For information about programs leading to a commission in the United States Air Force, write to the UI Department of Aerospace Military Studies.

**Student Life**

There are currently eleven student organizations at the college; three co-curricular clubs, which encourage interpersonal growth and social interaction; and eight student-produced scholastic journals. The college operates a placement office to assist students and alumni in securing suitable summer and permanent employment.

**Financial Aid**

A comprehensive financial aid program at the College of Law attempts to assist all students who need funds in order to permit them to attend school full-time. However, since the financial resources of the law schools are inadequate to subsidize the full cost of a legal education for every needy student, applicants and their parents are expected to make a maximum effort to provide a reasonable portion of the students' expenses. Applicants are urged to contact the financial aid office at the college for further information about types of aid available.

**Admission Requirements**

Applicants for admission must present a baccalaureate degree from an approved college or university prior to commencing work at the College of Law. It is possible that the graduate of the College of Law may be called upon to perform so varied and the possible fields of endeavor so broad and diverse, that the college prescribes a uniform pre-law program for those planning to enter law school. With the assistance of faculty advisors, each student should develop an undergraduate program which explores and develops that student's particular intellectual interests. Iowa endorses strongly the three basic objectives recommended by a committee of the Association of American Law Schools which everyone thinking of law school should consider. These objectives are: (1) an undergraduate course of study, education for comprehension and expression in words, education for a greater understanding of human institutions and values; and education for greater power in thinking. That committee strongly emphasized that undergraduate education of students for a full life through liberal education is far more important than more education directed too narrowly toward later professional training and practice. Students are urged not to sacrifice the broader perspective for detailed specialization.
Application Procedures

Applications may be obtained by writing to the Director of Admissions, College of Law, The University of Iowa, Iowa City, Iowa 52242. A student must file his or her application for admission by March 1 preceding the summer or fall semester in which he or she wishes to enter. Applications should be sent to the Director of Admissions, Calvin Hall, The University of Iowa. An evaluation fee of $10 must accompany each application unless the applicant's baccalaureate degree was not to be conferred by The University of Iowa. This fee is nonrefundable except for residents of Iowa who are denied admission. Students from disadvantaged backgrounds who cannot afford this fee should apply for a waiver.

The applicant is Responsible for submitting an official transcript from each college or university he or she has attended to the Law School Admission Services (LSAS), Box 2000, Newtown, PA 18940. The College of Law must receive the applicant's LSAS report prior to the March 1 deadline for submission of applications.

In the LSATS/LSAS registration packet, the applicant will find Law School Application Matching Forms. To preserve the right to privacy, LSAS has agreed not to release LSAS reports to any school that does not furnish LSAS with a Law School Application Matching Form. The University of Iowa cannot process an application without a Law School Application Matching Form. Therefore, please attach or enclose the form with the application form. The University reserves the right to reject applications if the processing of the application will be delayed until the form is received.

Law School Admission Test

Each applicant for admission must take the Law School Admission Test (LSAT) administered by the Law School Admission Service, Box 2000, Newtown, PA 18940, and have that test score forwarded to the College of Law along with the LSAS report. 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 semester for which they are making application.

The last test that will be considered by the admissions committee for the summer or fall term is the test given in February. However, if the test is taken in February, it may put the applicant at a competitive disadvantage since it takes at least four weeks for the college to receive the scores. Therefore, February testees must have their applications on file with The University of Iowa prior to the March 1 deadline. Foreign student applicants whose native language is other than English must take the Test of English as a Foreign Language (TOEFL), which is administered by the Educational Testing Service, Princeton, New Jersey 08540.

Deposit

Applicants accepted prior to April 1 are required to make an advance nonrefundable deposit of $50 by April 1. Applicants accepted subsequent to April 1 must make the deposit within two weeks after being notified of favorable action on their applications. In either event, the 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 toward the student's first University bill. An applicant who fails to make the deposit within the time specified forfeits his or her place in the entering class.

Evaluation Process

For a more detailed description of the admissions evaluation process, please consult the college's bulletin which is available from the Admissions Office of the College of Law.

Admission to the Iowa Bar

A rule adopted by the Iowa Supreme Court requires all law students who intend to apply for admission to the Iowa Bar to register that intention with the court no more than 90 days after beginning law school. Details are available from the dean's office in the College of Law upon registration as a student in the college or from the clerk of the Iowa Supreme Court.

Courses

For descriptions of these courses, consult the college's bulletin, which is available from the Admissions Office at the College of Law.

91105 Introduction to International Law
91106 Civil Procedure
91108 Constitutional Law I
91109 Contracts and Sales Transactions I
91125 Criminal Justice I
91126 Criminal Justice II
91127 Client Representation
91128 Property I
91133 Philosophy of Law
91138 Resource Planning
91139 Legal Aspects of Health and Medical Care
91150 Human Rights in the World Community
91155 Fundamentals of Injury and Disease for Lawyers
91156 Federal Courts
College of Medicine

The College of Medicine, as an integral part of the University, contributes to the educational programs of several PhD and student. Not only does it train students in all the health-related fields of Dentistry, Medicine, Nursing, and Pharmacy but also in the life sciences majors of the College of Liberal Arts and the health-related programs of other colleges. Additionally, it serves health professionals from throughout the Midwest who take part in a year-round program of continuing medical education, in which several thousand practicing physicians update their knowledge and skills through "refresher," short-courses, clinics, and conferences each year. It also expands and maintains educational opportunities in outreach health centers of the state, and it provides a statewide educational health care resource.

Beyond its academic responsibilities as the only college in Iowa offering work toward the M.D. degree, the College of Medicine is concerned with broad public issues of distribution and organization of health care services. Its faculty members advise and serve on state and regional health planning councils, health boards, and various health agencies; some faculty also have part-time appointments in the University's Health Services Research Center.

The College of Medicine is responsible for the associated medical sciences programs of education for physician assistants, medical technologists, physical therapists, and nuclear medicine technologists. The medical and associated medical science students have several opportunities to gain clinical experience in physicians' offices and community hospitals. For medical graduates, the college offers family practice residency programs at 16 community hospitals in eight cities throughout the state. The college promotes and sponsors experimental programs that demonstrate methods of organizing health services at the local level. Accredited by the Liaison Committee on Medical Education of the American Medical Association and the Association of American Medical Colleges. The University of Iowa College of Medicine meets the requirements of all nine licensing boards. Its diploma admits the holder to all privileges granted to graduates of all medical colleges before such bodies. All other professional programs are approved by the College of Medicine and are accredited by their respective accrediting bodies.

Faculty

Nearly all College of Medicine faculty members are full-time, their work in practice and research being part of—not apart from—their work in teaching. Many have earned national and international honors.

Graduate Programs

The college offers programs leading to graduate degrees through the Doctor of Philosophy in anatomy, biochemistry, microbiology, hospital and health administration, nutrition, pharmacology (including toxicology), physiology and biophysics, preventive medicine and environmental health, and radiation biology. In addition, graduate degree programs leading to a master's degree are offered in cell biology, pathology, and physical therapy.

Medical Scientist Training Program

An interdisciplinary M.D.-Ph.D. program offered jointly by the College of Medicine and the Graduate College, the Medical Scientist Training Program provides preparation for careers in medical science and academic medicine with emphasis on research and teaching. With support from the National Institutes of Health, the program integrates the requirements for doctoral training in sciences basic to medicine with the full clinical requirements of the medical curriculum. The program entails six to seven years of study. Further details are given in the program description.

Combined M.D.- Master's Degree Programs

Students who want to pursue the M.D. degree in combination with a master's degree program may do so by gaining admission both to the College of Medicine and to the Graduate College, and making detailed arrangements with the graduate department chair and the associate dean for medical student affairs of the College of Medicine.
Interdisciplinary Programs and Centers

Interdisciplinary programs and centers have been developed that draw strength from the faculty of the college and the associate dean available to them, without regard to other departmental units or to the expiration of graduate and postgraduate training. Many among them are the interdisciplinary programs in endocrinology, neurology, and immunology, in which degrees are not offered but in which the student can place emphasis on a specific aspect of a study program. Further information can be obtained from the associate dean for academic affairs.

The following centers are subdivisions of the College of Medicine:

Clinical Research Center

The Clinical Research Center provides the setting for patient-oriented research of disease processes. Studies of normal human physiology, biochemicals, and pathophysiology are also conducted. The important resource for the college, fully financed by federal monies, enabling all faculty members to conduct carefully supervised studies that cannot be accomplished with equal precision with existing beds of the affiliated hospitals.

Cardiovascular Research Center

The Cardiovascular Research Center coordinates the research and training programs related to cardiovascular disorders and processes. It oversees the following federally funded programs: the Atherosclerosis, Specialized Center of Research in Atherosclerosis; the Specialized Center of Research in Ischemic Heart Disease; the Lipid Research Clinic, a National Institute of Health, several training programs, and a coordinated program of other interdisciplinary research support. In addition, it sponsors a number of individual project grants. Gifts from private donors have underwritten construction of two floors of cardiovascular laboratories on top of the Medical Research Center.

Diabetes and Endocrinology Research Center

The Diabetes and Endocrinology Research Center coordinates research and training programs related to diabetes and associated endocrine disorders. It was established in 1975 with support from the Institute of Arthritis, Metabolism and Digestive Diseases.

Center for Research on Psychological Disorders of Children

This center draws from the expertise in the departments of Psychiatry, Pediatrics, Neurology, Speech Pathology, Psychology, and Sociology. It is centered in the Division of Child Psychiatry.

Cancer Center

A Cancer Center was established in 1980 to coordinate the efforts of the faculty and staff of the University in research, education, and administration programs related to all aspects of cancer.

Educational and Patient Care Facilities

First and second-year classes are taught in the Bowen Science and Medical Laboratories buildings. A Health Sciences Library is at the core of the medical campus. Students acquire clinical experience in the 1,035-bed University Hospitals and Clinics complex, in the adjacent, 332-bed Veterans Administration Medical Center, and in a score of affiliated hospitals and ambulatory care centers throughout the state.

College of Medicine and College of Dentistry faculty members comprise the 418-member clinical staff for University Hospitals and Clinics, whose 18 parallel services are directed by the heads of the corresponding academic departments in those colleges. These faculty members also provide instruction for the 334 resident physicians and dentists who comprise the house staff of University Hospitals and Clinics, which provides facilities or teaching of major medical specialties. IV residencies in all such specialties and for fellowships in a number of subspecialties. University 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 University Hospitals and Clinics, Veterans Administration Medical Center, and related academic and health service units, see "The University of Iowa Health Center" section of this Catalog.

Research Facilities

A number of facilities are administered through the dean's office in support of the research and teaching endeavors of the faculty of the College of Medicine. The animal care facility arranges for the purchase, maintenance, and cordon-keeping of a wide variety of animals. The bioengineering facility provides specialized electronic design, construction, and repair services.

The Office of Consultation and Research in Medical Education is composed of educational and media specialists who serve the faculty, staff, and administration. The unit provides educational consultation, utilizes and cooperates in education research endeavors, and conducts teacher education seminars (M.D.).

The medical instrument faculty designs and fabricates scientific equipment, providing precision machine services. The medical graphics, photography, and television sections offer consultation, design, and production services in these various art forms. The spectrum of composition is greatly expanded by Geographics, a computer-generated graphics system.

The P3 facility meets federal guidelines for recombinant DNA research requiring P3 containment. It can be used also for research on other hazardous human or animal pathogens.

Studies on protein structures are conducted in a facility containing ultracentrifugation, amino acid analyzers, protein sequencer, and spectrophotometer equipment. A faculty for mass spectrometry provides service for structural studies of important biological molecules and their analysis by an interface with a gas chromatograph.

Doctor of Medicine

The University of Iowa College of Medicine presently accepts 175 freshman men and women into its four-year course of study leading to the degree Doctor of Medicine (M.D.).

The curriculum in medicine at the University of Iowa is based on a strong foundation in the basic sciences. It is evaluated and renewed continually to reflect the changing needs of the new physician and of society.

Basic Medical Sciences

The first three semesters present this core of sciences basic to the study of medicine.

First Semester

59.163 Biochemistry for Medical Students is organized 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 didactic sessions, the student starts to use various problem-solving approaches.

60.103 Gross Human Anatomy for Medical Students includes clinically relevant areas of anatomical and surface anatomy with clinical correlations. A complete dissection of the human body is undertaken, and the relationship to the living system is stressed.
60:104 Medical Embryology offers lectures on human embryology with emphasis on the clinical aspect of its development. Registration is limited to medical students; graduate students are referred to 60:217. The course is offered for six credits.

60:105 General Histology for Medical Students provides a course of study for the care and interpretation of normal and pathologic structure and function needed for the work to be accomplished in physiology and pathology.

115:102 Human Development 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 a whole group experience through which they learn about and improve their ability to communicate sensitively with patients and colleagues.

63:110 Bioethics provides guidelines for the application of statistical principles to the biological and medical sciences. Emphasis is given to the interpretation of studies published in medical journals.

Second Semester

72:212 Medical Psychology offers the student an understanding of the response an organism gives to external stimuli and provides a basis for understanding the integrated function of the organ systems. Much of the material in these two lectures is based on a clinical point of view. In small discussion groups, case studies are reviewed and led. Laboratory exercises, the students present their evaluations of the psychologic mechanisms at work in the clinical material. Some demonstrations are available in clinics.

61:103 Medical Microbiology includes immunity and presents a corn of information on the classification and mode of action of infectious agents, as well as certain aspects of body response to these agents. Laboratory work continues to play an important role in this course.

62:201 General Pathology for Medical Students is correlated with microbiology in this semester to increase the efficiency of the learning process. This course is self-paced, with the student "testing out" of each segment as it is completed. Emphasis is placed on pathogenesis and altered function in cellular and tissue regeneration, infection, and growth disorders. Clinical problem solving and dissection periods have replaced laboratory in this course.

Third Semester

62:202 Systemic Pathology for Medical Students applies the principles given in the second semester to specific diseases in an organ approach. Student-centered learning is achieved by participants in this course through small group discussions and practice in case analysis.

60:110 Medical Neuroanatomy presents the structure of the nervous system. Much of the material is available for self-study and small group study in notebooks. 60:109 Preventive Medicine presents fundamentals to help prepare the student in some of the sociologic, economic, and public health aspects of medical practice.

71:105 Pharmacology for Health Sciences: Medical Students. Medical theory bridges the clinical and basic sciences and provides the student with principles that must be understood to describe properly the actions of drugs in the patient.

Several elective courses are available to students during the third semester. These courses cover two semesters or hours of credit. Topics include areas not specifically covered in the regular curriculum and areas related to medical practice and the role of the physician. Typical examples are Perspectives in Aging, Humanistic Medicine, Human Nutrition, and Spanish for Health Professionals.

Introduction to Clinical Medicine

A major interdisciplinary course, 56:111 Introduction to Clinical Medicine, fills the fourth semester. It includes participation by a large proportion of the faculty and is vital in providing a student with the tools for a lifetime of patient care.

The first series of mornings is devoted to introducing the patient as a person and guiding students in their interviewing, counselling, and history-taking. Following this is an intensive review of clinical medicine on an organ system basis, given by teams of physicians and basic scientists. The final group of mornings is spent in areas of the body where things do not naturally fall into organ systems, and on re-emphasis of some key subjects.

Throughout the 16 weeks of this course, students spend afternoons acquiring and practicing the skills of the clinician in history-taking and physical examination. Habits of care, concern, and comprehension needed by all physicians are established in this semester. Toward the end of the semester, each student is evaluated individually several times to determine the level of skill and knowledge. If further work is needed, guidance and assistance are provided.

Clinical Clerkships

The third year includes the required clinical clerkships and presents each student with opportunities to work with physicians of all clinical disciplines who care for their patients. Students spend nine weeks in each of the major medical disciplines, six weeks each in surgery, pediatrics, psychiatry, and dermatology, neurology, gynecology; and two weeks each in anesthesia, dermatology, neurology, otorhinolaryngology, orthopedics, urology, and family practice. Students spend most of this time in Iowa City.

The clinical clerkship year is the most critical period of time in medical education, for this is when the student takes on the posture of a physician to learn at first hand the complexity of medical science when viewed at the bedside, and to understand the responsibility of the physician for human life.

Period of Selective Study

Following the clerkships, the fourth year provides a period of selective study, giving the student many options. The broad, comprehensive orientation to the different medical disciplines and the level of clinical sophistication achieved during the clerkship year qualify the student to participate in a variety of medical experiences, ranging from advanced courses in specialty areas to community-based clerkships in primary care.

Financial Aid

The College of Medicine provides financial assistance on the basis of demonstrated financial need. Moorland is in the form of loans. The Health Professions Student Loan and Guaranteed Student Loan are federally funded or sponsored programs. The Medical Education Assistance Program, Canada Brown Medical Student Loan, and Stehl Loan are College of Medicine programs. The Dr. George Scammon Memorial Loan is available to Iowa residents through the Iowa Medical Education Assistance Commission.

A limited number of grants are awarded each year to students who demonstrate exceptional need. In certain situations small, short-term emergency loans may be obtained through the college.

Information and advising on financial aid can be obtained through the Office of Student Services, College of Medicine.

Educational Opportunities Program

The Educational Opportunities Program provides financial and academic assistance to disadvantaged students from groups under-represented in American medicine.

Admission to the M.D.

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 through June 15 of the year preceding the beginning of the class for which application is being made. Prospective students are urged to apply...
as early as possible. The closing date is December 1.

Final application will be forwarded to applicants whose AMCAS applications pass a review conducted by the College of Medicine. A $175 fee is included to cover the cost of processing the final application from applicants who have not completed work in radiology at The University of Iowa. This fee is not refundable except to residents of Iowa who are denied admission.

Each applicant must also file with the University Office of Admissions an official transcript from each college he or she has attended.

Requirements

An applicant for admission to the College of Medicine must have:

- Received the baccalaureate degree, or
- Completed three years of a curriculum qualifying him or her to receive the baccalaureate degree after completing the first year in medicine, or
- Completed three years of a baccalaureate program leading to the general graduation requirements of the college he or she is attending.

Prospective students must have earned at least 94 semester hours of credit, or the equivalent, including:

- Physics: a complete introductory course.
- Mathematics: college algebra and trigonometry, or an equivalent course.
- Chemistry: as a minimum, a complete introductory course in organic chemistry, ordinarily following a complete introductory course in general chemistry.
- Biological sciences: a complete introductory course in the principles of animal biology, or zoology and botany (not botany alone), and an advanced biology course.
- All the foregoing must be taken with appropriate laboratories.

Applicants for admission to the College of Medicine must possess the capability to pursue the entire medical curriculum and achieve the degree. Doctor of Medicine candidates are required to demonstrate proficiency in a variety of cognitive, problem-solving, manipulative, communicative, and interpersonal skills. Therefore, the following abilities and expectations must be met by all students admitted to the College of Medicine:

- Candidates must be able to observe and describe events in the body.
- Candidates must be able to learn and perform routine laboratory tests and diagnostic procedures.
- Candidates must be able to respond with precise, quick, and appropriate action in emergency situations.
- Candidates must have sufficient use of the senses of vision and hearing and the somatic sensation necessary to perform a physical examination.
- Candidates must be able to perform palpation, auscultation, and percussion.
- Candidates must be able to react reasonably to patients and establish sensitive, professional relationships with patients.
- Candidates are expected to be able to communicate the results of the examination to the patient and to their colleagues with accuracy, clarity, and efficiency.
- Candidates are expected to be able to learn and perform the necessary 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 and respond with precision, quick, and appropriate action in emergency situations.
- Candidates are expected to be able to accept criticism and respond for appropriate modification of behavior.
- Candidates are expected to possess the perseverance, composure, and consistency to complete the medical school curriculum and enter the independent practice of medicine.
- Applicants who do not meet these standards are encouraged to contact the coordinator of admissions.

Eligibility of the specific requirements for admission does not ensure admission to the College of Medicine. From the 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 for admission under exceptional conditions.

To be considered for admission, an applicant must have attained a grade-point average of at least 2.5 for all college work undertaken. Because the quality of work in premedical science is basic to success in medicine, the admissions committee gives special attention to grades in science and to the level of difficulty of the program undertaken. Where courses are on a pass/fail basis, it is expected that applicants will take the required science courses on a graded basis.

Preference is given to applicants with high scholastic standing who are residents of Iowa. Outstanding nonresidents are considered on a relative basis.

Under the Early Decision Plan. Under this plan, the prospective student submits an application to his or her first choice of schools by August 1 of the year preceding the one for which the applicant is seeking admission, and the decision is made by October 1. The Early Decision Plan is waived for applicants to the Medical Scientist Training Program and the Educational Opportunities Program.

Applicants are required to take the Medical College Admission Test (MCAT) administered by the Association of American Medical Colleges in the spring or fall of the year preceding that for which they are seeking admission. Students may make arrangements to sit for the examination through the University Examination and Service Center.

Personnel interviews are not usually conducted but are occasionally requested by the admissions committee. Applicants who feel that an interview is necessary may request that an interview be arranged by contacting the coordinator of admissions. Requests for interviews should be made before January 1. The specific purpose of the interview should be clearly stated.

Applicants accepted on or prior to February 15 must submit a $50 advance payment by March 1. Applicants accepted after February 15 must submit this payment within two weeks after they receive notification of acceptance. The advance payment is credit toward tuition and fees.

All students entering the College of Medicine are required to submit the results of a physical examination. They must pass a tuberculosis skin test and, if it is positive, follow it by a chest x-ray. Both the examination and the skin test should be completed during the year prior to enrollment.

Promotion Policies and Procedures

Role of the Promotion Committee

The purpose of the promotions committee is to ensure that each person graduating from the University of Iowa College of Medicine has adequate skills, knowledge, and judgment to assume the responsibilities of a medical doctor. To perform its duties, this committee depends upon the evaluation, advice, and judgment of faculty, students, and administration.

Composition of Promotions Committee

The promotions committee consists of six members and the associate dean for medical education (voting office, without vote). There are five faculty members, one of whom is designated by the dean to serve as chair. Two are from Iow
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. Continuing enrollment of a student who has not satisfactorily completed courses in a preceding grading period may be recommended by the promotion committee, provided that an appropriate tutorial program is designed for that student. Each student must demonstrate proficiency in each required course.

Evaluation of student progress in courses is based on such examinations or other tests as are determined by each department or course on clinical skills and competency as deemed appropriate by the department or course. The College of Medicine requires that all students demonstrate proficiency in a variety of cognizant, problem-solving, manual, communications, and interpersonal skills and insists that all students adhere to general principles of medical ethics. These critical skills and ethical principles are assessed periodically in the Handbook for New Students that medical students receive at registration.

Scholastic performance in the first three years is reported by using the letters H, P, F, and I, in the sensitive study segment, only grades P, F, and I will be used. The letter I indicates satisfactory achievement at the passing level. The letter H signifies "honors," indicates achievement at the highest level. The letter F indicates work below the passing level. The letter I is used when, for good reasons, the student has not completed the work of a course.

The promotion committee meets at least twice each year, following the completion of academic semesters, 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 director, committees or the associate dean for medical student affairs who may have failed to meet the required standards of academic performance, or who have shown continued poor academic work, or who have failed to demonstrate proficiency in any of the eleven skills or abilities detailed above, or which do not meet the medical ethical standards. The committee considers other business or procedures as deemed necessary to perform its duties as set forth in this charge. The promotions committee recommends specific actions to be taken in the case of any student whose skills, knowledge, judgment, or ethical behavior is in any way considered consistently marginal or unsatisfactory. These recommendations will be forwarded for action to the medical council and executive committee, meeting in regular session to represent the faculty. Possibilities include: immediate dismissal of the student from the College, requiring the student to repeat all or any part of the curriculum, and allowing the student to continue either a regular or a deferalized schedule. Students having unremitted grades of Failure will be placed on academic probation. A grade of incomplete, if not remodeled in the time and manner specified in the promotion committee’s recommendation, becomes a grade of Failure. Students who are in a probationary status may be considered for dismissal should further academic difficulties arise.

The promotions committee presents all recommendations for the awarding of the degree, Doctor of Medicine, to a joint meeting of the medical council and executive committee, which acts on the recommendations for the faculty.

Relationship to Course Directors Committees

The course directors committees will provide guidance and counseling for students and will be a resource for and provide advice to the promotions committees.

Appeals

Students desiring to appeal promotions decisions must submit an appeal in writing to the dean of the College of Medicine within two weeks after the date of written receipt of the decision. All appeals will be heard by a special appeals board reconstituted 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. It will be granted at the discretion of the dean.

As leaves must be arranged in advance of the student’s absence. If a student requests at any time that a leave begin during a clinical clerkship or clinical elective, the student must also obtain permission from the course director.

Any unexcused absence from a major section of a basic science course or a clinical clerkship may result in all of the probation of the department, in a grade of F.

Withdrawal from the College

A student may withdraw from the College of Medicine upon approval of a written application submitted to the office of the associate dean for medical student affairs.

Reinstatement

Application for reinstatement by any student who has withdrawn voluntarily or who has been required to withdraw from the college must be received in writing in the office of the dean at least four months prior to the requested date of readmission.

The faculty is authorized to refuse continuing 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 confusion as to the best way to resolve the problem. The medical school has a formal procedure as stated in "Promotion Policies and Procedures" and an informal procedure as outlined below. In the College of Medicine, students with problems or complaints should attempt first to resolve the issue with the faculty member with whom there is a problem. If, for any reason, the student feels that the satisfactory outcome is not obtained, the student may informally discuss the complaint to the associate dean for medical student affairs of the College of Medicine. This informal discussion would not necessarily lead to involvement of the Office of the Dean in an official capacity. Should these procedures not resolve the situation, the student may then 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 the conflict and carrying the utmost significance as a formal procedures that are a part of the formal procedures. This informal procedure is intended for any situation a student may encounter including academic disputes, alleged academic dishonesty, alleged dishonesty during clinical rotation (e.g., falsifying

Anesthesia

Department Head: John H. Timke
Faculty: professors: Barry Gilsanz, Mohamed Choucri, Peter Jetten, Jack Meyers, Simon Shmelev, Marin Baker
associate professors: James Carder, John Meyers, Francisco Caneda, Cheryl L. Hillman, Stephen M. Fink, Robert Forte, Russell Gabriel, Mark Morrison, Venkat Venkata
Instructors: Robert Frank, Vern Menon, David Murphy, John Paye, David Warner, Edmir Woglarz

The department introduces the second-year medical student to anesthesia as a specialty: helps to develop in the third-year student some concepts and technical skills related to resuscitation, airway management, and the care of the critically ill patients; and to the fourth-year student more intensive study in an and all phases of the department. Diverse clinical experiences, seminars and teaching conferences, and ongoing research activities develop in the postgraduate students, and resident, the knowledge and skills required of a specialist in anesthesia.

Courses

1564 Clinical Anesthesia

Required for junior medical students. Clinical patient care in the operating room and recovery rooms includes seminar, clinical case conferences, small group discussion sessions.

1564 Clinical Anesthesia Seminar

An introduction and practical experience in various areas of anesthesia for surgical procedures, basic techniques of general, spinal, epidural, and peripheral nerve block anesthesia, experience in intravenous infusion and other albumin, maintenance skills, management of obstetric anesthesia and cardiopulmonary resuscitation. A special seminar in the clinical environment is oriented to respiratory and cardiovascular function, and various methods of treatment. Course includes clinical anesthesia seminars, morbidity and mortality conference.

Division of Associated Medical Sciences

Division Head: Rex Montgomery

The Division of Associated Medical Sciences provides for coordination of professional programs that presently include medical technologists, nuclear medicine technologists, physical therapists, and physician assistants. Flexible undergraduate programs are established to prepare students for entry into these professional areas. The student is usually enrolled initially in the College of Liberal Arts and is assigned a faculty advisor from the division. Although each program in the division has its own admission requirements, the first two years of undergraduate study are similar. Each program requires a foundation in biology, chemistry, and mathematics, physics, computer science, and psychology and are also required by some programs and are highly recommended by others. The student should carefully plan his or her study program so that conflicts in specifically required courses do not occur. It is imperative that the student consult with the appropriate program adviser to assure the proper sequencing of courses. This is a typical curriculum for undergraduate students, with options being exercised after consultation with program advisers. Programs are abbreviated as follows: MT—Medical Technology; NMT—Nuclear Medicine Technology; PA—Physician Assistant; PT—Physical Therapy.

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Medical Technology

Program director: Marian Schrattbauer
Medical director: James A. Baskin
Faculty: associate professor James A. Goossen
Leone Maser Schwatrzkogl, Alice Smith-Reas
associate Ruthanne Hennig, James O'Connor, 
James Neudorf, Frank Wirzel
anatomy-instructor Kathleen Kelby
adjunct instructor John A. Abrust
adjunct instructor Thomas Pearson
adjunct instructor-in-training Veta Brusa, Pat 
Hammond, Diane Hirdman, Jerry Jutul, Pat Keene, 
Joanne Lashoff, Varlean Loomis, Pamela Mustaphi,
Rose Mayer, Lynn Meglisch, Gloria Schmittner,
Ran Roberts, Jan Vojtich
Degree offered: B.S.

Medical technologists perform the laboratory tests upon which physicians rely for accurate diagnosis and proper treatment of disease. They are in demand in hospital, private, and governmental laboratories; clinics; physicians' offices; and industrial, pharmacological, biological, and medical research laboratories. Medical technologists are highly skilled health team members who utilize a battery of sophisticated procedures and instruments in their work and who possess specialized knowledge and skills acquired through the completion of a formal program of academic and clinical study.

The Medical Technology Program is sponsored cooperatively by the College of Medicine, College of Liberal Arts, the University of Iowa Hospitals and Clinics, and Iowa City Veterans Administration Medical Center. Satisfactory completion of this program qualifies the student for all medical technologist certification examinations. The program is approved by the Council on Medical Education of the American Medical Association and by the National Accrediting Agency for Clinical Laboratory Sciences. Assuming that the student has completed the required courses indicated above in the freshman and sophomore years the remaining curriculum may be:

Junior Year

First Semester
Foreign Language 4 s.h.
72-150 Human Physiology 4 s.h.
65-101 Economics of Health 3 s.h.
Electives 4 s.h.
Total 15 s.h.

Second Semester
Foreign Language 4 s.h.
37-118 Pathology 4 s.h.
98-110 Biochemistry 3 s.h.
Electives 5 s.h.
Total 16 s.h.

Senior Year

The clinical program comprises 12 months of didactic and practical instruction. The first summer session and semester are devoted to lectures, laboratory experience, demonstrations, and seminars covering theory and technique in clinical laboratory science. During the last semester, the student rotates through the clinical laboratory facilities of The University of Iowa Hospitals and Clinics and the Iowa City Veterans Administration Medical Center, and attends additional lectures. The program comprises the following courses:

- 69-121 Immunology for Medical Technologists
- 69-122 Clinical Chemistry for Medical Technologists
- 69-123 Microbiology for Medical Technologists
- 69-124 Clinical Hematology for Medical Technologists
- 69-125 Microbiology for Medical Technologists
- 69-126 Clinical Chemistry for Medical Technologists
- 69-127 Clinical Immunohematology for Medical Technologists
- 69-128 Clinical Microbiology for Medical Technologists
- 69-129 Clinical Hematology for Medical Technologists
- 69-131 Clinical Laboratory Science Seminar
- 69-132 Parasitology for Medical Technologists

For course descriptions, see "Pathology" in this section of the Catalog.

Admission

The professional program is limited to 30 students who begin the program in June. Applications close October 15. Fifteen students continue during the fall and spring semesters and complete the program in May. The other fifteen have the opportunity to complete unfinished prerequisite course work during the fall semester and then return to the program for the spring and fall semesters of the following year, graduating in December.

To apply for admission to the professional program, the student must be able to complete all of the following prerequisites and University graduation requirements by the end of the professional (clinical) year.

- 16 semester hours of chemistry, including qualitative analysis, quantitative analysis, organic chemistry, and biochemistry.
- Six semester hours of mathematics, including a course in statistics, and
- 16 semester hours of biology, including general zoology, microbiology, cytology, physiology, and parasitology.

Admission is on a competitive basis. Minimum cumulative grade-point averages of 2.5 overall and 2.5 in science are necessary for acceptance. Any student who enters the program as an undergraduate student must meet the general admission requirements of the University's College of Liberal Arts, and should consult with the director of the Medical Technology Program as early as possible to plan practical studies to meet all requirements.

Expenses

Medical Technology students in the professional year curriculum are responsible for their textbooks. University tuition, and student fees. Laboratory costs and equipment such as microscopes are provided by the program.

Nuclear Medicine Technology

Program director: Kenneth A. Hames
Medical director: Peter T. Kircher
Technical director: John A. Broder
Faculty: professors Frank H. Chang, James C. 
Eichholtz, Peter T. Kircher, Roland E. Peterson
assistant professors George A. Stowers, 
John A. Broder
Clinical associate professor, James A. Kircher (College of Pharmacy)
Degree offered: B.S.

Nuclear medicine technology is a medical specialty which uses radioactive tracers for diagnostic, therapeutic, and research purposes. It is a vigorous, dynamic field that has grown rapidly over the past two decades and is still expanding and growing in complexity. This continued expansion of the specialty has fostered an increasing demand for highly skilled and motivated nuclear medicine technologists.

Nuclear medicine technologists generally work in hospitals and clinics. At the heart of nuclear medicine technology is the use of sophisticated detectors and computers to trace the formation and localization of radioactive tracers in the human body.

Other basic job responsibilities may include: radiation safety; quality control; radiopharmaceutical preparation and administration; and collection and preparation of biological specimens to measure levels of hormones, drugs, or other body components. In all these functions the nuclear medicine technologist works hand-in-hand with nuclear medicine physicians, health physicists, radiopharmacists, and radiologists as an integral part of a health care team.

The Nuclear Medicine Technology Program at the University of Iowa is fully accredited by the Committee on Allied Health Education and Accreditation, and
the Council on Medical Education of the American Medical Association. Fulfillment of the requirements established by the AAMC Accreditation Board involves three years of practical work in the College of Liberal Arts and the College of Medicine, and a minimum of 12 months of professional clinical experience, available in The University of Iowa Hospitals and Clinics and the Veterans Administration Medical Center.

Upon satisfactory completion of the four-year program, the student receives the Bachelor of Science degree and a certificate of training from the College of Medicine. The graduate is then eligible for national certification as a nuclear medicine technologist.

The required courses in the freshman and sophomore years emphasize the physical and biological sciences, which provide a basic background for further development in the junior year. Applicants are strongly advised to pursue a course of study which is applicable to a baccalaureate degree, most common in one of the following areas: zoology, biology, chemistry, biochemistry, or microbiology. In the event a student is not admitted into the WAT program, the student could then complete a degree in the chosen area.

Junior Year

Required courses:

60:1 Elementary Human Anatomy
72:130 Human Physiology
22C:7 Introduction to Computing with FORTRAN
Advanced courses in chemistry, zoology, or general biology recommended: courses in Science:

37:12 Cell, Tissue, and Organ Biology
37:104 Introduction to Developmental Biology
16:17 General Microbiology
14:121 Organic Chemistry I
14:122 Organic Chemistry II
14:141 Organic Chemistry Laboratory
99:10 Basics of Clinical Pharmacology
Electives:

65:101 Dynamics of Health
65:104 Principles of Human Pathology

Senior Year

The curriculum of this clinical year is organized in accordance with the "Essentials of an Accredited Education Program in Nuclear Medicine Technology." Courses are taught in the following areas: radiopharmacy, radiobiology, radioscintigraphy, radiocomputer and inter/intraonet, radiocommunications laboratory procedures, radiation protection, patient care, medical terminology, anatomic and physiologic bases of nuclear medicine procedures, physics and instrumentation, electrophysiology, pharmacology, mathematics and statistics of nuclear medicine, and computer applications in nuclear medicine. Clinical rotations focus

on nuclear imaging, clinical radionuclide, computer applications and quantification of radioactivity in vivo and in vitro, including kinetic studies. Rotations are also established in radiiodinomassay, diagnostic X-ray, computed tomography, and ultrasonography.

The clinical year consists of these courses:

74:140 Principles of Nuclear Medicine
74:180 Applied Nuclear Medicine
74:181 Advanced Nuclear Medicine

For course descriptions, see "Radiology" in this section of the Catalog.

Admission

Prerequisites for admission to the nuclear medicine technology program include:

A minimum of 60 semester hours in all course work, with a minimum cumulative grade-point average of 2.5; Fulfillment of the College of Liberal Arts general education requirements in rhetoric, physical education, humanities, historical perspective, foreign civilization and culture, and social sciences, (sociology and psychology are recommended); A minimum of 20 semester hours in three science areas to include a complete introductory course with laboratory in chemistry, physics, and zoology; A minimum of three semester hours in mathematics to include at least intermediate algebra.

Fulfillment of these basic admission requirements does not ensure acceptance into the nuclear medicine technology program. Promotion from the junior year to the final clinical year is conditional upon satisfactory completion of a minimum of 60 semester hours of study in the recommended areas.

A new class begins in late August each year. Application materials must be received by March 1. Personal interviews are scheduled in April and the class is selected by May 1. At present, the class size is limited to eight students. Because prerequisites are becoming increasingly important, prospective students are encouraged to apply early and consult with the program director to plan an appropriate preprofessional program.

Financial Aid

Students in the nuclear medicine technology program are eligible to apply for undergraduate financial aid. Scholarships, grants, loans, and part-time job placement programs are administered by the University's Office of Student Financial Aid and are awarded on the basis of demonstrated need. Part-time work within the Department of Radiology is also available on a limited basis.

Physical Therapy

Faculty: professor Gary Smith, associate professor Charles H. Staheli, associate professor William J. Earnest, assistant professor Edward A. Beck, associate professor William J. Earnest, associate professor Donald B. Sweeney, and professor Donald B. Sweeney.

Admission requirements: must have completed the requirements for a bachelor's degree. GPA: minimum 3.0. GRE: the University of Iowa.

Degree: Master of Science in Physical Therapy.

Preprofessional programs: participation in an evaluation of the capabilities and abilities of patients. They administer treatment to alleviate pain, correct or minimize deformity, and improve the general health status of the individual; and they teach the patient, the patient's family, or other personnel the appropriate procedures for the patient's continuing care. They are also involved in the administration of physical therapy facilities, the supervision of support personnel, and consultation with other health professionals.

Physical therapy offers a wide variety of opportunities for professional practice in general or specialized hospitals, for programs for crippled children, and in physical therapy clinics, extended care facilities, nursing homes, community and governmental agencies, rehabilitation centers, the armed forces, foreign service, and athletic departments. Additional concentrations or specialties are available for teaching in educational programs, physical therapy and related professions.

Education in the program is available at three levels: the Professional (certification) level and master's levels. More advanced training is available by completing the Ph.D. in physical education with special emphasis on orthopedics. There are 60 students in the basic professional program, and approximately 15 full- and part-time students in advanced degree programs. The facilities are excellent and are well equipped for classroom and laboratory instruction. The Physical Therapy Program is located in the College of Medicine in the UI Health Center, which includes The University of Iowa Hospitals and Clinics, the nation's largest university-owned teaching hospital.

Prospectus: this location is easily accessible to the Physical Therapy Program, basic science and medical faculty, basic science courses, and internships is associated with a College of Medicine environment.

Professional Program

The professional program in physical therapy at The University of Iowa is fully accredited by the American Physical Therapy Association. Satisfaction completion of the professional program
qualities candidates for the Professional Examination Service (P.E.S.) test for licensure in Iowa and other states.

The two-year professional certification program consists of:

First Semester
60:108 Human Anatomy 4 s.h.
101:80 Fundamentals of Physical Therapy 3 s.h.
101:113 Kinesiology 3 s.h.
101:131 Therapeutic Physical Agents I 3 s.h.
101:141 introduction to Physical Therapy 1 s.h.
69:203 Introduction to Human Pathology 3 s.h.

Second Semester
60:109 Human Anatomy and Neuroanatomy 4 s.h.
101:85 Therapeutic Exercise I 2 s.h.
101:119 Clinical Observation 0 s.h.
101:151 Introduction to Clinical Medicine I 2 s.h.
101:152 Emotional Aspects of Disability 1 s.h.
101:90 Physical Agents II 2 s.h.
101:160 Fundamentals of Cardiopulmonary Therapeutics 2 s.h.

Third Semester
101:102 Fundamentals of Orthodontics and Clinical Sciences 3 s.h.
101:111 Therapeutic Exercise II 4 s.h.
101:113 Principles of Nutrition and Clinical Sciences 1 s.h.
101:95 Clinical Education and Rehabilitation 2 s.h.
101:104 Medical Injury 2 s.h.
101:121 Physical Therapy Management and Administration 1 s.h.
101:170 Prosthetics and Orthotics 1 s.h.

Fourth Semester
101:120 Clinical Internship 15 s.h.

Admission to Professional Program
A new class is admitted to the professional certification program each fall. Students may enter the program following their junior year of college or after earning a baccalaureate degree.

A student entering the program after the third year of a four-year bachelor's degree study must be able to satisfy all requirements for the bachelor's degree at the time of completing the first year of the professional certification program.

Undergraduate students who complete their preprofessional work at other colleges or universities must meet the general admission requirements of The University of Iowa College of Liberal Arts; they should consult with the director of the Physical Therapy Program to plan their preprofessional studies to meet the requirements of the Physical Therapy Program.

Regardless of academic preparation prior to admission, all students are enrolled in the same two-year professional curriculum leading to certification in physical therapy.

To be considered for admission, the applicant must have completed at least 94 semester hours of college study, including a complete introductory course and one advanced course in zoology or biology (12 semester hours; zoology preferred), a complete introductory course in chemistry (eight semester hours), a complete introductory course in physics (eight semester hours), a complete introductory course in psychology (six semester hours), a general human psychosomatic course, one college-level mathematics course (3 semester hours), and statistics (three-four semester hours). The student must have completed all science courses in the major departments offering the courses, and all must include at least one-fourth laboratory instruction.

The applicant must have a minimum overall grade-point average of 2.7, and should have a 3.0 minimum in all courses in zoology or biology, chemistry, physics, and psychology.

Graduate applicants must take the Graduate Record Examination (GRE) Aptitude Test prior to admission. Undergraduates must take the GRE during the first year of professional training. Results of the examination must be mailed to The University of Iowa, Personal interviews are required.

The physical therapy admissions committee selects the applicants who appear to be best qualified for the study and practice of the profession.

Applications are accepted beginning September 1 for the following year. Prospective students are urged to apply as early as possible. The closing date is February 1.

Expenses
In addition to general University expenses, students in the Physical Therapy Program are responsible for the purchase of uniforms,偿 pay insurance, and course syllabi.

Master of Arts
The Master of Arts in physical therapy emphasizes research and teaching in three areas of physical therapy: musculoskeletal, neuromotor, and cardio pulmonary. The 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 20 semester hours of graduate course work. Completion of basic professional physical therapy education is a prerequisite. Clinical experiences are recommended.

Physical therapy laboratories are available for human and animal studies. These laboratories are well equipped with electromechanical systems and computers for measurement and analysis of musculoskeletal function (muscle strength and endurance, gait, posture, and disability evaluation), neuromotor activity electromyography, spinal reflexes, CNS control mechanisms, and cardio pulmonary responses (heart rate, blood pressure, energy cost, and ventilation). Use of extrapatient laboratories may also be arranged.

Collaborative studies are encouraged with other departments such as neurology, internal medicine, pediatrics, orthopedics, physiology, anatomy, engineering, pharmacology, and with personnel in the physical therapy clinics. A student successfully completing the M.A. program in physical therapy will:

have knowledge and demonstrate skills in the application of basic concepts in the areas of musculoskeletal, neuromotor, and cardio pulmonary physical therapy;

be able to conduct research directed toward the discovery of new knowledge and the development of theoretical principles that will advance the understanding of physical therapy clinical practices;

be able to teach at the basic professional level and master's level of physical therapy training.

Required courses:
101:212 Medical instrumentation 3 s.h.
3 s.h.
101:301 Thesis: Physical Therapy 4 s.h.
2 s.h.
101:425 Analysis of Scientific Literature 2 s.h.
2 s.h.
101:213 Principles of Human Movement 3 s.h.
3 s.h.
101:275 Evaluation of Selected Musculoskeletal Disorders 3 s.h.
3 s.h.
101:280 Cardiopulmonary Therapies 3 s.h.
3 s.h.
101:280, 287, or 284 Practicum (Teaching, Research and/or Clinical)** 3 s.h.
3 s.h.
*Maximum of six semester hours.
**Prerequisite:
65:167 Biometries and Bioassay or
65:166 Introduction to Biostatistics
63:162 Design and Analysis of Experiments in the Biomedical Sciences
7P:143 Introduction to Statistical Techniques and
7P:242 Selected Applications of Statistical Techniques.
***These courses may be taken on a pass-fail basis.
Second Year
Phase III: Required clinical rotations:
70:555 Pediatrics for Physician Assistant Students 6 s.h.
75:535 General Surgery for Physician Assistant Students 6 s.h.
78:555 Internal Medicine for Physician Assistant Students 6 s.h.
115:556 Family Practice I for Physician Assistant Students 6 s.h.
115:558 Family Practice II for Physician Assistant Students 6 s.h.
66:105 Obstetrics and Gynecology for Physician Assistant Students 6 s.h.
73:100 Psychiatry for Physician Assistant Students 4-6 s.h.
Elective clinical rotations, selected from the following:
70:102 Pediatrics Elective for Physician Assistant Students arr.
75:100 Emergency Room Elective for Physician Assistant Students 4 s.h.
78:103 Orthopedics Elective for Physician Assistant Students 2 s.h.
115:500 Family Practice Elective for Physician Assistant Students arr.
78:100 Internal Medicine Elective (Cardiology) for Physician Assistant Students 4 s.h.
62:5 Dermatology Elective for Physician Assistant Students 2 s.h.
74:5 Radiology Elective for Physician Assistant Students 2 s.h.
75:107 Surgery Elective for Physician Assistant Students arr.
78:105 Rehabilitation Elective for Physician Assistant Students 2 s.h.
79:120 Ultrasound Elective for Physician Assistant Students arr.
66:110 Obstetrics and Gynecology Elective for Physician Assistant Students 4 s.h.
73:101 Emergency Elective for Physician Assistant Students arr.
75:112 Pediatrics Elective (Gun Unit) for Physician Assistant Students 2 s.h.
Admission
To be eligible for admission to the Physician Assistant Program, the applicant must have completed at least 60 semester hours of college level study, including:
- College of Liberal Arts general education requirements in rhetoric, physical education, historical perspectives, humanities, foreign culture and civilization, and social sciences.
- Complete introductory courses in inorganic and organic chemistry; and a complete introductory and at least one advanced course in zoology or animal biology.
- It is also strongly recommended, although not required, that the applicant's background include analytical geometry, beginning calculus, and physics.

The applicant must have achieved at least a 2.5 grade-point average on the last 60 semester hours of college course work undertaken. The admissions committee gives special attention to the applicant's performance in science courses. In the past, the successful applicant has had a cumulative and science grade-point average of 3.2, a total of 123 semester hours of college credit of which 55 semester hours were in the sciences, and approximately one year of full-time or part-time health-related patient care experience.

Satisfaction of the basic admission requirements does not ensure acceptance into the Physician Assistant Program. The admissions committee selects the applicants it considers best qualified. Applicants with previous health care experience involving direct patient contact receive preferential considerations. The committee will request interviews with the most qualified applicants.

In the event a student is not admitted into the Physician Assistant Program, he or she should have been advised to pursue a course of study which is applicable to a baccalaureate degree, most common in the areas of biology, chemistry, biochemistry, or zoology.

A new class begins the last week in May. Applications are accepted beginning one year in advance, and close May 15. Each applicant must complete The University of Iowa application and the Physician Assistant Program supplementary 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 uniforms and diagnostic equipment, approximately $550. Microscopes are not required.

Courses
115:101 Physician Assistant Clinical Second Year arr.
117:101 Seminar for Physician Assistant Students 0.5 s.h.
Lectures, readings, and group sessions dealing with the history, development, and practice of the physician assistant profession. Open only to students in the Physician Assistant Program.
117:206 Advanced Emergency Medicine for Physician Assistants 4 s.h.
In-depth training in the intensive care unit, including shock, computer simulations, clinical experience, protocols training at animal laboratory, and clinical training, which involves direct emergency room patient management and part of anesthesia experience. Open to selected senior physician assistant students and graduate physician assistants.
117:206 Advanced Emergency Medicine for Forgerygud Physician Assistant Training 4 s.h.

Biochemistry
Department Head: Edward C. Heath
Secretary: Marilyn F. Lazo
Peter Federman, Joseph A. Karol
Ashish P桔hongla, Bao R. Tran, Anh V. Van
Nees, F. Anthony Hulp
Degree Offered: Ph. D., M.S., M.D., Ph.D.

Undergraduate Programs
See "Biochemistry" in the Liberal Arts section of the Catalog.

Graduate Programs
The Department of Biochemistry offers programs in study leading to the M.S. and Ph.D. degrees. The department also offers opportunities for qualified and interested students to pursue M.S. and/or Ph.D. (medical student training) combined programs.

The focus of the graduate program is on the individual student, whose educational needs are met in formal course work and by tutorial research experience which serve as a basis for selecting a thesis topic.

First-year students take general and advanced biochemistry courses (usually 99:120, 99:130, 99:135 and 99:150) and a course of effective oral presentation (99:282 Seminar). Students spend about half of their time working in three different faculty laboratories (99:251 Research Techniques), learning research techniques in the context of ongoing projects.

At the end of the first year, students choose research laboratories for Ph.D. thesis research, begin their thesis projects, and take courses that supplement and complement their interests and preparation. Students are required to complete a minimum of six semester hours in biochemistry and six semester hours of elective science courses offered in other departments.

After passing the comprehensive examination (toward the end of the second year, students are formally advanced to the degree candidacy, and concentrate on thesis work. The program culminates in the completion of this work, and its successful defense before the thesis committee.

1 in addition to meeting these and the general requirements of the Graduate
Financial Assistance

Financial assistance is available to all students admitted to the doctoral program in biochemistry.

Admission

The graduate program in biochemistry is sufficiently flexible to accommodate students with bachelor's degrees in any of the biological, biochemical, or physical sciences. Appropriate preparation includes one-year college-level courses in organic and physical chemistry, biology, and physics, and mathematics through calculus. Students with demonstrated ability may make up deficiencies after entrance.

Beyond the general Graduate College admission requirements (see the Graduate College section of the Catalog) minimum requirements of the department include an undergraduate grade-point average of 3.6, a 3.0 average in science and mathematics courses, and an acceptable score on the verbal, quantitative, and analytical sections of the Graduate Record Examination (GRE) Aptitude Test.

Courses

95/96 Cooperative Education Program 0.5 a.
10/12 Seminar Undergraduate 0.6 a.
Introduction to the field of biochemistry: current developments and opportunities. Guidance and training in the techniques of written and oral communication of biochemical information. Required of all majors.
10/12 Biochemistry 3.0 a.
Focus on chemistry and molecular dynamics of biological systems and mechanisms used to maintain their. Prerequisites: two semesters general chemistry, one semester organic chemistry.
12/13 The Chemistry of Biological Materials 3.0 a.
Chemistry of major functional groups in macromolecules in biological systems and reactions which influence their activity. Prerequisites: Biochemistry 10/12, one year of college calculus, and Animal Science 10. Prerequisites 14/12, 12/12 recommended.
12/14 Medication 3.0 a.
Focus on aspects of drug biochemistry, how energy and structure determine their uptake, distribution, metabolism, and excretion. Prerequisites 12/12, 14/12.
10/12 Cellular Biochemistry 3.0 a.
Theory and interpretation of physical and chemical mechanisms which control the chemical reactions in the cell. Topics include thermodynamics of macromolecules in solution, chemical and biological processes, and functional aspects of cell structures. Prerequisites 14/12, 14/12, or instructor permission. (Requires library affection; these lectures, one course.
Prerequisites: 12/12 and 12/12, 14/12, 1/12-1/12 recommended.
10/12 Microbiochemical Seminars 4.0 a.
Quantitative and qualitative experiments on identification, localization, and characterization of components of biological systems, use of modern instruments and techniques for isolation, purification, characterization, and identification. Prerequisites: Biochemistry 12/12, and 12/12, 12/12 or instructor permission. (Requires laboratory affection; these lectures, one course.
Prerequisites: 12/12 and 12/12, 1/12-1/12 recommended.
10/12 Research Techniques 3.0 a.
In addition to the departmental research, numerous opportunities are provided by the Health Sciences Library and the various other departmental branches of the University Libraries system.

Analysis to mechanisms of information transfer in: reward, perception, learning, memory, behavior, motor control, neuroendocrine function, neurochemistry, and molecular DNA technique techniques. Development of action of hormones, medicines, and therapeutic agents, and the interaction of these with genetic information. The first third of the course emphasizes pharmacology systems, then the second third investigates systems, then the last third focuses on research problems. (Requires 12/12, 12/12, 12/12, and 12/12.)
91/13 Research, Independent Study 2.0 a.
Students pursue independent study in research areas of interest to them. Arrangements made by permission of instructor. May be repeated as necessary. (Requires 12/12. Program must be approved by the Graduate College.
91/14 Bachelor's Thesis 4.0 a.
Introduction to modern biochemistry for students who have already satisfied the thesis requirements. Prerequisite: consent of instructor.
91/15 Biochemistry for Dental Students 6.0 a.
Lectures, demonstrations, and conferences. Dental students required to participate. Content of course is not the same as the lecture component of other students admitted only after consultation with student.
91/16 Biochemistry for Pharmacy Students 4.0 a.
Prerequisites: pharmacy juniors and seniors who have not had equivalent pharmacy courses. Other students admitted only after consultation with student.
91/17 Biochemistry for Medical Students 6.0 a.
Lectures and clinical correlations: major aspects of clinical problems into biochemical components. For medical students, others admitted only after consultation with student.
91/18 Biochemistry for Pharmacy Students 4.0 a.
Prerequisites: pharmacy juniors and seniors who have not had equivalent pharmacy courses. Other students admitted only after consultation with student.
91/19 Biochemistry for Medical Students 6.0 a.
Lectures and clinical correlations: major aspects of clinical problems into biochemical components. For medical students, others admitted only after consultation with student.
91/20 Biochemistry for Physician Assistant 3.0 a.
Aspects of general biochemistry necessary for understanding the biomedical basis of human disease: analysis of appropriate clinical cases. Taught concurrently and integrated with 12/12.
92/22 Molecular Biology 3.0 a.
Introduction to the field of molecular biology with emphasis on methods available for the study of molecular processes and their applications to molecular biology. Corequisites: 92/12, 92/12, or instructor consent of instructor. Same as 92/25.
92/22 Genetics Seminar 3.0 a.
Lectures, discussions, and selected seminar topics in genetics. Prerequisites: Biochemistry 12/12, or instructor consent of instructor. Same as 81/25, 21/25, 21/25.
92/22 Biochemistry Seminar 3.0 a.
Chemical structure of various model compounds. Requirements for competitive analysis. Corequisites: Biochemistry 12/12, or instructor consent of instructor.
92/23 Immunology of Disease 3.0 a.
Application of basic biochemical knowledge to understanding various disease processes. Corequisites: Biochemistry 12/12, or instructor consent of instructor.
92/22 Mobility and Contact Systems 3.0 a.
Molecular mechanisms of macromolecular solutions: chemical, physical, and biological criteria. Prerequisites: Biochemistry 12/12, or instructor consent of instructor.
92/23 Molecular Biology 3.0 a.
Introduction to the field of molecular biology. Corequisites: Biochemistry 12/12, or instructor consent of instructor.
92/23 Molecular Biology 3.0 a.
Corequisites: 92/12, 92/12, or instructor consent of instructor. Same as 92/25. Biologists and students majoring in the biological sciences, discussions based on original literature. Prerequisites: consent of instructor.
92/23 Mobility and Contact Systems 3.0 a.
Molecular mechanisms of macromolecular solutions: chemical, physical, and biological criteria. Prerequisites: Biochemistry 12/12, or instructor consent of instructor.
92/23 Molecular Biology 3.0 a.
Introduction to the field of molecular biology. Corequisites: Biochemistry 12/12, or instructor consent of instructor.
92/23 Mobility and Contact Systems 3.0 a.
Molecular mechanisms of macromolecular solutions: chemical, physical, and biological criteria. Prerequisites: Biochemistry 12/12, or instructor consent of instructor.
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92/23 Mobility and Contact Systems 3.0 a.
Molecular mechanisms of macromolecular solutions: chemical, physical, and biological criteria. Prerequisites: Biochemistry 12/12, or instructor consent of instructor.
opportunity for independent study during the senior year, and an international health care elective offers exposure to primary health care systems of other countries.

Residency

The department directs a three-year residency program; candidates of rank are eligible for certification by the American Board of Family Practice. This residency trains physicians to provide continuing and comprehensive care to the total family unit, utilizing a concept integrating the patient, allied health professionals, and the physician into an efficient and effective health care team. The program is intentionally flexible to allow each resident freedom to tailor his or her training to individual interests and needs. It includes a broad spectrum of electives in internal medicine, pediatrics, obstetrics and gynecology, psychiatry, medical and surgical subspecialties, and community medicine. The program currently offers 72 individual rotations.

The hospital-based clinical experience is a unique combination of exposure to practice in the University Hospitals and Clinics, where the patients have been seen referred by physicians from all over the state, and in various community hospitals, where the inpatient care is of a nature more typical of private practice.

During the first year, a large portion of the program is based at Mercy Hospital in Iowa City, where residents have the opportunity for total participation in the program—both inpatient and outpatient—of the private physician staff. Rotations are specifically designed to provide breadth of experience. In the second year, rotations are placed in a variety of locations that provide increased time in the Family Practice Center and at University Hospitals and Clinics.

Special Facilities

The department office is located in Swinehart Hall, next to the hospital. The University Hospitals and Clinics complex and is the center of departmental activities. It contains a number of offices and is the headquarters for the medical staff. The department has a comprehensive residency program, and all residents are assigned to a resident with faculty supervision and are seen by experienced physicians. Residents remain with that resident for the period of time he or she is in the training program. Residents are placed on teaching and principal practice principles of management, including the organizational and administrative decision making, patient record and bookkeeping procedures, and chart auditing methods required to manage a private practice.

Courses

115/302 Human Anatomy in Medicine 1.5 h.
Weekly meeting of small groups of students for conferences, diagnostic clinic, structured course last one semester. Interested groups can continue.

115/201 Principles of Family Medicine 2.0 h.
115/202 Facilities Human Dimension in Medicine 1.5 h.
115/203 Human Sexuality 1.0 h.
115/298 Finding of Health and Philosophy of Medicine 1.5 h.
115/301 Medicine from the Greek Towards to Hippocratic age and modern medicine, modern anatomy, physiology, diseases of circulation, the nervous systems, kidneys, digestive system, reproductive system, skin, endocrinology, pulmonary, dermatology, pathology, pediatrics and modern surgery. 2.5 h.
115/396 Practicability in Family Practice 2.0 h.
Includes the study of the practice of medicine from the primary care setting; intended to show family practice as a viable career alternative.
115/402 Emergency Room from Outpatient Clinics, family medicine
Main objectives are to develop students' art and professionalism in a variety of family care settings and knowledge of normal human behavior in this particular socioeconomic environment, effects on patient's behavior, classes. Room and board provided. Prerequisite: consent of department.
115/403 International Health Care
Exposure to primary health care delivery systems of other countries; positions available in Great Britain, Israel, Sweden, Austria, Germany, and Canada, with others under development; individually arranged. Experiences may be arranged for sickness. One, two, and three week rotations are possible, Prerequisite: consent of department.
115/404 Primary Care at Family Practice
Available with selected family physicians representing a variety of general settings and settings of primary care practitioners and groups of varying sizes, offering each student the opportunity to select the type of situation he or she is most interested in investigating. Subsidized $50 day plus travel increasing. Prerequisite: consent of department.
115/405 Family Practice Dermatitis, Color-Report
Four-week rotations in Family Practice Model Office. Provides health care to patients where the student rotates for duration of rotation, students also became oriented, under direct supervision, to Family Practice model office. Study major problems and management of common dermatologic problems, diagnosing and billing disease process and assisting with psychotherapy design. Room and board provided. Prerequisite: consent of department.
115/406 Emergency Room from Family Practice
Room and board not provided. Prerequisite: consent of department.
115/407 Emergency Room from Family Practice
Room and board not provided. Prerequisite: consent of department.
115/410 Family Practice in-Room Teaching
Room and board not provided. Prerequisite: consent of department.
115/411 Family Practice in-Room Teaching
Room and board not provided. Prerequisite: consent of department.
115/495 Family Practice, Mission, Iowa City
Students work with selected family physicians at staff at local or rural community hospitals in the area, responsible for management of all patients identified by these physicians, participates in care rendered by other medical staff. Rotations include management of all patients, including care of elective care, primary care. Prerequisites: consent of department.
115/413 Independent Studies
Students work with mentee of Department of Family Medicine in clinical and research areas. Prerequisites: consent of department. Students should be in full-time family medicine internship. Must maintain the quality of work. Must participate in research areas. Prerequisites: consent of department.
115/419 Family Practice, Davenport
Students present problems seen in community setting, particularly those areas of medical practice where they work. Faculty. Follows through history and physical examination, and plans the care. Prerequisites: consent of department.
115/418 Family Practice, Sioux City
Students work in ambulatory practice settings, work in area of such practice, work in area of such practice, work in area of such practice. Prerequisites: consent of department.
115/416 Family Practice, Des Moines
Students work in ambulatory practice settings, work in area of such practice, work in area of such practice. Prerequisites: consent of department.
115/417 Family Practice, Cedar Rapids
Students work in ambulatory practice settings, work in area of such practice, work in area of such practice. Prerequisites: consent of department.
115/418 Family Practice, Davenport
Students work in ambulatory practice settings, work in area of such practice, work in area of such practice. Prerequisites: consent of department.
115/419 Family Practice, Sioux City
Students work in ambulatory practice settings, work in area of such practice, work in area of such practice. Prerequisites: consent of department.
115/420 Family Practice, Des Moines
Students work in ambulatory practice settings, work in area of such practice, work in area of such practice. Prerequisites: consent of department.
115/421 Family Practice, Cedar Rapids
Students work in ambulatory practice settings, work in area of such practice, work in area of such practice. Prerequisites: consent of department.
115/422 Family Practice, Iowa City
Students work in ambulatory practice settings, work in area of such practice, work in area of such practice. Prerequisites: consent of department.
The University's Center for Health Services Research became the research division of the Graduate Program in Hospital and Health Administration in 1981.

Master of Arts

The curriculum for the M.A. degree in hospital and health administration requires two years of full-time study. It is aimed at developing the knowledge, attitudes, and skills which are required to function in responsible managerial positions in hospitals, long-term care institutions, ambulatory care facilities, planning agencies, and related health organizations.

The program is founded upon an interdisciplinary approach which includes exposure to theoretical and applied aspects of health systems management. In the first year, courses are designed to familiarize students with the social, political, economic, and financial environments of hospitals and health care institutions. Concepts, tools, and techniques for effective and efficient managerial decision making, planning, and control are introduced. In the second year, the curriculum stresses the application of management concepts and techniques according to the special interests and career objectives of individual students.

The program plays an active role in assisting interested students to identify and secure postgraduate administrative fellowships and residencies in health care organizations. Although a thesis is optional for the master's degree, students who wish to pursue doctoral studies are encouraged to engage in research leading to preparation of a thesis.

The normal program of study leading to the master's degree consists of 54 semester hours of course work in at least 15 courses. However, the student may complete 16 required courses which are representative of a core of disciplines and fields of knowledge.

The courses are as follows:

80:101 Introduction to Health Care Organization 3 s.h.
80:201 Health Services Administration I 3 s.h.
80:202 Health Services Administration II 3 s.h.
80:203 Hospital Financial Management I 3 s.h.
80:204 Hospital Financial Management II 3 s.h.
80:205 Issues in Health Management and Policy 3 s.h.
80:210 Accounting in Health Administration 3 s.h.
80:212 Health Economics I 3 s.h.
80:213 Health Economics II 3 s.h.
80:215 Financial Management of Health Institutions I 3 s.h.
80:216 Financial Management of Health Institutions II 3 s.h.

Five Year Program

An early admissions plan developed with W.R. Kellogg Foundation support enables a student to complete both the M.A. and undergraduate requirements in five years. The plan seeks to attract exceptional students from diverse backgrounds. The student's undergraduate college must be willing to award the bachelor's degree after the student's successful completion of a specified number of graduate semester hours. Upon receiving the bachelor's degree, the student becomes eligible for admission to the Graduate College, a prerequisite for receiving a graduate degree.

Students who wish to be considered for the early admission plan should apply for the bachelor's degree after the student's successful completion of a specified number of graduate semester hours. Upon receiving the bachelor's degree, the student becomes eligible for admission to the Graduate College, a prerequisite for receiving a graduate degree. The student is required to participate in a course of study leading to a master's degree.

Joint Programs

Students may wish to pursue an integrated program leading to a graduate degree in health administration and a graduate degree in another field such as business administration or urban and regional planning. Joint programs of study are encouraged. Applicants who are interested in such a program should discuss their plans with both departments and should indicate their interest when submitting their application for admission.

Doctor of Philosophy

The primary purpose of the doctoral program is to prepare individuals who are expected to contribute to the professional literature in teaching and research and in management, policy development, and related activities in the health field.

The doctoral curriculum is designed to develop expertise in three areas of study. These areas and required courses are:

80:221 Quantitative Methods in Health Administration I 3 s.h.
80:222 Quantitative Methods in Health Administration II 3 s.h.
80:230 Health Administration Systems 3 s.h.
80:231 Health Care Marketing Research Methods 3 s.h.
80:232 Large Aspects of Inequality and Health and Medical Care 3 s.h.

In addition to electives offered by the program, students are encouraged to take advantage of relevant courses offered by the College of Medicine, and by other colleges, including Business Administration, Engineering, Education, and Liberal Arts.
Health Sciences Management and Policy
80-251 Medical Care Programs
80-253 Seminar: Health Services Management
80-255 Seminar: Contemporary Health Issues
80-256 Seminar: Contemporary Health Issues II

Research Methodology and Statistics
80-261 Health Services Research I
80-262 Health Services Research II
80-263 Independent Research Project
In addition, the student must complete one of the following statistics sequences:

1. General Measurement/Statistics Sequence:
   a. 7P-243 Intermediate Statistical Methods
   b. 7P-244 Correlation and Regression
   c. 80-265 Application of Multivariate Statistical Methods

2. Econometrics Sequence:
   a. 6E-183 Statistical Methods in Econometrics
   b. 6E-221 Econometrics I
   c. 80-265 Application of Multivariate Statistical Methods

3. Sociology Sequence:
   a. 34-314 Elementary Statistics and Data Analysis
   b. 34-316 Intermediate Statistics and Data Analysis
   c. 80-265 Application of Multivariate Statistical Methods

Minor Field
The student must complete at least 12 semester hours in a related field such as sociology, political science, psychology, management science, or economics.

Doctoral students are required to complete at least 90 semester hours of graduate work, pass comprehensive examinations, and submit an acceptable dissertation.

In addition to satisfying the specific requirements of the program, the doctoral student must satisfy the requirements of the Graduate College.

Center for Health Services Research

The Center for Health Services Research (CHSR) is the interdisciplinary focus for research on health and health care services at The University of Iowa. Faculty and staff investigate questions regarding the organization, delivery, and financing of health care. CHSR research interests embrace a broad range of disciplines and fields of study, including economics, organizational behavior, psychology, operations research, sociology, preventive medicine and environmental health, and clinical medicine. Under the aegis of the Graduate Program, the Center draws faculty from the Colleges of Medicine, Dentistry, Pharmacy, Engineering, Business Administration, Engineering, and Liberal Arts in common research interests.

Admission

Admission procedures are the same for M.A. and Ph.D. applicants. A qualified student with a baccalaureate degree in any discipline from an accredited college or university may apply for admission to the M.A. program. Interdisciplinary graduate programs, accounting and management of program prerequisites. Applicants for admission to the doctoral program are generally expected to possess master's degrees in health administration, medical care organization, public health, or in other fields related to health, although individuals from a variety of academic backgrounds are encouraged to apply.

Students must have a 3.0 grade-point average for regular admission. Although a student with a lower grade-point average may be admitted to conditional status upon the recommendation of the faculty.

All students applying for admission are required to furnish completed application forms, official transcripts of all graduate and undergraduate course work, three letters of recommendation, and a brief statement outlining career objectives. Applications are requested to have the Graduate Record Examination (GRE) Aptitude Test. A personal interview is usually requested prior to admission. Applicants are accepted for admission in the fall semester only. Completed applications must be filed not later than June 1.

Financial Aid

A limited number of research fellowships, teaching assistantships, and other sources of financial aid are available to support students in both the M.A. and Ph.D. programs.

Courses

80-651 Introduction to Health Care Organization
80-652 Health Services Administration I
80-653 Health Services Administration II
80-654 Health Services Administration III
80-655 Health Services Administration IV
80-656 Health Services Administration V
80-657 Health Services Administration VI
80-658 Health Services Administration VII
80-659 Health Services Administration VIII

Problems in the delivery of ambulatory health care services in hospitals, nursing homes, and other care settings. Students will work on problems in selected topics. Prerequisites: 80-253.
80-260 Health Services Administration I
80-261 Health Services Administration II
80-262 Health Services Administration III
80-263 Health Services Administration IV
80-264 Health Services Administration V
80-265 Health Services Administration VI
80-266 Health Services Administration VII
80-267 Health Services Administration VIII

Problems in the delivery of ambulatory health care services in hospitals, nursing homes, and other care settings. Students will work on problems in selected topics. Prerequisites: 80-253.
80-268 Health Services Administration I
80-269 Health Services Administration II
80-270 Health Services Administration III
80-271 Health Services Administration IV
80-272 Health Services Administration V
80-273 Health Services Administration VI
80-274 Health Services Administration VII
80-275 Health Services Administration VIII

Problems in the delivery of ambulatory health care services in hospitals, nursing homes, and other care settings. Students will work on problems in selected topics. Prerequisites: 80-253.
80-276 Health Services Administration I
80-277 Health Services Administration II
80-278 Health Services Administration III
80-279 Health Services Administration IV
80-280 Health Services Administration V
80-281 Health Services Administration VI
80-282 Health Services Administration VII
80-283 Health Services Administration VIII

Problems in the delivery of ambulatory health care services in hospitals, nursing homes, and other care settings. Students will work on problems in selected topics. Prerequisites: 80-253.
80-284 Health Services Administration I
80-285 Health Services Administration II
80-286 Health Services Administration III
80-287 Health Services Administration IV
80-288 Health Services Administration V
80-289 Health Services Administration VI
80-290 Health Services Administration VII
80-291 Health Services Administration VIII

Problems in the delivery of ambulatory health care services in hospitals, nursing homes, and other care settings. Students will work on problems in selected topics. Prerequisites: 80-253.
80-292 Health Services Administration I
80-293 Health Services Administration II
80-294 Health Services Administration III
80-295 Health Services Administration IV
80-296 Health Services Administration V
80-297 Health Services Administration VI
80-298 Health Services Administration VII
80-299 Health Services Administration VIII

Problems in the delivery of ambulatory health care services in hospitals, nursing homes, and other care settings. Students will work on problems in selected topics. Prerequisites: 80-253.
Courses
6826 Nutrition Behavior 1 cr. Discussion of problems in research design for nutritional studies, including clinical investigations. Offered fall semesters.
6826 Nutrition Behavior 1 cr. Continuation of 6826: may be taken independently. Offered spring semesters.
6827 Clinical Nutrients 6 crs. Energy, specific nutrients, nutrient-nutrient and disease-nutrient interactions, metabolic balance, dietary assessment, nutrition and metabolic regulation of normal individuals. Offered fall semesters.
6829 Projects in Nutrition 4 crs.
6829 Nutrition Research 4 crs.
6833 Nutrition Methods 1 crs. History of nutrition research, animal metabolic cassette, environmental factors, diet. Teaching methods, sample collection, data interpretation, factorial analysis, dietary intake, malnutrition before illness, involved methods of body composition analysis.
6835 Comparative Nutrition 3 crs. Age, sex, and species differences in metabolism of nutrients; special changes in human diet in developed countries. Offered spring semesters.

Internal Medicine
Department Head: Francois N. Abboud

6925 Internal Medicine 4 crs. Concepts of modern medicine, etiology, pathogenesis, clinical presentation, evaluation, diagnosis, treatment, complications, and preventive medicine. Offered fall semesters.
6926 Internal Medicine 5 crs. Advanced concepts in modern medicine, including principles of clinical medicine, nutrition, and preventive medicine. Offered spring semesters.

Graduate Program
The department offers four internships and an approved residency program of high quality. In addition, most of the department's specialty divisions offer clinical and research fellowships for periods of two to three years. These permit the development of special knowledge and skills relevant to the specialty. Candidates for internships are accepted from approved medical schools. Postdoctoral fellows who have completed their doctorates are also accepted for programs in which the major focus is laboratory research.

Facilities
Teaching occurs in the medical services and in the laboratories of the University Hospitals and Clinics in Iowa City, the Veteran's Medical Centers in Iowa City and Des Moines, and Iowa Methodist Hospital in Des Moines.

Courses
7898 Comprehensive Research and Special Study 1 cr. Independent research and study in basic research, introduction to problems of experimental design and execution of data collection and analysis in selected fields. Offered to students with background in mechanics and physiology. Prerequisite: approval of preceptor.
7901 Internal Medicine Elective for Physician Assistants 1 cr.
7902 Internal Medicine 2 crs.
7903 Advanced Cardiology Research and Teaching 1 cr. Special study of research projects requiring some knowledge of hemodynamics, myocardium, mechanics, or mathematics. Students attend to investigations with research focus and select areas. Prerequisite: approval of preceptor.
7904 Cardiac Dagnostic Clinic 1 cr. Assignment for five days a week to diagnostic cardiology. Emphasis is on diagnosis and management of common medical problems presented in an emergency, as well as the understanding of electrocardiography, conduction, and interpreting of cardiac isotope scanning in patients with coronary and congestive heart disease.
7905 Clinical Pharmacology Seminar Series 1 cr. Seminar for postgraduate medical students,医师, Ph.D., or M.D. in graduate training in pharmacology or pharmacotherapy, and concepts of Pharmacology in the 21st Century. Prerequisites: 7900, 7902.
7936 Clinical Pharmacology 1 cr. Emphasis on emphasis in diagnosis and treatment of problems in allergy and immunology; allergists and patients evaluated by students under staff supervision. Participation in interpretation of special studies carried on in allergy laboratory. Subsequent correlation with specific clinical problems.
7937 Survey of Immunology 1 cr.
7938 The Hematologic Side of Medicine 1 cr.
7939 Research in Allergy and Immunology 1 cr. Faculty-directed investigations in one or more areas chosen from those whose workers are available.
7948 Experimental Cardiology 1 cr. Development of blood flow and blood flow in the cardiovascular system. Techniques are introduced in experiments on isolated heart and lung organ preparations. Patients seen in coronary and intensive care units, in consultation, and in Cardiology Clinic, collaboratively with technicians and residents of managing such patients, and with postgraduate cardiology, and intensive care units in patient operation room.
7964 Diagnostic Criteria 1 cr.

Running up patients scheduled for cardiac
medical training. In the first semester trainees take courses in biochemistry, microbiology, morsoscopic anatomy, grow anatomy, and biostatistics. In the second semester they take physiology, microbiology, and general pathology. The first semester of year two is devoted to the study of pharmacology, system's pathology, microbiology, and community health services. During the summer between the first and second year, trainees engage in a summer research under the direction of a faculty sponsor.

In the second semester of the second year, trainees are enrolled in an Introduction to Clinical Medicine sequence which initiates the development of ethical knowledge, and training necessary for building and maintaining competence as a physician. This semester provides information and practice in history-taking, physical examination, and laboratory diagnosis, as well as insight into major health problems and needs. The Introduction to Clinical Medicine sequence is followed in the summer of the second year by 12 weeks of clinical clerkships in internal medicine, pediatrics, obstetrics, and gynecology, or medical specialties. In years three, four, and five and six, to the extent necessary, six, trainees are enrolled full time in the graduate department which they are asked to select by January of the second year. During this time, trainees are provided with academic and research experiences necessary to fulfill Graduate College requirements for the M.D. degree and appropriate to their development as independent investigators. This scientific training is directly supervised by the faculty of the graduate department. During this phase of training, clinical contact is maintained through a formal weekly program of clinical research conferences under the guidance of the Associate Director for Clinical Studies. Trainees are involved in various programs of participation in other clinical activities.

As soon as trainees complete the graduate component of their training, they return to the College of Medicine to begin a formal clinical training. This year serves two important purposes. First, it allows trainees to experience the clinical environment, a considerable and growing field of information and experiences, and to further develop the clinical skills acquired in the second year of the program. On completion of 36 weeks of clinical clerkships, trainees are awarded the M.D. and Ph.D. degrees.

Financial Support
Trainees admitted to the first year of the program complete for stipend and full tuition awards provided by a Medical Scientist Training Program grant to the University of Iowa from the National Institutes of Health (NIH). Support from this grant and institutional sources is continued for up to six years, provided achievement and progress remain satisfactory. NIH stipends are supplemented during the graduate phase of the program. Trainees admitted without NIH awards are eligible for equivalent departmental training awards beginning at the end of the second year. Medical school application for four years. Support for trainees admitted to advanced standing in the program is arranged on an individual basis.

Eligibility
Applicants must meet requirements for admission to the College of Medicine and Graduate College of The University of Iowa. It is expected that trainees will have completed requirements for a bachelor's degree at an accredited academic institution. In addition to outstanding academic records, applicants should demonstrate aptitude for and commitment to specific research, usually through productive research experience as undergraduates. Applications are accepted from students requesting admission to the first year of the program. Consideration will also be given to applications for admission to advanced standing from individuals currently enrolled in the College of Medicine or Graduate College at The University of Iowa.

Application Procedures
The University of Iowa College of Medicine is a participant in the American Medical College Application Service (AMCAS). Program applicants should instruct AMCAS to forward their credentials to the College of Medicine (IA31) as soon as possible after June 15. At the same time, applicants should request a separate Medical Scientist Training Program application from the Program Office, 5-609 Brown Science Building, The University of Iowa, Iowa City, Iowa 52242. Applications to the Medical Scientist Training Program are reviewed by the Program Selection Committee after AMCAS applications are received.

The deadline for receipt of applications is December 1. It is strongly recommended that all applications be submitted as early as possible to facilitate review by both the College of Medicine Admissions Committee and the Program Selection Committee. The early election plan of the College of Medicine for out-of-state residents is waived for this program. Equal opportunities is given to all applicants regardless of their state of residence.

Medical Technology
See "Division of Associated Medical Sciences" in this section of the Catalog.

Microbiology
Department head: Irving Crawford
Faculty: John J. Harder, Ray F. McRoberts, John E. Judter, John C. W. Ingat, Irving Crawford, Michael G. Lewis, Thomas J. Ranken (Inzymo), Rudolf P. Hassen (Bacteriology, and Genetics), Howard D. Kellogg, William Johnson, David W. Luskott (Zoology), Robert L. Gurne (Zootechnology), Allan J. Markowitz, Erich P. Sw, Donald P. Eny, associate professors George L. Becker, Charles G. Cox, John E. Madura, W. F. Slenk, George V. Mathers, J. E. Minett (Zootechnology), assistant professors Brian Clegg, Lucy Davis, Raymond Drefler (M.D., Ph.D).

Undergraduate Program
See "Microbiology" in the College of Liberal Arts section of the Catalog.

Graduate Program
The objectives of the graduate program in microbiology are to help students become highly qualified in research and in the teaching of microbiology. These six areas are included in the program: pathogenic bacteriology, microbial genetics, immunology, microbial physiology, medical mycology, and animal virology. Several of these specialized areas are interdisciplinary training within and outside the department, so students receive broad experience during their course of study. Students working for the Ph.D. degree may obtain an M.S. degree during their graduate work, or proceed directly toward the Ph.D.

All students admitted as candidates for advanced degrees are expected to assist in teaching in the department during their course of study. When appropriate students choosing a research supervisor who serves as chair of the student's advisory committee. This committee assists the student in planning a program of study, and reviews from time to time the student's progress in research. The department cooperates with other departments in the various colleges on the campus, affording ample opportunity for students to avail themselves of diverse course offerings, seminars, and research programs. For example, courses and seminars in clinical laboratory microbiology, immunology, genetics, cellular and molecular biology, and electron microscopy are taught on an interdepartmental basis.
Master of Science

A candidate for the M.S. degree will be required to take a minimum of 12 semester hours in the core courses in three of the six different subspecialties and microbiology. A student may substitute a course taken previously (at the UI or elsewhere) for the course requirements, upon obtaining approval from the M.S. committee. Additional course requirements or course selections will depend on the interests of the student and the advice of the examining committee. The thesis must be defended satisfactorily in an oral examination.

Doctor of Philosophy

The minimum course requirements for the Ph.D. are one course in each of four subspecialties (of the six subspecialties available in microbiology) or 15 semester hours of course work in two different areas. A student may substitute a course taken previously (at the UI or elsewhere) for the course requirements, upon obtaining approval from the Ph.D. committee. Other requirements are to pass a comprehensive examination and to write a thesis based on the student's research. The thesis must be defended satisfactorily in an oral examination.

Facilities

The department shares the Bowen Science Building with Anatomy, Biochemistry, Pharmacology, and Physiology. Adequate space and excellent equipment are available for teaching and research.

Admission

Prospective graduate students should consult the department chairman, the approval committee, or the Graduate Record Examination office concerning admission requirements. Graduate Record Examination scores are required of all students applying for graduate study. Appointments include a review and final vote by the faculty before a student is admitted. Before beginning graduate work, the student must have completed courses in microbiology, chemistry, organic chemistry, physics, and mathematics. Students admitted without the above course work must take them during the first year of graduate study. The student should have a grade-point average of 3.0 or better in all previous work to be admitted to the graduate program in microbiology.

Courses

61142 Medical Microbiology 3
Principles and methods essential to study of microorganisms, the isolation and identification, the pathogenesis, the treatment and control of infectious diseases, present significance of microbiology in medicine and dentistry. Credit for both 61142 and 61143 may not be applied toward graduation requirements in microbiology. Credit is not given for both 61142 and 61143.

61143 Medical Microbiology 3
Principles and methods essential to study of microorganisms, the isolation and identification, the pathogenesis, the treatment and control of infectious diseases, present significance of microbiology in medicine and dentistry. Credit for both 61142 and 61143 may not be applied toward graduation requirements in microbiology. Credit is not given for both 61142 and 61143.

61144 Medical Microbiology 3
Principles and methods essential to study of microorganisms, the isolation and identification, the pathogenesis, the treatment and control of infectious diseases, present significance of microbiology in medicine and dentistry. Credit for both 61142 and 61143 may not be applied toward graduation requirements in microbiology. Credit is not given for both 61142 and 61143.

61145 Medical Microbiology 3
Principles and methods essential to study of microorganisms, the isolation and identification, the pathogenesis, the treatment and control of infectious diseases, present significance of microbiology in medicine and dentistry. Credit for both 61142 and 61143 may not be applied toward graduation requirements in microbiology. Credit is not given for both 61142 and 61143.

61146 Medical Microbiology 3
Principles and methods essential to study of microorganisms, the isolation and identification, the pathogenesis, the treatment and control of infectious diseases, present significance of microbiology in medicine and dentistry. Credit for both 61142 and 61143 may not be applied toward graduation requirements in microbiology. Credit is not given for both 61142 and 61143.
Neurology

Department Head: Maurice W. Van Allen
Faculty: professors: Maurice van Allen, William E. Seid (Pediatrics), Arturo D’Angelo, Richard Frumin, Jan Krieger, Rolf Link; Robert McDonald, Gary Van Hoven (Anesthesiology), Tatsuo Yamasaki; professors emeriti: Arthur L. Benton (Psychology), A. Gage

Assistant professors: Harold P. Alper, Jr., J. R. Weart Brown, James J. Cort, Hansa Damodaran, Thomas Tavassoli, assistant professor: James E. Peabody (Pediatrics), G. Brooks Greene, Joel A. Grant (Anesthesiology), assistant adjunct assistant professor: Paul Enright, assistant research scientist: Joyce Miller, postdoctoral associate: Daniel Travel, associate Francois Weber

Neurology is the branch of medical science concerned with diagnosis and management of disorders of the brain, spinal cord, peripheral nervous system, and muscle. Teaching and postgraduate training, carefully integrated with patient care, have long been a significant function of the department.

The department offers clinical and research training in third- and fourth-year medical students, contributing to the Doctor of Medicine degree. An active three-year approved residency program qualifying physician trainees for board certification in neurology is a major aspect of departmental activity. Experience in clinical electrophysiology, pediatric neurology, psychiatry, and neuropsychology is part of this training. The department also offers research opportunities for graduate students to candidates for the Doctor of Philosophy degree in psychology.

Investigative interests of the staff center on speech disorders, diphtheric listening, behavioral abnormalities based on disease of the nervous system, electrophysiological correlates of disease, proteins and glial growth factor of the central nervous system, biochemistry of the anticonvulsant drugs, treatment of anesthetic granulosis, peripheral neuropathy, cerebrovascular disease, and movement disorders.

Courses

0411 Clinical Neurology 2 h
Weekly morning and afternoon conferences in small groups, or management of ambulatory patients. Third-year.

0412 Stroke in Neuro-Ophthalmology 2 h
Same as 87-102.

0410 Principles of Neurology and Clinical Sciences 1 h
Lectures, demonstrations, and case presentations of neurologic disorders; anatomy of the nervous system structure, function, and regulation of nerve injury demonstrated. Same as 101-112.

0421 Research Neurology 1 h

0420 Internship in Neurology 2 h

0330 Introductory Neuropsychological Assessment 3 h
Standard behavioral and psychological test battery under supervision of certified individuals and preparation of interpretative reports of collected data. Involving an ongoing new research project, students will be expected to demonstrate a high level of proficiency in administration and interpretation of neuropsychological tests, as well as competent research skills.

0429 Advanced Neuropsychological Assessment Continuation of 0420.

0431 Research Projects in Clinical Neurology
Student plans and endeavors, with construction original projects of varied nature in cerebrovascular disease, convulsive disorders, dementia and memory diseases, degenerative diseases of the nervous system, neuropsychiatric disorders; mental retardation and intellectual disability; management of acquired brain injury. Laboratory research as well as pertinent clinical problems to study population included. One student. Course period three months. Offered all years.

0430 Advanced Doppler Ultrasound

0431 Behavioral Neurology

0430 Behavioral Neurology and Language Disorders
Superimposed study of speech, behavioral, and aphasia disorders of patients with various diseases. Extensive significance to clinical neurology. Offered all years. Course period two months. Offered all year.

0429 Neurological Supervision

0429 Neuropsychological Laboratory
Acquaint students with laboratory techniques and methods of analysis in neuropsychological laboratory. Examine the various projects from the laboratory basis of deficient thought, with emphasis on the basic research experience with clinical problems. Preclinical consent of course director.

0425 Geriatric Neurology
Correlation of evaluation and management of patients with cerebrovascular diseases. Students attend conferences and clinical rounds.

0496 Special Studies in Gerontology

0496 Special Studies in Gerontology

Obstetrics and Gynecology

Department Head: R. M. Allen

The course in obstetrics and gynecology is designed to give M.D. students a comprehensive overview of reproductive medicine. This is done through a series of didactic lectures, important point-levant assignments, ward rounds, learning seminars, and surgical elective courses.

The third-year clerkship (66.4 Clinical Obstetrics and Gynecology) gives the student core knowledge, skills, and attitudes needed to provide primary health care to women patients. The department offers fourth-year students a variety of electives that provide advanced training in the special areas of obstetrics and gynecology, in addition to clerkships at The University of Iowa Hospitals and Clinics, these electives include rotations at Brooklands Park Community Hospital, Des Moines; Otterbein Clinic and Conway Memorial Hospital; Monroe, Louisville; Medical Associates, Dubuque; The Gunderson Clinic, LaCrosse, Wisconsin; and Orlando Regional Medical Center, Orlando, Florida.

Residency Program

The department offers a four-year residency program. Upon completion, graduates are eligible for the written and oral examinations leading to certification by the American Board of Obstetrics and Gynecology.

The resident is assigned to the various divisions and clinical services of the department and cares for both hospital residents and outpatients. Additional training is obtained in prenatal clinics in Wapello, Des Moines, Muscatine, and Fort Wayne. During the first two years, the resident spends time at Iowa Methodist and Des Moines General Hospitals and, at St. Luke’s Hospital in Des Moines. The resident is trained in normal and abnormal obstetrics, gynecologic surgery, office gynecology, endocrinology, family planning, and endoscopic procedures.

Fellowships

The department offers two-year fellowships in reproductive endocrinology (one), reproductive endocrinology (two), and maternal-fetal medicine (two). Each summer a clinical and research activities. After completion fellows are eligible for the examinations of the American Board of Obstetrics and Gynecology leading to certification of special competence.

Courses

0446 Clinical Obstetrics and Gynecology

0446 Clinical Obstetrics and Gynecology

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The department provides one of the oldest and largest otolaryngology—head and neck surgery training programs in the world. Currently it has a full-time faculty of 14, including several members from Plastic Surgery, Audiology, Speech Pathology, and Dentistry (Orthodontics and Prosthodontics).

The department's main objective is to provide a high-level instructional program in otolaryngology—head and neck surgery for medical students and residents. To maintain a teaching program, the department's faculty and staff carries a large patient load in head and neck plastic reconstructive surgery, facial trauma, cranial, and neck reconstructive surgery (such as cheek, lip, and palate), neurosurgery, pediatrics, and otologic hearing problems, voice, and Otodynamics. Surgery for deafness, and all areas usually considered otolaryngology.

There are nine divisions in the department which make this program comprehensive: rhinology and neurosurgery, plastic and reconstructive surgery, of the head and neck, rhinology, pediatric otolaryngology, cranialbase surgery, and research.

Another major objective of the department is to foster research programs designed to yield new models for patient and resident research training.

All senior faculty members participate in research and are encouraged to participate, as part of the resident training program, to design, conduct, and report on a research project during their program of study. In addition, there are several organized, large scale research programs within the department in vestibular neurosurgery, cranialbase surgery, and other cranialbase disorders, head and neck oncology, head and neck reconstructive surgery, microvascular reconstruction surgery, anatomy of the temporal bone, neurosurgical anatomy, and otolaryngology.

Several of these research programs receive federal and private financial support.

Graduate Program

The graduate program in otolaryngology is in accord with the requirements of the American Board of Otolaryngology—head and neck surgery. The program consists of a four-year course of basic and clinical sciences.

The basic science lectures and laboratory studies are conducted during the first three and one-half months of residency.

After passing an oral and written examination, the student enters 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.

To complete the requirements for the Master of Science degree, the student must earn at least 30 semester hours of credit, one-third of which must come from the basic science group, and must present and defend a thesis. Students' capstone of additional work may also take elective courses.

A limited number of resident physicians can be accepted each year. Applicants must be graduates of a recognized class in medical school and must have completed one year of general surgical training in an approved program.

Courses

00.03 Clinical Otolaryngology

00.150 Clinical Internship in Otolaryngology

00.151 Head and Neck Oncology

00.154 Basic Principles of Facial Plastic and Reconstructive Surgery

00.155 Special Lectures in Otolaryngology

00.199 Basic Otolaryngological Science

01.00 Lectures on diagnostic and therapeutic surgery and physiology of head and neck, anatomy, pathology, physiology, rhinology, otolaryngology, head and neck plastic reconstructive surgery, facial trauma, cranial, and neck reconstructive surgery (such as cheek, lip, and palate), neurosurgery, pediatrics, and otologic hearing problems, voice, and Otodynamics. Surgery for deafness, and all areas usually considered otolaryngology.

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Pathology

Department Head: Richard G. Lysen

- 65:101 Special Studies on Campus
- 65:110 Special Studies on Campus

Pathology

Department: Pathology

- 65:101 Special Studies on Campus
- 65:110 Special Studies on Campus

- Residency Program

The department is approved for 21 residency positions in pathology, covering a training span of up to five years. Graduates are designed to utilize the patient population of University Hospitals and Clinics, as well as the faculty members' research laboratories.

Residency Program

The department offers basic pathology courses to health science students, a clinical training program in medical technology, a master's degree program, residency training programs leading to American Board of Pathology certification in anatomic pathology, clinical pathology, and medical technology. The postdoctoral training program in clinical chemistry fellowship training in pathology specialties, and postdoctoral research training in cellular and molecular pathology.

Clinical Training in Medical Technology

See "Division of Associated Medical Sciences" in this section of the Catalog.

Master of Science

The M.S. program in pathology is open to students with various educational backgrounds. The program particularly encourages applications from students with Bachelor of Science degrees in chemistry, biochemistry, zoology, and medical technology. It also has a high degree of flexibility with medical and dental degrees.

The program is flexible, but the department emphasizes two tracks: one to prepare a research background for academically oriented resident physicians and for medical and dental students, the other for medical technologists who wish to advance their training, usually by sub specialization in an area of laboratory medicine.

M.S. applicants participate in teaching, patient care, and research through the instructional programs of the department, the service laboratories of the department and University Hospitals and Clinics, and faculty members' research laboratories.

Admission to the M.S. program requires a 3.0 grade average in science courses, a Graduate Record Examination (GRE) Aptitude Test, combined verbal and quantitative score above 1200, and a personal interview. A brochure describing departmental course requirements and giving examples of the major academic tracks is available upon request.

Postdoctoral Training

The Department of Pathology offers a program in hematology to physicians who have completed at least two years of residency training in pathology. The postdoctoral traineeship includes one year of clinical experience and one year of laboratory research in basic hematopathology.

The department also provides postdoctoral training in immunology, neuropathology, biochemistry, hematology, cancer biology, and clinical microbiology, as well as in other areas of cellular and molecular pathology. These positions are open to individuals with either Ph.D. or M.D. degrees.

Facilities

The Department of Pathology administers the clinical laboratories of the University of Iowa Hospitals and Clinics. Most of these laboratories are located in 40,000 square feet of newly constructed laboratories that were occupied at the beginning of 1984. The Department of Pathology has individual research laboratories and core facility laboratories located in the Medical Research Center, Medical Laboratories, and at the Veterans Administration Medical Center. The department is well-equipped to carry out the sophisticated technology of modern cellular and molecular pathology. Also available are the College of Medicine facilities for recombinant DNA studies, protein structure, and laboratory animal care.

Courses

- 60:1 Introduction to Medical Technology
- 60:3 Principles of Human Pathology
- 60:35 Course requirements for students and residents in medical technology.
- 66:110 Medical Specialties
- 66:121 Microbiology for Medical Technology
- 66:122 Immunology for Medical Technology
- 66:123 Laboratory Medicine for Medical Technology
- 66:124 Microbiology for Medical Technology
- 66:125 Medical Specialties

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- 66:110 Medical Specialties
- 66:121 Microbiology for Medical Technology
- 66:122 Immunology for Medical Technology
- 66:123 Laboratory Medicine for Medical Technology
- 66:124 Microbiology for Medical Technology
- 66:125 Medical Specialties
for rational decisions concerning the 
personal use of drugs.

The department offers research training in all areas of pharmacology and 
toxicology at the predoctoral and 
postdoctoral levels, in preparation for career opportunities in teaching, 
government, and industry.

Prerequisites for graduate study include undergraduate background in chemistry, 
biology, and mathematics. The level of performance in undergraduate courses 
must be in the top quartile.

Master of Science

In cooperation with clinical departments in 
the College, the Department of Pharmacology offers a 
Master of Science degree 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 core courses is 
amandatory unless specifically waived by 
the Department of Pharmacology 
faculty. Any of these course 
requirements may be waived at 
the request of the trainee if this or her advisor 
and the departmental faculty agree that 
the trainee has met them satisfactorily at 
a prior time.

71:203 Pharmacology Research 
71:204 Pharmacology Seminar 
71:210 Special Topics in Pharmacology 
83:187 Bioinformatics and Bioassay 
71:212 Toxicology 
71:216 Clinical Toxicology 
78:380 Clinical Pharmacology and 
Therapeutics Lecture Series

The trainee may audit 71:105 
Pharmacology for Health Sciences. 
Medical students may take additional 
courses in this or other departments 
appropriate to this or her program.

Eligibility for the M.S. degree 
in pharmacology requires demonstrated 
proficiency in basic research, satisfactory 
performance on the qualifying 
examination (written and oral), and 
satisfactory preparation and defense of 
a research thesis.

Doctor of Philosophy

Course requirements for the Ph.D. in 
pharmacology are as follows:

71:103 Biochemistry 
99:120 Metabolism 
72:212 Medical Physiology 
71:101 Pharmacology for 
Health Sciences: Pharmacy 
63:187 Bioinformatics and Bioassay 
71:103 Pharmacology and Toxicology 
71:205 Biochemical Pharmacology 
71:203 Pharmacology Research 
71:304 Pharmacology Seminar 
71:207 Pharmacology of Excitable 
Cells: Introduction to Pharmacology

The student must complete at least one 
additional course in his or her area of 
interest, and individual faculty research 
advisees may require more than one. 
There is no departmental foreign 
language requirement.

Students are encouraged to obtain a 
maximum of laboratory research 
experience during the first two years. 
After successful completion of the Ph.D. 
preliminary examination, usually at the 
end of two years, the student begins or 
continues his or her Ph.D. thesis 
research. Thesis research usually 
requires two years beyond the 
preliminary examination. A Ph.D. 
comprehensive examination (written 
and oral) is given at the end of the third year.

Satisfactory preparation and oral defense 
of the thesis complete the program.

Financial Aid

Financial support is available for all 
predoctoral and postdoctoral students 
in pharmacology.

Courses

71:101 Biochemistry

1.5

Philosophical and experimental approaches to drug 
design and metabolism. Emphasis on the role of biological 
research; electrophysiology and receptor theory 
include. Offered fall semester. Prerequisite: consent 
of instructor.

1.5

Pharmacology for Health Sciences: Pharmacy

Lecture course, general principles of pharmacology; 
pharmacology sections of drugs and action following 
the disease. Emphasis on drug mechanism of action 
with clinical correlation. Offered spring semester. 
Prerequisite: consent of instructor. Offered fall semester. 
Prerequisite: 71:120 or 69:128, or equivalent, and consent of instructor.

1.5

Pharmacology and Toxicology

Combination of 71:121 lecture and discussion; courses 
covering the basic principles of toxicology, 
evaluation and evaluation of drugs and their 
effects on the body systems; emphasis on 
the mechanisms of action. Offered spring semester. 
Required for pharmacy students; open to graduates 
and students with consent of instructor. 
Prerequisite: 71:121 or 69:128, or equivalent 
consent of instructor. Offered fall semester. 
Prerequisite: 71:120 or 69:128, or equivalent, and consent of instructor.

1.5

Pharmacology for Health Sciences: Medical

Lecture course, general principles of pharmacology; 
pharmacology sections of drugs and action following 
the disease. Emphasis on drug mechanism of action 
with clinical correlation. Offered spring semester. 
Prerequisite: 71:202 and 69:128, or equivalent, and consent 
of instructor. Offered fall semester. 
Prerequisite: 71:202 and 69:128, or consent 
of instructor.

1.5

Drugs: Their Nature, Action, and use

Lecture and discussion: principles of drug action 
and drug toxicity; antibiotics, oral contraceptives, 
serotonin, psychoactive agents, etc., in relation to 
Offered spring semester.

1.5

Pharmacology for Health Sciences: Physician

4.5

Anatomy and physiology, general principles of 
pharmacology, drug action and action mechanism, 
and continued with toxicology. Offered fall semester. 
Prerequisite: 71:124 and 71:120, or consent 
of instructor.

1.5

Intermediate Pharmacology

2.5

Lecture course focusing on fundamental principles of 
pharmacology and drug action following 
the disease. Emphasis on drug mechanism of action 
clinical correlation. Special emphasis on central and 
serotonin systems, including a knowledge about 
physiology. Offered spring semester. 
Prerequisite: graduate in medical science in 
physiology and pharmacology, and 
consent of instructor.

1.5

Pharmacology Research

4.5

Prerequisite: consent of department head.

1.5

Pharmacology Seminar

1.5

Prerequisite: consent of department head.

1.5

Advanced Cardiovascular Pharmacology 
and Physiology

Recent developments in cardiovascular pharmacology, 
physiology, and pharmacology of cardiovascular 
diseases. Offered during the second and third years. 
Prerequisite: consent of instructor.

1.5

Bacterial Pharmacology

3.5

Basis for drug effects on the molecular and cellular 
levels of the bacteria. Students study these concepts 
the molecular level, chemical considerations include 
membrane functions, protein and nucleic acid 
synthesis, and synthesis and degradation, and synthetic 
anti-microbial agents today. Students study these 
concepts at the molecular level, and the role of 
membrane functions, and synthetic anti-microbial agents. 
Prerequisite: consent of instructor.

1.5

Pharmacology of Excitable Cells: 
Cardiovascular Physiology

Pharmacological mechanisms by which 
receptor factors function in cardiovascular 
physiology, including actions on 
cardiovascular smooth muscle, action on 
cardiac muscle, and on smooth muscle 
synthesis and degradation, and synthetic 
anti-microbial agents. Students study these 
concepts at the molecular level, and the role of 
membrane functions, and synthetic anti-microbial agents. 
Prerequisite: consent of instructor.

1.5

Clinical Pharmacology Seminar Series

1.5

Review of new therapeutic subject matter. 
Prerequisites: 71:122, A.D. or graduate 
training in pharmacy, pharmacology, and 
satisfaction of seminar course.

1.5

Intermediate Topics in Pharmacology

an

Prerequisite: consent of department head.

1.5

Toxicology

1.5

Students will be exposed to the current 
status of pharmacology and toxicology, 
to the investigation of drug-induced 
factors and mechanisms of action. 
Offered spring semester. 
Prerequisite: 71:103 or 71:101, or consent of instructor. 
Prerequisite: consent of course director.

1.5

Pharmacology for Neurology

1.5

Lecture course, general principles of pharmacology; 
pharmacology sections of drugs and action following 
the disease. Emphasis on drug mechanism of action 
with clinical correlation. Offered spring semester. 
Prerequisite: 71:202 and 69:128, or equivalent, and consent 
of instructor. Offered fall semester. 
Prerequisite: 71:103 or 71:101, or consent of instructor.

1.5

Pharmacology for Neurology

1.5

Mechanisms of action of drugs affecting 
transport systems in the brain. 
Prerequisite: introductory courses in 
physiology and pharmacology, and consent of 
course director.

1.5

Clinical Pharmacology Seminar Series

1.5

Review of new therapeutic subject matter. 
Prerequisites: 71:122, A.D. or graduate 
training in pharmacy, pharmacology, and 
satisfaction of seminar course.

1.5

Pharmacology for Neurology

1.5

Lecture course, general principles of pharmacology; 
pharmacology sections of drugs and action following 
the disease. Emphasis on drug mechanism of action 
with clinical correlation. Offered spring semester. 
Prerequisite: 71:202 and 69:128, or equivalent, and consent 
of instructor.
Physiology and Biophysics/MEDICINE

- 7120  Clinical Toxicology

Tissue-specific implications of drug and xenobiotics for the practicing physician. Topics include recognition and management of toxicologic emergencies; pharmacokinetics, drug interactions, hemodynamics, cardiac arrest, convulsions, household products, pesticides, poisons, food poisoning, and drugs of abuse. Offered fall semesters. Prerequisite: 71-105 or equivalent.

- 7121  Introduction to Pharmacology

Principles of drug action, clinical testing, and therapeutic efficacy of pharmacologic agents. Appropriate for students enrolled in graduate studies in pharmacology. Preprofessional teaching of graduates.

- 7126  Introduction to Pharmacology

Basic pharmacology and the principles of pharmacology. The student will be able to understand the significance of pharmacologic agents in disease processes and their effects on the body. Offered fall semesters. Prerequisites: 71-100, 71-101; 71-111 or consent of instructor.

- 7127  Seminar in Cellular and Molecular Biology

Research topics in biology and health. Emphasis on molecular mechanisms, diagnostics, and therapy. Topics include signal transduction and receptor, replication and development processes, membrane transport, and drug targets. Prerequisite: Honours seminar in cellular and molecular biology research project or consent of instructor. Same as 72-121, 72-120, 72-227, 72-228.

- 7128  Advanced Techniques in Biophysics

Offered spring semesters. Same as 73-254, 73-255, 73-256, 73-257.

- 7129  Clinical Pharmacology and Therapeutics

Lecture Series

Comparative emphasis on rational pharmacotherapy: approaches to therapy in human and veterinary medicine. Offered spring semesters. Same as 72-008.

- 7255  Special Courses in Camps

Preprofessional units of department head.

Physiology and Biophysics

Department Head, Robert C. Fellows

Faculty: Professor Francis M. Abbott, Internal Medicine and Toxicology; Professor John A. B. Jeffery, 5 Dr. Edgar T. Smith, and Dr. Carl V. Gutt (Physiological Ecologist); Dr. Donald G. Reynolds (Surgery); Dr. Andrew K. Smithies, Dr. C. W. Underhill, associate professor; Dr. R. E. Dean, and Dr. D. G. C. Professor of Anatomy; Dr. R. J. Andrews, and Dr. D. G. C. Professor of Physiology; Dr. J. W. Brown, and Dr. D. G. C. Professor of Pharmacology.

The Department of Physiology and Biophysics offers graduate programs leading to the Doctor of Philosophy degree. The degree provides instruction in physiology and biophysics, including neurophysiology, respiratory, and other health professions: students participate in the Medical-Scientific Training Program (MSTP) and the Medical-Pharmacology Program (MPH) and conduct under the auspices of the Graduate College and the College of Medicine, and offers a program leading to the Master of Science degree.

Graduate Study

The graduate programs in physiology and biophysics are designed to provide broad general knowledge of fundamental life processes at molecular, cellular and organ levels, and an opportunity for intensive study in major areas of physiology and biophysics with emphasis on endocrinology, membrane biology, and neurosciences. The program places strong emphasis on the development of modern research skills and their application in the conduct of original dissertation research.

The entering student is advised by the director of graduate studies, who provides guidance on the planning of a program of formal course work and an introduction to research activities of departmental faculty. In addition to advanced courses in general physiology and biophysics, the department offers specialized courses in cardiovascular, endocrine, nervous, and aminergic, membrane, and neural physiology. Students may elect to take courses in other departments appropriate to meeting their educational objectives.

Upon completion of required course work and satisfactory performance on comprehensive examinations in physiology and related areas, the student is expected to devote full time to original research, culminating in the preparation of a doctoral dissertation which is defended in a final oral examination.

All degree candidates are expected to have supervised experience as classroom instructors and teaching assistants as part of their graduate training program.

Financial Aid

Full-time doctoral students in physiology and biophysics receive financial aid, with continued support contingent upon satisfactory progress.

Facilities

The Department of Physiology and Biophysics operates additional laboratories at the nearby NCBI campus. In addition to specialized equipment in individual research laboratories, the department provides computers and computer graphic systems, automation in flow cytometry, electron microscopy, automatic image analysis, and a cell culture facility, as well as darkroom and machine shop facilities. Graduate students are provided with individual study space near the departmental library, which supplements resources available at the Health Sciences Library.

Admission

Applicants for graduate admission must complete undergraduate studies in an accredited institution prior to matriculation with an overall science grade-point average of 3.0 or better, coupled with strong performance on the Graduate Record Examination (GRE) Aptitude Test. The appropriate background for graduate study in physiology and biophysics is an undergraduate major in the biological, chemical, physical, mathematical, or engineering sciences with one or more years of coursework in biology, physics, chemistry (including physical chemistry), and calculus.

Courses

- 7128  Human Physiology

Basic concepts of human physiology. Offered fall semesters. Prerequisites: 71-105 or equivalent, and consent of course director.

- 7129  Human Physiology

Basic concepts of human physiology. Offered spring semesters. Prerequisites: 71-105 or equivalent, and consent of course director.

- 7120  General Physiology

Principles of physiology with detailed study of organ systems and cell function. Required of chemistry and physical science majors. Offered to graduate and advanced undergraduate students in the biological and physical sciences. Prerequisite: consent of course director. Prerequisite: consent of course director.

- 7123  Molecular Physiology

Principles of physiology with detailed study of organ systems and cell function. Offered to advanced undergraduate students. Prerequisite: consent of course director.

- 7124  General Pathology

Principles of pathology with detailed study of organ systems and cell function. Offered to advanced undergraduate students. Prerequisite: consent of course director.

- 7125  Biomedical Engineering

Principles of physiology with detailed study of organ systems and cell function. Offered to advanced undergraduate students. Prerequisite: consent of course director.

- 7126  Nuclear Medicine

Principles of nuclear medicine with detailed study of organ systems and cell function. Offered to advanced undergraduate students. Prerequisite: consent of course director.

- 7127  Biomedical Engineering

Principles of physiology with detailed study of organ systems and cell function. Offered to advanced undergraduate students. Prerequisite: consent of course director.

- 7128  Biomedical Engineering

Principles of physiology with detailed study of organ systems and cell function. Offered to advanced undergraduate students. Prerequisite: consent of course director.

- 7129  Biomedical Engineering

Principles of physiology with detailed study of organ systems and cell function. Offered to advanced undergraduate students. Prerequisite: consent of course director.

- 7130  Biomedical Engineering

Principles of physiology with detailed study of organ systems and cell function. Offered to advanced undergraduate students. Prerequisite: consent of course director.

- 7131  Biomedical Engineering

Principles of physiology with detailed study of organ systems and cell function. Offered to advanced undergraduate students. Prerequisite: consent of course director.
Psychiatry

Departments of: George Winkler


Associate professors: William Gunay, Harold Few, Howard Lionel, Lawren Smellie, E. Richard McManus, Frank Porter, Bruce Ryon

Assistant professors: Richard Bick, John Keegan, Mark Smid, Paul B. McManus, assistant professor Warren Edwards, Alan Marke, and John Langley

Clinical instructors: Oscar Burdette, Beverly Dyer, Timothy Olin

The Department of Psychiatry is engaged in teaching medical students and training resident physicians for academic and clinical careers in psychiatry. It offers no degree program.

Its instruction of medical students occurs principally during their third year, in the course of a six-week clerkship.

The department maintains a four-year training program approved by the Racial Review Committee of the American Medical Association. Training experiences are available at The University of Iowa Hospitals and Clinics and at the Iowa City Veterans Administration Medical Center. Additional experiences are available at institutions: Bronrok Hospital in Des Moines, the Iowa Specialty Hospital in Des Moines, the Iowa State Medical Faculty at Oakdale, the Mid-Eastern Iowa Mental Health Center in Iowa City, and the Mental Health Institute at Iowa City.

The department offers an approved two-year residency in child psychiatry.

The department is actively involved in genetic and family studies of psychiatric disorders, and is involved in research in the fields of genetical and biological psychiatry, neurochemistry, neuropathology, and psychophysiological aspects of behavior.

Many opportunities are available for students and residents to participate in research. The basic science areas of neurochemistry, neurophysiology, and electrophysiology offer additional opportunities to students and residents for special study and research. The clinical areas of psychiatry, child psychiatry, and group psychotherapy also offer opportunities to interested students for research and further study.

Courses

131.08 Psychiatry for Physician Assistants

Radiation Biology

Program director: James W. Faulkner

Faculty:泛 hygiene-Edward Chao, Richard L. Beal, Thelma W. de Woe, Edward Winkler, John W. Atwood, John M. Streeter, Donald W. Stuckton, M. Ph.D.

The program provides in-depth training and research experience in the study of the physical, chemical, and biological effects of radiation and the theory and experimental techniques used to evaluate these effects. The program stresses the importance of these areas to scientific research, public health, and medicine, and the public.

Undergraduate Study

Two courses, 77.103 Introduction to Radiobiology and 77.106 Environmental and Radiological Health Physics, are open to undergraduates. Students in liberal arts or professional colleges. 77.103 would be especially appropriate for those desiring an overview of the uses of radiation in our society, as well as the biological effects of radiation. These courses should also be of interest to students who plan to enter medicine, nuclear technology, environmental health, or similar programs.
Graduate Programs

The M.S. program in radiation biology emphasizes the technical aspects and serves as a basis for both students whose major interest is in another related field. The Ph.D. program is open to graduate students with a background of study in physics, chemistry, mathematics, biology, health sciences, veterinary medicine, or engineering. Ordinarily, the M.S. is the first step that is required for admission to the Ph.D. program, but consideration is given to other methods of qualifying. After completion of the introductory course, the student may emphasize a particular aspect of the field. The details of the program are built around previous training, interests, abilities, and career objectives. Some students elect to emphasize training in physical aspects, such as radiological physics or health physics. Others focus on biological aspects. In either case, a broad base rather than complete specialization is the goal. In addition to formal lectures, the programs involve small group conferences and discussions. Laboratory exercises are emphasized, and the student has the opportunity to become familiar with many types of instruments and techniques. It is recommended that a candidate for the Ph.D. have a good knowledge of scientific French or German and competence in biological specialties or computer programming before taking the final examination. Students must have at least one year of college teaching experience as a teaching assistant and at least one as a research assistant, his or her position is required and no academic credit given.

Special Programs

Postdoctoral training is available by arrangement with the program chairman and individual faculty members.

Facilities

The Radiation Research Laboratory has two X-ray generators and other radiation sources, such as the Co60 gamma source and the linear accelerators in the Department of Radiology and the reactor of the Biology Division at Argonne National Laboratory. The Radiation Research Laboratory has a variety of radiation detectors and controls, including genre and liquid scintillation counters and a small animal whole-body counter. The laboratory also has an electronic whole-body counter, a fluorometer spectrophotometer, an automatic cell counter and particle size, and facilities for biological procedures of tissues—fixed or frozen—and autoradiographs.

Three air-conditioned rooms provide convenient housing for the small laboratory animals used in research and teaching.

Financial Aids

Graduate students are supported as research assistants when possible from funds available through research grants and contracts, or as teaching assistants paid from departmental funds. Some awards are also available to graduate students and postdoctoral students through the U.S.P.H.S. Research Service Award program to support training in biomedical radiation research. Individual postdoctoral awards are also available and are appointed for up to three years by the candidate and his or her faculty sponsor.

Courses

77-123 Application to Radiobiology and Radiophysics

4 h. b.

Characteristics and biological effects of various radiation, properties and uses of radiophotographs, required equipment, and basis for protection against radiation hazards. Preparedness, consent of instructor.

77-126 Environmental and Radiological Health

4 h. a.

Population studies, cancer epidemiology, programs of design and use of radiation in medical, academic, and industrial practices, rationale and dose measurements in radiation environments. Offering informal four-seminar credit or consent of instructor.

77-101 Special Topics Advanced Undergraduate

4 h.

For undergraduates primarily interested in a career in the radiation sciences, meetings and laboratory experience. Arrangements should be made with instructor. Offered fall semester.

77-106 Special Topics Advanced Undergraduate

4 h.

For undergraduates primarily interested in a career in the radiation sciences, meetings and laboratory experience. Arrangements should be made with instructor. Offered spring semester.

77-026 Seminar Research Radiation

1 h. a.

Research reports by students and faculty and by speakers from outside the program. Offered on satisfactory-un satisfactory basis only. Offered fall semester.

77-104 Seminar Research Radiation

1 h. b.

Research reports by students and faculty and by speakers from outside the program. Offered on satisfactory-un satisfactory basis only. Offered spring semester.

77-211 Physics of Radiobiology

4 h. a.

Characteristics of x-ray emissions, nuclear accelerators, and stability of the properties of X-ray, gamma, and neutron radiation. Physical and biological dosimetry, radiation exposure and depth dose measurements, radiation therapy. Offered fall semester of odd years. Prerequisite: eight semester hours of physics, 77-196, or consent of instructor.

77-220 Human and Molecular Radiobiology

4 h. a.

Radiation effects on the human organism in vivo and in vitro; mammalian and bone marrow transformation; effects on adult and newborn animal; radiation and human diseases; physiology, and radiobiology; and radiation therapy. Offered spring semester of even years. Prerequisite: 77-103 or consent of instructor.

77-229 Cellular Radiobiology

4 h. b.

Radiation and cell growth, multiplication, differentiation, and function, including those events and their subsequent biological effects. Offered fall semester of odd years. Prerequisite: 77-120 or consent of instructor.

77-242 Radiobiology in Biologic Research

4 h. a.

Current research techniques and recent developments in biological systems; eight-week emphasis on basic research.

77-119 Quantum Radiation Counting

2 h.

Special courses on the fundamentals of quantum radiation counting; an advanced course in gamma-ray counting.

Radiology


The Radiology Department's teaching program is designed to meet the needs and interests of fourth-year medical students in diagnostic radiology, nuclear medicine, and radiation therapy.

Residents rotate through the various subspecialties of diagnostic radiology—including ultrasound, computed tomography and nuclear medicine, and radiation therapy—are designed according to the student's area of interest.

Courses

74-171 Clinical Radiology

4 h. a.

Clinical rotation in diagnostic radiology and nuclear medicine. Includes teaching in physical principles of radiation therapy. Fifty students, four weeks, June through May.

74-172 Introduction to Radiation Therapy

4 h. b.

Supplementary rotation for radiology students, with emphasis on the interaction of radiation therapy with the patient's physical status and the radiation therapist's role in patient care and management under immediate faculty supervision.

74-175 Radiology for Physician Assistant

4 h.

1974 Principles of Nuclear Medicine

12 h.

Basic course in nuclear medicine and clinical usage in medicine integrating basic science background with applied clinical and practical nuclear medicine. Students in the Medical Technology Program.

1974 The Medical Aspects of Nuclear Weapons

1 h.

1974 Applied Nuclear Medicine Technology

12 h.

Program is designed for practicing physicians or nuclear medicine technicians, and nuclear medicine practitioners who require advanced training in nuclear medicine. Students in the Medical Technology Program.

especially low lipids & cholesterol. The second course also deals with basic radiology, nuclear medicine, and radiation therapy. For many years, Prerequisite: consent of instructor.

77-109 Special Topics

4 h.

77-108 Special Topics

4 h.

77-099 Research

4 h.

The third course is designed for medical students in nuclear medicine.

The fourth course is designed for medical students in nuclear medicine.

The fifth course is designed for medical students in nuclear medicine.

The sixth course is designed for medical students in nuclear medicine.

The seventh course is designed for medical students in nuclear medicine.
Surgey

The department has more than 200 faculty members, including more than 300 full-time faculty members, and more than 1,000 residents and fellows, making it one of the largest surgical academic departments in the world. The department is dedicated to providing the highest quality care to patients, conducting cutting-edge research, and training the next generation of surgeons. The department offers a wide range of surgical services, including general surgery, oncology, urology, transplant surgery, and more. It is also home to the Parkland Hospital System, which includes more than 20 hospitals and clinics throughout the region. The department is committed to excellence in patient care, research, and education, and has a long history of innovation and leadership in the field of surgery.
offers courses in all these fields, at the 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 the relationship of urology to the basic sciences. The department participates with the Department of Microbiology in the teaching and research in immunology as it relates to transplantation and cancer.

The Department of Urology participates very actively in 5B.111 Introduction to Clinical Medicine, which involves the entire second semester of second-year medicine. The department offers illustrative lectures and demonstrations concerning the diagnosis and treatment of diseases involving the genitourinary tract, including the male and the urinary tract in the female and child.

In the third and fourth years of the curriculum in medicine, the department offers courses in diagnostic urology, radiology, endourology, urologic 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 continuous education throughout the year for urologic and family practitioners. These activities are conducted by the senior staff whose interests include pediatric urology, reproductive physiology, urologic oncology, and prostatic diseases.

The department has earned international recognition for its studies of prostatic diseases.

The urological laboratories are active and offer instruction in various urological research areas. The department offers special elective courses in these areas.

**Courses**

39.106 Clinical Urology 2.5 h.

39.115 Advanced Ceratology in Urology 2.5 h.

39.120 Advanced Certatology in Urology at Y.U. 2.5 h.

39.146 Individual Study and Research 4.0 h.

59.111 Urology 2.5 h.

59.112 Urology 4.0 h.

Participation with Urology and Pathology departments in a study of urological malignancy centered around percutaneous examination and surgical procedures, includes study of collected pathologic material, with gross and microscopic, primary from teaching material maintained in both departments.

Research and clinical study of prostatic diseases, arrangements made to provide experiences in department's ongoing research in carcinoma of prostate, specific related projects of individual interest are encouraged. All of our patients with prostatic disease are seen by one of these authors, takes within examination.

Intensive clinical experience in diagnosis and management of all types of genitourinary endocrinologic disease along with medical care of urologic emergencies. Observations of all members of the department's study are made by the resident, with direction of one of the surgeons, takes within examination.

Advancement with current knowledge and development, applications of methods of measuring essential parameters, development and management of clinical problems; all devoted to evaluation of male infertility postgraduate.

General Elective for Physician Assistant 1.0 h.

59.106 General Studies in Urology 4.0 h.

59.110 General Studies in Urology 4.0 h.

59.185 Special Studies in Urology 4.0 h.

Individual projects or clinical projects, for the above two departments, are selected on the basis of the student's interest. Appointments to other programs in clinical departments are made only by the student's director, while the urology department's, when on completion of the project, the student submits a report and undergoes an oral examination.

Full time in departments of Urology and Radiology, where investigations, computer technology, documentation, and techniques of ultrasonography procedures are presented and discussed, prepares student in interpretation of data provided, course exists to afford the student an opportunity to each department.
College of Nursing

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 which have earned international recognition. This provides an especially fine setting for college preparation for nursing, because the educational and clinical resources which are needed to educate nurses are available on or near the campus. This also makes it possible for the faculty and students to participate fully in University life and to contribute their time, interest, and abilities to the many general and special activities of a major and modern university.

Both the baccalaureate and graduate programs are accredited by the Department of Baccalaureate and Higher Degree Programs of the National League for Nursing, the professional accrediting agency for college and university programs of nursing education. The baccalaureate program is approved by the Iowa Board of Nursing and graduates of the program qualify to take the licensure examination required for registration as registered nurses.

Undergraduate Program

Men and women educated as professional nurses are in demand in a variety of jobs and settings, among them community health nursing services, doctors' offices, clinics, hospitals, armed forces, the Peace Corps, the World Health Organization, Red Cross, home and foreign missions, youth camps, and professional organizations. A professional nurse may be engaged in clinical nursing, teaching, research, or private practice.

A bachelor's degree program, such as that offered by The University of Iowa, provides college-level preparation for careers in the health care of patients and in such community agencies as public health services, schools, and industries. In addition, it provides the essential base for graduate study in nursing.

In addition to the advantages of gaining general education with specific career preparation, a college or university program offers the advantages—hardly less important—of full participation in the social, cultural, and recreational activities of a highly diversified campus community. In nursing no less than in other pursuits, a college or university background enable young people not only to realize their highest career potentials, but to achieve the greatest measure of self-fulfillment in life.

The baccalaureate program is designed to provide both liberal and professional education. The basic, 128-semester-hour program consists of 79 semester-hours of liberal arts general education courses and supportive prenursing courses, and 50 semester hours of course work in nursing. Students complete the program in four or four and one-half academic years.

Course offerings are based on the concepts of health, deviations from health, and nursing intervention, and are presented in progressive levels of complexity from the sophomore through the senior year. The curriculum reflects the current trend in health care delivery toward greater emphasis on nursing as a service rendered outside hospitals and to other than the acute ill.

Approaches to the College of Nursing

The student may complete the entire program at Iowa, enrolling the first year in the University's College of Liberal Arts, or transfer from an institution offering a two-year sequence of specific courses approved by the College of Nursing. Cooperating state institutions in the transfer plan include Iowa State University; The University of Northern Iowa; and Upper Iowa, Briar Cliff, Monmouth College, Loras, Luther, Clarke, Simpson, Coe, Grinnell, Mount Mercy, Buena Vista, Marshalltown, Muscatine, Clinton, Iowa Falls, Avernia, Grinnell, and Fort Dodge.

Completion of the transfer sequence at a cooperating institution does not guarantee admission to the College of Nursing; admission standards for transfers are the same as for all other College of Nursing applicants. Prospective transfer students who want more information about this program should contact the cooperating institution of interest.

Cooperative Clinical Internship

Summer Clinical Nursing Internships are offered to qualified undergraduate students who are selected on a competitive basis from the applications received. Students may apply after successful completion of Nursing III. Interested students should contact the Office of the Assistant Dean. Undergraduate Studies for application information.
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. For further information refer to the Aging Studies Program information in the College of Liberal Arts.

Registered Nurses
For registered nurses who wish to complete the BSN degree and who have completed all required prerequisite courses, challenge examinations, and admission to the College of Nursing, a one-year plan of study is available for required nursing courses.
Registered nurses planning to enter the baccalaureate program should obtain special information and advice from the College of Nursing.

Faculty Advisers
Advisers from the Undergraduate Academic Advising Center advise pre-nursing students and after admission to the College of Nursing, each student is assigned to a faculty adviser.

Student Organizations
Course of action is to assist students in helping their own Association of Nursing Students and are also eligible for membership in the state and national associations of nursing students.

Expenses
Students pay the general University fees throughout the program. Students must also purchase uniforms, white shoes, a stethoscope, a watch with a 12-hour second hand and supplies and materials for required nursing courses. Students arrange for their own health screening requirements and transportation once enrolled in clinical nursing courses.

Financial Aid
In addition to the assistance available to University students generally, there are assistance programs specifically for nursing students. For further information about financial assistance, write to the University Office of Student Financial Aid.

Admission
High school Background
The college strongly recommends four years of English, two years of history, three years of mathematics, and one year each of biology, chemistry, and physics, plus other college preparatory courses selected with the help of the high school counselor.

College Background
Admission Requirements
To apply for admission to the undergraduate program in nursing each student must be admitted to The University of Iowa and present: 1) a minimum of 30 semester hours completed in an accredited college; 2) successful completion of three of the following science courses (inorganic chemistry, organic biochemistry, animal biology, microbiology, human anatomy, human physiology). 3) the minimum grade-point average is 2.3

Rhetoric—eight semester hours may be satisfied by writing for advanced standing, and if the student has earned six semester hours of credit in English composition, the speech component may be completed after admission. Mathematics—satisfactory completion of two years of high school algebra and one year of high school geometry, or their equivalent, or a score of 26 on the mathematics section of the American College Tests, or a passing score on a basic mathematics techniques proficiency test at the University, or satisfactory completion of 22M:1 Basic Mathematics.

Techniques (3 semester hours) or completion of a comparable or more advanced course in the University's Division of Mathematical Sciences.

Physics—one-half year of high school physics or its equivalent (if taken at the college level it may be included in the 30 semester hours required for admission).

Credits earned to satisfy the following general education requirements may be included in the 30 semester hours listed above:

General education requirements:

Historical perspectives—3 semester hours:

Humanities—3 semester hours.

Foreign civilization and culture—3 semester hours; and

Statistics—3 semester hours.

Preclinical Background

Including the biological science courses required for admission to the college, the student must satisfy the following requirements before beginning clinical nursing course work:

Animal biology 4 s.h.

Chemistry (organic and inorganic biochemistry) 6 s.h.

Human anatomy 4 s.h.

Human physiology 4 s.h.

Microbiology 4 s.h.

Nutrition 3 s.h.

Psychology 3 s.h.

Sociology 3 s.h.

Anthropology 3 s.h.

Human development and behavior 3 s.h.

Standards
The college accepts for admission to the college of Nursing, the applicant should have satisfactory completed college coursework taken.

American College Tests
For information on the tests, write to the American College Testing Program, Box 451, Iowa City, Iowa 52243.

Selection Factors
Eligibility for admission requires that the candidate meet the minimum requirements, the college's admission committee selects those who appear to be best qualified. The committee may request personal interviews. A physical examination report and specific health screening requirement are to be on file at the college.

Application Deadlines
Applications must be received by January 15 for the fall semester, and June 15 for the spring semester.

Master of Arts
The University of Iowa Master of Arts degree in nursing is accredited by the National League for Nursing. The curriculum is designed to build upon general and professional baccalaureate study in which nursing is an upper-division offering. For this reason, graduation from a NLN-approved baccalaureate degree program is one of the admission requirements.

The aim of the program is to prepare students in an area of nursing specialization and to allow for development of skill in a role area related to their career goals. The curriculum has a 17 semester hour core of advanced nursing courses which serve to establish the student for specialization and role preparation in specific areas. Since specialization may be broad or narrow, the curriculum of the general nursing specialization options which focus on patients or clients: child health nursing, adult health nursing, and community family health nursing. Within these specialty areas, however, students may tailor their plans of study to accommodate their specific interests by arranging for specific sites and types of field experiences to fulfill the practical component of the specialization courses; through selection of specific courses in the supporting areas; and through the

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problems they select for study in their thesis projects. Similarly, role preparation is available in three areas: education, administration, and advanced clinical practice. Because the curriculum is intended to be flexible enough to accommodate diverse student interests, the same type of tailoring is present in the role preparation area. Students, for instance, may select most of their supporting course work in administration or management in order to allow for maximum preparation in that role area.

Although the courses offered by the College of Nursing emphasize a holistic approach to patients or clients, it is possible to concentrate on either the behavioral or biological dimension of nursing. Students interested in mental health nursing, for example, may select courses in psychology, psychiatric nursing, and mental health. Students interested in medical-surgical nursing may select courses in medical-surgical nursing, obstetric nursing, and pediatric nursing. Students interested in community health nursing may select courses in community health nursing, public health nursing, and maternal and child health nursing. Students interested in public health nursing may select courses in public health nursing, health education, and health policy.

Degree Requirements

The 45-semester-hour curriculum will ordinarily require four semesters of full-time study for completion. Fall, spring, and summer study options are available. However, the student must maintain a 2.5 minimum grade-point average and must successfully complete both a thesis project with oral defenses and a written comprehensive examination.

The master's degree curriculum is structured into five components.

Advanced Nursing Core (17 semester hours) consists of courses in conceptual and theoretical foundations for nursing (three semester hours), leadership in nursing (four semester hours), methods of nursing research (two semester hours), and a select professional issues seminar (two semester hours).

Nursing specialization (eight semester hours), allows the student to build a special area of knowledge and practice which extends beyond the advanced nursing core. Specialization may be in the broad areas of child health nursing, adult health nursing, or community health nursing. Students may choose two areas of specialization through their choices of course work and field work experiences. For example, students selecting adult health nursing as their area of specialization may choose experiences with patients in a long-term care facility, a mental health clinic, or a cardiac care unit. Students with unique career goals have the option of further modifying their plans of study under the direction of their academic advisors.

Role development (six semester hours): Students may select administration, advanced clinical practice, or education as a role preparation area. Two courses, each with a practicum, are offered in these role areas through the College of Nursing. Students admitted to develop skills for careers in clinical practice, for example, will enroll for six semester hours of advanced clinical practice, which is in addition to courses required for the nursing specialization component. Students may select particular settings and/or preceptors compatible with their own career goals in fulfilling the practicum requirements of these courses.

Supporting courses (nine semester hours): Students may choose their supporting course work in areas related to their nursing specialization or role preparation interests. One supporting science course related to the nursing specialization area is required.

Thesis (five semester hours): Every student is expected to write and successfully defend a thesis. This involves a systematic inquiry into a nursing problem to include such methodologies as historical research, case studies, analytical literature review, surveys, or experimental studies which meet the requirements of the Graduate College.

Plan of Study

The plan of study described below is designed for the full-time student. Students wishing to study on a part-time basis would proceed as approximately the same way, but over a longer period of time. Taking one or two courses per semester, for example, would extend the study period from three to five years. Any course work taken ten years or more prior to the Final Examination must be updated, according to University policy.

First Year

Fall Semester
96:200 Conceptual and Theoretical Foundations for Nursing I 3 s.h.
96:204 Leadership in Nursing: Theory and Application 4 s.h.
Supporting course 3 s.h.
Total 10 s.h.

Spring Semester
96:201 Conceptual and Theoretical Foundations for Nursing II 2 s.h.
96:202 Child Health Nursing I 4 s.h.
96:205 Adult Health Nursing I 4 s.h.
96:204 Community-Family Health Nursing I 2 s.h.
Total 10 s.h.

Second Year

Fall Semester
96:211 Methods of Research in Nursing II 3 s.h.
96:223 Child Health Nursing II 4 s.h.
96:227 Adult Health Nursing II 4 s.h.
96:205 Community-Family Health Nursing II 4 s.h.
96:246 Curricular Development in Nursing Education 3 s.h.
96:260 Nursing Administration: Process, Roles, and Strategies 3 s.h.
96:268 Clinical Specialization: Process, Roles, and Strategies I 3 s.h.
96:299 Thesis 2 s.h.
Total 12 s.h.

Spring Semester
96:206 Professional Seminar: Issues in Nursing 2 s.h.
96:247 Nursing Education: Process, Roles, and Strategies 3 s.h.
96:261 Nursing Administration: Process, Roles, and Strategies II 3 s.h.
96:268 Clinical Specialization: Process, Roles, and Strategies II 3 s.h.
96:299 Thesis 2 s.h.
Total 11 s.h.

Graduate Admission

Students should seek admission to the graduate program in nursing through direct application to the Graduate College of the University. Minimum requirements for admission to the Graduate College are a board of 3.0 with at least a 3.3 minimum grade-point average for regular admission, a 3.0 for conditional admission.

In addition to the general requirements for admission to the Graduate College, all candidates for a degree in nursing require that the applicant:

- Possess a bachelor's degree with a major in nursing from a program accredited by the National League for Nursing.
- Fulfill the legal requirements for the practice of nursing in Iowa: have an undergraduate grade-point average of at least 2.7 or a demonstrated ability to do graduate work for regular admission, at least a
Continuing Education

Through its Department of Continuing Nursing Education, the college offers nonacademic courses for registered nurses. Programs are scheduled on-campus and at community sites throughout Iowa. Continuing education units (CEUs) are awarded for each offering on the basis of one unit per 10 clock hours of instruction. Continuing Nursing Education is an Iowa Board of Nursing approved provider number 1 and is accredited by the National Accreditation Board, American Nurses’ Association.

Facilities

The Nursing Building is centrally located on the University’s campus in close proximity to the colleges of Medicine, Pharmacy, and Dentistry; University Hospitals; the flower science Library; and the health Sciences Library. Completed in 1971, the Nursing Building consists of five floors with varied and specialized facilities. Administrative offices are located on the first floor. Faculty offices are located on every floor except the second, which is utilized entirely for classrooms, laboratories, and the learning Resource Services. Additional classrooms and laboratories are located throughout the building. Conference rooms, student lounges, and meeting rooms are conveniently located. Research and computer facilities in the building provide direct access to the Weig Computing Center and to college-owned microcomputers.

Courses

Undergraduate

M 120 Cooperative Clinical Internship

Assessment for student selection for clinical nursing placements.

M 121 Introduction to Health and Health Care Services

Overview of health and health care services, with emphasis on concepts and philosophies of health, various selected factors affecting health, current health care delivery systems, and health care services.

M 122 Human Development and Behavior

Developmental stages of human growth from conception through childhood and senescence. Pharmacology of selected body systems and factors. Prerequisites: M121 or M132.

M 130 150, Nursing in 170, 1904

Skills with measurement tools, observation and critical thinking, effective nurse-patient relationships. Increased self-awareness, students make interdisciplinary connections. Practical and life skills based on data collected. Learning experience occurs in various settings of nursing and health education and includes work as a health team member. Prerequisites: M121 or M122.

M 130 150, 170, 1904

Introduction to common physiological and psychological disorders of humans; emphasis on changes that occur in humans in response to major life changes. Principles of physiology and anatomy. Prerequisites: completion of all courses required prior to 90:51.

M 130 150, 170, 1904

Integrated Approach to Professional Nursing Roles

Synthesis of concepts presented in Nursing through a nursing function which registers nurse student will integrate into the clinical setting. Prerequisites: RN registered nurse. Prerequisite: 90:51.

M 130 150, 170, 1904

Nursing Process in Aging: Basic Concepts of Aging and Nursing (3 cr.)

Explores the aging process, health and illness in older adults, and the total person in terms of physical and mental health, nutrition, environment, and social factors. Prerequisites: 90:100 or 90:101.

M 130 150, 170, 1904

Nursing Care of the Adult Client with Cancer (3 cr.)

Explores the nursing process and principles and practices of cancer care. Prerequisites: 90:100 or 90:101.

M 130 150, 170, 1904

Nursing in Women's Health (3 cr.)

A comprehensive approach to maternity care and the nursing process in a variety of settings. Prerequisite: 90:51.

M 130 150, 170, 1904

Nursing in the Client with Chronic Illness (3 cr.)

Explores the chronic care process and the nursing process. Prerequisites: 90:100 or 90:101.

M 130 150, 170, 1904

Nursing Research: Design and Conduct (3 cr.)

Describes the research process and the nursing research process. Prerequisites: 90:100 or 90:101.

M 130 150, 170, 1904

Nursing Research: Statistics and Critical Appraisal (3 cr.)

Describes the research process and the nursing research process. Prerequisites: 90:100 or 90:101.

M 130 150, 170, 1904

Professional Improvement

Corporate Clinical Internship

Assessment for student selection for clinical nursing placements.

M 130 150, 170, 1904

Pharmacology and Therapeutics (3 cr.)

A comprehensive approach to pharmacology and therapeutics. Prerequisites: 90:100 or 90:101.

M 130 150, 170, 1904

Pharmacology and Therapeutics of Endocrine (3 cr.)

A comprehensive approach to pharmacology and therapeutics. Prerequisites: 90:100 or 90:101.

M 130 150, 170, 1904

Pharmacology and Therapeutics of Nuclear Medicine 150, 170, 1904

A comprehensive approach to pharmacology and therapeutics. Prerequisites: 90:100 or 90:101.

M 130 150, 170, 1904

Pharmacology and Therapeutics of Pediatrics (3 cr.)

A comprehensive approach to pharmacology and therapeutics. Prerequisites: 90:100 or 90:101.

M 130 150, 170, 1904

Pharmacology and Therapeutics of Psychiatry (3 cr.)

A comprehensive approach to pharmacology and therapeutics. Prerequisites: 90:100 or 90:101.

M 130 150, 170, 1904

Nursing Theory and Practice in Diversity (3 cr.)

A comprehensive approach to pharmacology and therapeutics. Prerequisites: 90:100 or 90:101.
Electives

Refer to current Schedule of Courses for offerings of nursing electives. Offerings of these courses will vary from semester to semester.

8624 Introduction to Geriatrics

Overview of physiological research and role of health care provider in geriatric practice. Includes the epidemiology of the aging process, and special health care needs. Students will experientially examine actual care of the elderly.

8625 Introductory Immunology

Principles of immunology. Students will experientially examine experiential outcomes of immunological functions.
The pharmaceutical sciences are concerned with the design, development, and dispensing of medicinal products and monitoring of their efficacy. The pharmacist is also trained to identify, analyze, select, combine, and standardize these medicines, and serves his or her community as a prime source of information on health topics. Although he or she performs a variety of tasks, the pharmacist is basically a specialist in the science of drugs. He or she must understand their composition, chemical and physical properties, manufacture, and uses, and activity in the normal individual as well as in the ill patient, and must be familiar with tests for the strength, purity, and efficacy of drug products. The pharmacist is prepared to compound and dispense prescriptions written by health practitioners, who rely on the pharmacist for information about various drugs— their availability, activity, toxicology, contraindications, etc. Another important role of the pharmacist is the communication of knowledge of drugs to the patient and to other health professionals.

Nursing is familiar with the community pharmacist and the pharmacist in whom she or he practices. This 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 that are 100,000 men and women practice in community pharmacies.

Another group of pharmacists is employed in hospital pharmacy work. The government employs pharmacists in the Public Health Service, the Veterans Administration, Food and Drug Administration, and the armed forces.

Many pharmacists assume administrative positions in industry, including manufacturing, research and development, control, marketing, and advertising. In addition to these, numerous others are employed in professional positions as hospital pharmacy staff.

Pharmacy training is especially valuable to these men and women, who are responsible for acquiring physicians, dentists, veterinarians, and other pharmacists with drug products.

In the United States more people are receiving total health care than ever before. This expansion of health care will continue. Young men and women in pharmacy will face new challenges, expanded responsibilities, and an ever-increasing growth of opportunities.

Undergraduate Program

Students in the College of Pharmacy are in a Bachelor of Science program, and they receive professional training and education in a number of fields, including pharmacy technology, pharmaceutics, medicinal chemistry, and natural products, pharmaceutical microbiology, education, and clinical and hospital pharmacy.

The colleges of Liberal Arts, Business, and law contribute to the education of pharmacy students by providing instruction in the physical sciences, basic medical sciences, business, humanities, and social sciences.

Basically, the Bachelor of Science program in pharmacy consists of one year of prepharmacy study, followed by four years of pharmacy study. It is possible to transfer into the College of Pharmacy after two years of college-level work at an approved institution. A student entering the college after two years of preprofessional study can complete the professional program in three years if the preprofessional study includes, in addition to the basic preprofessional requirements, at least eight semester hours of organic chemistry, from two to eight semester hours of biology or zoology, three or four semester hours of economics and three to four semester hours in quantitative analysis.

The University of Iowa College of Pharmacy is accredited by the American Council on Pharmaceutical Education. Graduates of the college are qualified to take the licensure examination given by the Iowa Board of Pharmacy Examination.

The professional curriculum requires a number of hours of electives. In choosing appropriate electives, the student should focus on such topical areas as clinical or hospital pharmacy or pregraduate study.

The Professional Curriculum

For students admitted no later than the Fall 1984 semester.

First Year

46•13 Pharmacy Math 3 s.h.
37•3 Principles of Animal Biology 5 s.h.
4:121 Organic Chemistry I 3 s.h.
4:101 Elementary Quantitative Analysis 4 s.h.
Total 15 s.h.

Second Semester
46:14 Pharmacy: Orientation 2 s.h.
6E:1 Principles of Economics 4 s.h.
4:122 Organic Chemistry II 3 s.h.
4:141 Organic Chemistry Laboratory 3 s.h.
*6E:102 Principles of Human Anatomy 3 s.h.
**Elective 3 s.h.
Total 15 s.h.

*Also offered first semester for students on a 2-3 program only.
**18 semester hours of electives are required.

Second Year
First Semester
48:23 Pharmacology I 4 s.h.
99:162 Biochemistry for Pharmacy Students 4 s.h.
61:157 General Microbiology 4 s.h.
*6E:102 Principles of Human Anatomy 3 s.h.
Total 15 s.h.

Second Semester
48:24 Pharmacology II 4 s.h.
48:22 Pharmaceutical Sociology: Health Care Systems 4 s.h.
48:128 Medicinal Chemistry: Natural Products I 4 s.h.
72:150 Intermediate Physiology 4 s.h.
Total 15 s.h.

*May be taken in second semester of first year.

Third Year
First Semester
48:121 Medicinal Chemistry: Natural Products II 4 s.h.
69:121 Introduction to Human Pathology 4 s.h.
71:101 Pharmacology for Health Sciences: Pharmacy 5 s.h.
48:35 Pharmaceutical Sociology: Practice Management 3 s.h.
Total 15 s.h.

Second Semester
48:132 Medicinal Chemistry: Natural Products III 4 s.h.
71:103 Pharmacology and Toxicology 3 s.h.
48:38 Pharmaceutics III 3 s.h.
48:110 Clinical Pharmacy: Case Study 3 s.h.
46:61 Clinical Pharmacy: Drug Information 3 s.h.
Total 15 s.h.

Fourth Year
First Semester
45:41 Professional Experience 2 s.h.
46:43 Pharmacology IV 4 s.h.

*46:60 Clinical Pharmacy: Community Pharmacy 3 s.h.
46:111 Clinical Pharmacy: Therapeutics I 2 s.h.
Elective 2-4 s.h.
Total 14-16 s.h.

Each P-4 student must complete six clinical clerkships (usually three each semester). Two of these are required (46:60 and 46:61).

Second Semester
*46:60 Clinical Pharmacy: Practice/Therapeutics I 3 s.h.
46:112 Clinical Pharmacy: Therapeutics II 2 s.h.
Electives 6-8 s.h.
Total 10-12 s.h.

*May be taken in either semester.

Professional Electives
46:48 Community Pharmacy Retailing 3 s.h.
46:52 Seminar Seminar 3 s.h.
46:56 Non-Pharmaceutical Drugs 2 s.h.
46:101 Pharmacy. Projects 1-3 s.h.
46:103 Physical Pharmacy 3 s.h.
46:104 Pharmacokinetics and Biopharmaceutics 3 s.h.
46:105 Industrial Pharmacy Survey 2-3 s.h.
46:108 Hospital Pharmacy: Survey 3 s.h.
46:114 Advanced Clinical Pharmacy 4 s.h.
46:125 Perspectives in MOPH Research 1-5 s.h.
46:138 Introduction to Medical Pharmacology: Natural Product Research 1-2 s.h.
46:147 Introduction to Research Methods 3 s.h.
46:154 Communications Skills for Pharmacists 3 s.h.

Professional Clerkships
46:82 Clinical Pharmacy: Family Practice Therapeutics 3 s.h.
46:92 Clinical Pharmacy: Pediatrics 3 s.h.
46:84 Clinical Pharmacy: Radiopharmacy 3 s.h.
46:85 Clinical Pharmacy: Surgical Therapeutics 3 s.h.
46:86 Clinical Pharmacy: Geriatric Therapeutics 3 s.h.
46:87 Clinical Pharmacy: Neurology 3 s.h.
46:59 Clinical Pharmacy: Elective Clerkship 3 s.h.
46:100 Clinical Pharmacy: Psychotherapeutics 3 s.h.

Graduation from the baccalaureate program in pharmacy requires the student to complete satisfactorily the required courses in addition to 15 semester hours of electives and to achieve a minimum grade-point average of 2.0 for all work undertaken.

For rules and regulations concerning academic probation, pass-fail marks, credit by examination, minimum schedule, second-grade-only option, waiver or substitution of courses, cancellation of registration, drop date and correspondence study, see the "College of Pharmacy" section in the current Schedule of Courses.

Admission
Admission to the College of Pharmacy for the Fall 1984 Semester requires the following preprofessional course work:

Biological Science: eight semester hours of six semester hours of transfer credit in English composition and literature, and two semester hours in speech.

General Chemistry: eight semester hours from the following courses:

Mathematics: three or four semester hours of a satisfactory differential and integral calculus course.

Physics: one or two-semester course in basic physics. A one-year animal biology or zoology course may be substituted; physics will then be taken in the first professional year.

Students who have minor deficiencies in meeting the above requirements may be admitted to the college upon recommendation of the chair of the admissions committee and the approval of the dean.

The applicant must have earned a 2.0 cumulative grade-point average on all college work attempted.

Failure to meet these requirements does not ensure admission to the college.

Transfer Students
Students who transfer into the college after two years in a community or liberal arts college can complete the pharmacy curriculum satisfactorily by satisfactorily completing courses in organic chemistry, biology or zoology, economics, and quantitative analysis. Students who plan to remain in a community college for two years before transferring to the UI college should consult the dean of the College of Pharmacy concerning course requirements.

Admission Requirements Effective for Fall 1985 Semester

In order to increase the general education component of the pharmacy curriculum, there will be changes in the admission requirements and the present curriculum from those stated above.

These changes will affect prepharmacy students in 1984-85 and students admitted to the College in the fall of 1985.
Preprofessional Course Work
Rhetoric: eight semester hours, or six semester hours of transfer credit in English composition and rhetoric, and two semester hours in speech.
General chemistry: eight semester hours.
Mathematics: three or four semester hours of a satisfactory differential and integral calculus course.
Physics: may be satisfied with one year of high school physics. Students are encouraged to complete 29.8 Base Physics.
General education electives: six semester hours.
*In addition to the required courses in the curriculum, each student must complete 24 semester hours of general education courses. These elected courses should be in the behavioral, social, and humanistic areas of knowledge.

Transfer Students Admitted for Fall 1985 Semester
Students who transfer into the college after two years in a community or liberal arts college can complete the pharmacy program in three years if they have satisfactorily completed courses in organic chemistry, biology or zoology, quantitative analysis, and satisfied general education electives. Students who wish to remain in a community college for two years before transferring to the UI college should consult the dean of the College of Pharmacy concerning course requirements.

The Professional Curriculum, Effective for Fall 1985 Semester

**First Year**

First Semester
46:13 Pharmacy Math 3 s.h.
4:121 Organic Chemistry I 3 s.h.
37:3 Principles of Animal Biology 5 s.h.
4:101 Elementary Quantitative Analysis 4 s.h.
Total 15 s.h.

Second Semester
46:14 Pharmacy Orientation 2 s.h.
4:122 Organic Chemistry II 3 s.h.
4:141 Organic Chemistry Laboratory 3 s.h.
60:102 Principles of Human Anatomy 3 s.h.
General Education Electives 5-9 s.h.
Total 17-20 s.h.

Second Year

First Semester
46:25 Pharmacology I 4 s.h.
59:102 Biochemistry for Pharmacy Students 4 s.h.
61:157 General Microbiology 4 s.h.
60:102 Principles of Human Anatomy 3 s.h.
General Education Electives 0-3 s.h.
Total 15-18 s.h.

Second Semester
60:24 Pharmacology II 4 s.h.
68:22 Pharmacology, Socioeconomics Health Care Systems 4 s.h.
68:126 Medical Chemistry: Natural Products I 4 s.h.
72:105 Introductory Phisiology 4 s.h.
Total 16 s.h.

**May be taken in second semester of four year.

Third Year

First Semester
46:131 Medicinal Chemistry: Natural Products II 4 s.h.
69:203 Introduction to Human Pathology 4 s.h.
71:101 Pharmacology for Health Sciences: Pharmacology 6 s.h.
46:33 Pharmaceutics Socioeconomics Practice Management 3 s.h.
Total 15 s.h.

Second Semester
46:132 Medicinal Chemistry: Natural Products III 4 s.h.
71:103 Pharmacology and Toxicology 3 s.h.
46:38 Pharmacology II 4 s.h.
65:10 Clinical Pharmacy: Case Study 3 s.h.
68:81 Clinical Pharmacy: Drug Information 3 s.h.
Total 15 s.h.

Fourth Year

First Semester
46:60 Clinical Pharmacy: Community Pharmacy 3 s.h.
46:111 Clinical Pharmacy: Therapeutics I 2 s.h.
46:41 Jurisprudence 2 s.h.
46:43 Pharmaceutics IV 4 s.h.
*1-2 Selected Clerships 3-6 s.h.
Total 14-17 s.h.

Second Semester
46:60 Clinical Pharmacy: Community Pharmacy 3 s.h.
46:113 Clinical Pharmacy: Therapeutics II 2 s.h.
*1-2 Selected Clerships 3-6 s.h.
General Education Electives 3 s.h.
Total 11-14 s.h.

*May be taken in either semester.

Each P-4 student must complete four years in at least one clinical clerkship, including 46:60 and 46:61. The others are selected from a large number of offerings.

Transfer with Advanced Standing

Students transferring from other colleges of pharmacy accredited by the American Council on Pharmaceutical Education may receive credit for work required in this curriculum. However, at least one academic year (30 semester hours) of residence in The University of Iowa College of Pharmacy is required for the degree.

Students transferring from nonpharmacy colleges may receive credit for work required in the Bachelor of Science curriculum in pharmacy, but still must expect to be enrolled for at least three years in the College of Pharmacy. A minimum grade of C is required for work applied by transfer toward the pharmacy degree.

Doctor of Pharmacy Program

The Doctor of Pharmacy (Pharm. D) program is a two-year, post-baccalaureate professional degree program which combines didactic course work and clinical clerkship. The major goal of the program is to provide the health-care system with pharmacists who are specifically prepared to undertake an extended role in monitoring, evaluating, and providing drug therapy in hospital and ambulatory facilities. Prospective students may obtain specific information on the Pharm. D. program by writing to the University of Iowa, College of Pharmacy, Iowa City, Iowa 52242.

Graduate Programs

The college has graduate programs in each of its four academic divisions, Master of Science and Doctor of Philosophy programs are available in pharmacuetics, medicinal chemistry-natural products, and pharmaceutical socioeconomics. A Master of Science degree is available in clinical-hospital pharmacy.

Advanced study in the pharmaceutical sciences prepares the student for research, teaching, and administrative positions in the pharmaceutical, chemical, and agricultural chemical industries, in colleges and universities, in health agencies, and in a number of health-related institutions.

The application deadline, grade-point average for admission, Graduate Record Examination (GRE) Aptitude Test score and necessary letters of recommendation are the same as those of the Graduate College. The academic requirements for maintaining graduate registration are
46:101N Neonatology Clerkship  1 cr.
Lecture and advanced clinical practice of the practicing physician, related to neonatal diseases, patient care, and the role of the pharmacist. Prerequisites: Pharm.D. standing and consent of instructor.

46:108 Surgery Clerkship  1 cr.
Advanced application of therapeutic skills necessary in the hospital setting and patient management of general surgery patients. Prerequisites: Pharm.D. standing and consent of instructor.

46:107 Clinical Nuclear Pharmacy Clerkship  1 cr.
Advanced clinical instruction in the use of radiopharmaceuticals, radiotherapeutic drug interactions, pharmacological intervention in nuclear medicine studies, and radiopharmacological drug interactions. Prerequisites: Pharm.D. standing and consent of instructor.

46:106 Dental College Clerkship  1 cr.
Advanced clinical experiences involving general and local anesthesia, conscious sedation and pain control, rational antibiotic therapy, and participation in management of the multidisciplinary patient. Prerequisites: Pharm.D. standing and consent of instructor.

Graduate Clinical-Hospital Pharmacy

46:151 Hospital Pharmacy Survey  1 cr.
Modern practice of hospital pharmacy-related pharmacy sciences, pharmacy services, anatomy, special aspects of hospital drug procurement, formulation, and practice of inventory control, drug distribution systems, pharmacy service, patient care, hospital pharmacy services, and drug utilization review. Prerequisites: Pharm.D. standing and consent of instructor.

46:154 Advanced Clinical Pharmacy  1 cr.
Application of principles of pharmacology and therapeutics to the care of hospital patients. Prerequisites: Pharm.D. standing and consent of instructor. Prerequisites: Pharm.D. standing and consent of instructor.

46:155 Clinical Pharmacy Drug Literature Review and Evaluation  2 cr.
Literature of hospital pharmacy practice, including clinical aspects, emphasis on techniques of evaluating literature and communicating results. Prerequisites: Pharm.D. standing and consent of instructor.

46:204 Hospital Pharmacy Fellowships  3 cr.
Theory and applications in preparation, packaging and testing of parenteral dosage forms.

46:202 Nuclear Pharmacy  2 cr.
Design, evaluation, and application of radioisotopes; medical use and mathematical aspects; regulatory and administrative functions in nuclear pharmacy services; radiopharmaceutical drug administration. Prerequisites: consent of instructor.

46:224 Clinical-Pharmaceutical Practice  3 cr.
Contemporary pharmaceutical practice in selected areas of clinical pharmacy, selected patient care models, clinical and theoretical emphasis on individualization of drug regimens, relative efficacy, and cost of drug therapy. Prerequisites: 46:112 or consent of instructor.

46:241 Clinical-Hospital Pharmacy Research  1 cr.
Topics of current interest in the specialty of clinical and hospital pharmacy. May be repeated.

46:247 Hospital Pharmacy Directed Study in Administrative Pharamacy  1 cr.
Application of basic organizational and administrative theory to practical problems in hospital pharmacy. Prerequisites: consent of instructor. Prerequisites: consent of instructor.
Continuing Education

The Division of Continuing Education was established by special legislation of the General Assembly of Iowa to "render a larger service to the Commonwealth and to the people of Iowa by carrying out to every part of the State the knowledge, the thought, the ideals, and the spirit of the various departments and colleges of the University and by bringing the University generally into direct contact with the citizens." The division's organization and services include:

Center for Credit Programs
Correspondence Courses
Over 150 Guided Correspondence Study courses are available from The University of Iowa; all courses are approved by the appropriate University departments. Students in residence at The University of Iowa must obtain permission of the dean of their college to enroll in Guided Correspondence Study courses for degree credit.

The following departments or divisions have approved courses in Guided Correspondence Study:
- College of Liberal Arts: Afro-American Studies; Anthropology; Asian Languages and Literature: Chemistry; Classics; Communication and Theatre Arts; English; French; Geography; Geology; German; History; Home Economics; Journalism and Mass Communication; Linguistics; Literature; Science and the Arts; Mathematics; Music; Philosophy; Physical Education; Political Science; Psychology; Recreation Education; Religion; Russian; Social Work; Sociology; Spanish and Portuguese; Women's Studies; Zoology
- College of Business Administration: Economics; Finance; Industrial Relations and Human Resources; Management Science
- College of Education: Counseling Education; Early Childhood and Elementary Education; Foundations, Postsecondary and Continuing Education; Psychological and Quantitative Foundations; Secondary Education, Special Education
- College of Engineering: Chemical and Materials Engineering
- College of Medicine: Preventive Medicine and Environmental Health
- College of Nursing

Enrollment fees for correspondence courses are $5; course fees are $95 per semester hour. Fees are payable at the time of registration. A catalog, including course listings, procedures, and enrollment forms may be obtained from Guided Correspondence Study, W400 Seashore Hall.

Veterans may enroll for correspondence courses concurrently with other academic study under Public Law 92-540. Veterans should contact the Veterans Affairs Office at the University.

Off-Campus Classes
The division offers off-campus classes in liberal arts, business administration, education, nursing, and engineering. Classes are scheduled where they may best serve the off-campus students and at the request of public school officials, or where professional, industrial, or other qualified groups indicate a specific need for educational services. Courses offered in engineering are scheduled on a core-actual basis. Courses in elementary arts, business administration, nursing, and education require enough enrollees to meet course expenses. For information, write to Center for Credit Programs, W400 Seashore Hall.

Saturday and Evening Classes
This program provides credit course offerings for part-time undergraduate, graduate, or classified students. Courses are offered from schools and departments of the University. For a Saturday and Evening Classes catalog, write to Saturday and Evening Classes, W400 Seashore Hall.

Bachelor of Liberal Studies Degree
The Bachelor of Liberal Studies (B.L.S.) degree is designed to serve adults who cannot attend as full-time, on-campus students. The program has no residence requirements. Credits toward the degree, which is awarded by the College of Liberal Arts, may be earned through correspondence study, Saturday and evening classes, off-campus courses, and television and tapedbridge courses. Work done at community and private colleges may be applied toward the degree, as may courses taken from any of the Iowa Regents universities. For more information contact the Center for Credit Programs, W400 Seashore Hall.
Center for Conferences and Institutes

The center serves as the principal agency of the University for developing, coordinating, and conducting noncredit continuing education programs for nonresident adults and for advancing the University’s Continuing Education Unit (CEU) program. Its primary goal is to enhance the usefulness of the University as a center of learning and to provide educational opportunities for people who are no longer full-time students but who seek new knowledge related to their jobs, professions, or special interests.

Each year more than 30,000 adult noncredit training in the center’s varied programs, which represent a cooperative endeavor between the center and the various colleges, departments, and disciplines within the University. The marshaling of appropriate resources, coupled with the professional planning and execution of conferences and other short-term training programs, helps to ensure the achievement of the educational objectives specified for each program.

The director of conferences is responsible for approving and conducting or coordinating all conferences, institutes, short courses, and other noncredit continuing education offerings here in the Iowa Memorial Union for other than on-campus student groups. All members of the faculty and staff who plan University conferences and other University-related group functions to be held on campus in the Iowa City/Coralville area are expected to submit a detailed proposal to the conference center office and to utilize the conference facilities, dining services, and lodging accommodations at the Iowa Memorial Union. Promotional materials are available and appropriate.

Adult Education Noncredit Program

This open enrollment program provides a wide variety of noncredit short-courses and workshops. Courses are normally conducted in the Iowa Memorial Union during evening or Saturday hours by University-affiliated instructors. Continuing education units may be awarded by completion. For current offerings, contact the Center for Conferences 210 Institutes.

Radio Broadcasting Services

WSIU radio W295-FM serves the needs and interests of the people of eastern Iowa with 16 hours of daily broadcasting which extends the resources and activities of the University. The broadcast schedule consists of educational, cultural, and informational programming not available elsewhere. As an affiliate of National Public Radio (NPR), WSIU contributes program materials to a national network of more than 250 non-commercial radio stations. The main studios and offices are located in 3500 Engineering Building, and a free copy of WSIU's "Studio Guide" may be obtained by writing to the address.

Institute of Public Affairs

The mission of the institute is to help improve state, city, and county governments in Iowa by serving as the primary research and continuing education link between the University and those governments. Services of the center are available to state and local government agencies and to citizen groups interested in civic affairs.

The institute has a full-time research and training staff. Through the institute, other resources of the University are applied to problems faced by Iowa public officials. The institute also works in close cooperation with organizations of public officials such as the League of Iowa Municipalities and the Iowa State Association of Counties.

The institute provides:

- In-service training and continuing education services to public personnel, primarily managers and supervisors, offering a wide range of courses and programs aimed at meeting individual and organization needs as well as professional goals.
- Research services, informational resources, and publications ranging from Iowa public policy studies to handbooks for elected officials in Iowa governments.
- Organizational assistance ranging from advising on city council goal setting, management systems, and quality circles to serving on state-wide government committees dealing with major concerns of state and local governments.

Office of Community College Affairs

The Office of Community College Affairs (OCCA), which is closely aligned with the College of Education at the University of Iowa, is housed in the two-tract building on the west end of the Coralville location office. OCCA is the liaison office between the University and Iowa’s community college system, and its role is to facilitate effective student transfers between the University and Iowa’s community colleges. The office leads in developing policies and procedures to improve the educational and career opportunities for students attending Iowa’s community colleges.

The office serves as an information and resource center for Iowa’s community college system; provides information to community colleges about University programs and services; and offers assistance to community colleges in developing and improving educational programs.

OCCA is committed to serving the needs of Iowa’s community colleges by providing support and resources for the development and improvement of educational programs and services. OCCA works closely with the University’s colleges and schools to ensure the delivery of high-quality education to community college students.

Macbride Field Campus

The University hosts a lease from the U.S. Navy for Macbride Engineers on two tracts of land in the Coralville Reservoir area nearly east of the city. The two tracts total approximately 620 acres. One tract is reserved for biological research, the other for university-wide activities. Developments in the area to date include provision of an access road, water supply, electric power maintenance facilities, a barn/office for faculty, facilities for handicapped persons, and picnic areas. A small nature lodge is available to school groups.

Iowa Lakeside Laboratory

The Division of Continuing Education has general administrative supervision of the Iowa Lakeside Laboratory, a summer laboratory for the biological sciences on Lake Okoboji, Iowa, where a cooperative program in teaching and research is carried on under the auspices of Iowa State University, University of Northern Iowa, and The University of Iowa. Two terms of five weeks each are held during June, July, and August. Facilities for year-round research are available. For information, write to the Division of Continuing Education. (See also listing for "Lakeside Laboratory" under College of Liberal Arts.)
Audiovisual Center
The mission of the Audiovisual Center is to assist the faculty and students in the improvement of the teaching-learning process through the effective use of audiovisual media. To accomplish this objective, the Audiovisual Center provides a full range of services in:

Instructional Development
The Audiovisual Center staff is able to assist faculty and staff in the designing and planning of learning facilities and media, in locating materials for specific disciplines, and in developing strategies for utilizing media.

Media Services
The Audiovisual Center Media Library provides a major collection of 16mm instructional films and videotapes, available on campus without charge for instruction and curriculum-related activities, and for rental to off-campus requestors. Smaller collections of audio tapes, filmstrips, and slides, plus facilities for student or faculty utilization, are also available. Catalogs of these collections are available upon request. The Library also maintains a reference collection of materials from other sources.

Equipment Services makes available without charge for instructional use film, slide, filmstrip, opaque, and overhead projectors; portable projection screens; audio tape recorders, record players; portable public-address systems; and display devices (exhibits, posters, boards).

There is a nominal charge for projectionist service and for equipment requested for conferences and/or off-campus use. Repair service is available at a nominal charge for A/V equipment.

Media Production
Professional staff, facilities, and equipment are available to produce original software in all media:

- Graphics—design, layout, paste-up, illustrations, charts, graphs, lettering, etc.
- Audio—recording, editing, duplication, transcription service
- Motion pictures—scripts, cinematography, and editing
- Photography—portraits, passports, slides, transparencies, 35mm color and black-and-white (1-inch, 2-inch, and cassette); systems design; equipment maintenance; portapix rental
- Fabrication—design and construction of displays, specialized audiovisual equipment and furniture
- Marketing—sales, distribution, and marketing of University-originated products and services.

Satellite Centers
Satellite centers are established, as needs arise, through cooperative arrangements between the Audiovisual Center and departments, schools, colleges, and other service agencies. Satellite centers currently include the Medical Audiovisual Center, Dental Audiovisual Center, Nursing Audiovisual Center, the Educational Media Laboratory, and the Music Audiovisual Center.
State Board of Regents
The University of Iowa, Iowa State University of Science and Technology, the University of Northern Iowa, the Iowa Braille and Sight-Saving School, and the Iowa School for the Deaf are governed by the State Board of Regents, consisting of nine members. The board membership is as follows:
- President: S.J. Brownlee, Emmetsburg
- Peg Anderson, Bettendorf
- Charles Duchen, Des Moines
- Parry G. Harris, Cedar Rapids
- Ann Jorgensen, Garrison
- John McDonald, Dallas Center
- June Murphy, Des Moines
- Arthur Neuwirth, Carroll
- Bas Van Gilst, Okoboji
-
Executive secretary: R. Wayne Richey

Central Administration
President: James G. Freedman
- Vice-President for Academic Affairs and Dean of Faculties: Richard D. Ramlington
- Vice-President for Educational Development and Research, Dean of the Graduate College: Duane C. Spreistersbach
- Vice-President for Finance and University Services: Dorsey D. Ellis, Jr.
- Vice-President for Student Services and Dean of Academic Affairs: Philip G. Hubbard

Academic Affairs
- Vice-President and Dean of Faculties: Richard D. Ramlington
- College of Business Administration: Dean: George Daly
  - Industrial Relations Institute Director: Anthony J. Scircipio
  - Institute of Accounting Research Acting Director: Robert W. Ingram
  - Institute for Economic Research: Gerald Barnard
  - Institute for Insurance Education and Research Director: Emmet J. Vaughan
  - Institute for Entrepreneurial Management: Emmet J. Vaughan
- College of Dentistry: Dean: James H. McLellan
  - Dental Research Director: Ian Maxwanke
- College of Education: Dean: Charles W. Gavey
  - Iowa Institute for School Executives Director: George A. Schmieder

College of Engineering
- Dean: Robert G. Herring
- Institute of Hydraulic Research Director: John F. Kennedy

Graduate College
- Dean: Duane C. Spreistersbach
- Dean of Advanced Studies: Hulduf W. Schulte

College of Law
- Dean: N. William Hines

College of Liberal Arts
- Dean: Howard Lott
- School of Art and Art History Director: Wallace J. Tomaselli
- School of Journalism and Mass Communication Director: Kenneth Starck
- School of Letters Acting Director: Richard Lloyd-Jones
- School of Library and Information Science Director: Carl F. Nygren
- School of Music Director: Marilyn F. Snively
- School of Religion Director: John P. Boyle
- School of Social Work Director: Janice Wood Wetzell

College of Medicine
- Dean: John W. Eickelman

College of Nursing
- Dean: Geraldene Felton

College of Pharmacy
- Dean: Robert A. Wiley

Division of Continuing Education
- Acting Dean: M. Dean Zenor
- Audiovisual Center Director: William Ogletree
- Center for Conferences and Institutes Director: Jane Braverman
- Center for Credit Programs Director: Von V. Pottmann, Jr.
- Community College Affairs Director: Duane D. Anderson
- Institute of Public Affairs Director: Clayton Riegelbush
- Iowa Lakeside Laboratory Director: Richard V. Dobbe
- Macbride Field Campus Director:
- Radio Stations WUIU-WSUI Director: George S. Klinker
- Iowa Center for the Arts Chair: Philip G. Hubbard

Libraries
- University Librarian: Dale M. Bentz

Museum of Art
- Director: Robert C. Hobbs
Old Capitol
Director: Margaret Hayes
Summer Session
Director: Nancy V. Boccell

Educational Development and Research
Director: Dorothy C. Sprinstraabach
Division of Sponsored Programs
Director: Margery H. Hopple
Office of Project Development
Director: Jay Smiler
Institute for Child Behavior and Development
Director: Gerald S. Solomon
Health Services Research Center
Director: Samuel Leavy
Office of International Education and Services
Director: Stephen M. Anum
Office of Information Technology
Director: James W. Johnson
Weeg Computing Center
Director: W. Lee Shape
Public Information and University Relations
Director: Dwight E. Jensen
Environmental Health and Safety
Director: David W. Drummond
Occupational Health Services
Director: Paul R. Pomrehn, Jr.
Radiation Protection
Director: William E. Waller
State Archaeologist
Duane C. Anderson
University House
Director:
University Press
Director:
Institute of Urban and Regional Research
Director:

Student Services
Director: Philip G. Hubbard
Dean of Student Services:
Admissions
Director: John E. Moore
Registrar
Registrar: Jerald W. Dallam
Residence Services
Director: George L. Groff
Hancher Auditorium
Director: James H. Woonkluess
Iowa Memorial Union
Director: Jean Kendall
Career Services and Placement
Director: Alvin U. Seals
University Counseling Service
Director:
Special Support Services
Director: Paul Shing
Student Financial Aid
Director: John E. Moore
University Examination and Evaluation Services
Director: T. Anne Cleary
Orientation
Director: Emil Rinderspacher
Campus Programs and Student Activities
Coordinator: Kevin Taylor
Services for Handicapped
Coordinator: Sharon Van Meter
Women's Resource and Action Center
Coordinator: Susan Buckley

Finance and University Services
Director: Dorsey D. Ellis, Jr.
Business Office
Manager and Treasurer: Ray B. Moosman
Controller and Secretary: Douglas M. Young
Director of Purchasing: Wayne F. Chadima
Physical Plant
Director: Duane A. Noltche
University Personnel Service
Director: Fred H. Dodder
Facilities Planning and Utilization
Director: Richard E. Gibson
Intercollegiate Athletics for Men
Director: Charles W. Elliott
Intercollegiate Athletics for Women
Director: Christine Grant
Recreational Services
Director: Mary R. Ostrandar

University Health Services
Assistant to the President for Health Services: John R. Conlton
University Hospitals and Clinics
Director: John W. Colotan
Psychiatric Hospital
Director: George Wroclaw
State Hygienic Laboratory
Director: William L. Hauser
University Hospital School
Director: Alfred T. Holty
Student Health
Director: Harley G. Feldick
Regional Child Health Specialty Clinics
Director: John C. MacQueen

General University
Alumni Association
Executive Director: Thomas Brown
University of Iowa Foundation
Executive Director: Darrell D. Wyrick
Academic Personnel
The following is extracted from the Board of Regents section of the Iowa Administrative Code as of March 4, 1981.

Residence

720—1.4(262) Classification of residents and nonresidents for admission and fee purposes

1.4(1) General

a. A person enrolling at one of the three state universities shall be classified as a resident or nonresident for admission, fee, and tuition purposes by the registrar or someone designated by the registrar. Such classification shall be based upon information furnished by the person enrolling who is the resident or designated person, is authorized to require written documents, affidavits, verifications, or other evidence deemed necessary to determine the domicile of a student. The burden of establishing that a student is domiciled in Iowa is upon the student.

b. In determining resident or nonresident classification, the issue is essentially one of domicile. Domicile is the place where a person has his true, fixed, permanent home and place of habitation. It is the place to which, whenever the person is absent, the person has the intention of returning.

c. Under these regulations, a resident student is defined as one who is domiciled in the state of Iowa. A nonresident student is defined as one who is domiciled outside of Iowa. A student shall not be considered domiciled in Iowa unless the student is a continuous physical resident in this state and intends to make Iowa his permanent home.

d. A person who comes to Iowa from another state and enrolls in any institution of postsecondary education for a full program or substantially a full program shall be presumed to have come to Iowa primarily for educational reasons rather than to establish domicile in Iowa. Such a person shall be classified nonresident unless and until such person can demonstrate that the previous domicile has been abandoned and that Iowa domicile is established.

e. The following facts and circumstances, among others, may be necessary evidence, have probative value in support of a claim for resident classification: (1) Evidence of Iowa residence for a period of at least one semester, preferably two or more, with actual physical presence in Iowa for twelve consecutive months, and that physical presence in Iowa is the student's principal place of abode. (2) A student who has a parent who is a resident of Iowa may establish Iowa domicile in Iowa if he is a legal resident of Iowa for at least six months of the year. (3) In the case of a student who is a legal resident of Iowa for less than six months of the year, evidence of domicile may be established if the student has a parent who is a legal resident of Iowa for at least six months of the year. (4) In the case of a student who is a legal resident of Iowa for less than six months of the year, evidence of domicile may be established if the student has a sibling who is a legal resident of Iowa for at least six months of the year. (5) In the case of a student who is a legal resident of Iowa for less than six months of the year, evidence of domicile may be established if the student has a guardian who is a legal resident of Iowa for at least six months of the year. (6) In the case of a student who is a legal resident of Iowa for less than six months of the year, evidence of domicile may be established if the student has a relative who is a legal resident of Iowa for at least six months of the year. (7) Acceptance of a loan or of a scholarship or other financial aid from an Iowa financial aid agency.

1.4(2) Facts

a. A person who is admitted into the state as the result of military or civil orders from the government for other than educational purposes shall be classified as a resident if the person is admitted to the state as a student under those regulations. (1) Voting on registration for voting. (2) Employment in any position normally held by a student. (3) The state of living quarters. (4) Automobile registration. (5) Other public records, for example, birth and marriage records, Iowa driver's license.

b. A person or the dependent of a person who is domiciled in Iowa shall be classified as a resident if the person is admitted into the state as the result of military or civil orders from the government for other than educational purposes and the person is entitled to student status. However, if the person is assigned to quarters or other living quarters in the state, the person may be classified as a nonresident if the person is not entitled to student status.

c. A person who is domiciled in Iowa shall be classified as a resident if the person is admitted into the state as the result of a legal order or civil order and the person is entitled to student status. However, if the person is assigned to quarters or other living quarters in the state, the person may be classified as a nonresident if the person is not entitled to student status.

d. A person who is domiciled in Iowa shall be classified as a resident if the person is admitted into the state as the result of a legal order or civil order and the person is entitled to student status. However, if the person is assigned to quarters or other living quarters in the state, the person may be classified as a nonresident if the person is not entitled to student status.

e. A person who is domiciled in Iowa shall be classified as a resident if the person is admitted into the state as the result of a legal order or civil order and the person is entitled to student status. However, if the person is assigned to quarters or other living quarters in the state, the person may be classified as a nonresident if the person is not entitled to student status.
1.4(4) Review committee
These regulations shall be administered by the registrar or someone designated by the registrar. The decisions of the registrar or any appeals to him or her from the registrar may be appealed to the Iowa State board of regents.

720—1.5(262) Registration and transcripts—general
A person may not be permitted to register for a course or courses at the state board of regents institution until any delinquent accounts owed by the person to an institution for which an institution acts as fiscal agent has been paid.

A state board of regents institution may withhold official transcripts of the academic record of a person until any delinquent accounts owed by the person to an institution or any affiliated organization for which an institution acts as fiscal agent has been paid.

1.5(262) Admission of undergraduate students 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 $30.00 application fee, and have their secondary school provide a transcript of their academic records showing grades and credits, rank in class, and certification of graduation. Applicants must also submit scores from the American College Test (ACT) or the Scholastic Assessment 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 native language is not English. Applicants may be required to submit additional information or data to support their applications.

1.7(1) Graduates of accredited high schools who have the subject matter background as recommended by each university and who rank in the upper one-half of their graduating class will be admitted. Applicants who do not rank in the upper one-half of their graduating class may, after a review of their academic and test records, and at the discretion of the admissions officers:

a. be admitted unconditionally,
b. be admitted conditionally,
c. be required to enroll for a trial period during a succeeding summer session, or
d. be denied admission.

1.7(2) Graduates of accredited high schools in other states
Graduates of accredited high schools in other states may be held to the same requirements as graduates of Iowa high schools. The options for conditional admission or summer trial enrollment may not necessarily be offered to these students.

1.7(3) Applicants who are graduates of non-approved high schools
Applicants who are graduates of non-approved high schools will be considered for admission in a manner similar to applicants from approved high schools, but additional emphasis will be given to scores obtained on standardized examinations.

1.7(4) Applicants who are not high school graduates
Applicants who are not high school graduates, but who have had training in high school or college, will be considered for admission. They will be required to submit all available data to the extent that a complete and accurate and scores on standardized examinations will be presented.

1.7(5) Admission of students with superior academic records
Students with superior academic records may be admitted on an individual basis, based on past university study while enrolled in high school or during the summers prior to high school graduation.

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 $30.00 application fee, and have their secondary school provide a transcript of their academic records showing grades and credits, rank in class, and certification of graduation. Applicants must also submit scores from the American College Test (ACT) or the Scholastic Assessment 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 native language is not English. Applicants may be required to submit additional information or data to support their applications.

1.7(6) Transfer students
Transfer students from other universities are required to submit a complete application for admission with a $30.00 application fee, and to have their secondary school provide a transcript of their academic records showing grades and credits, rank in class, and certification of graduation. Applicants must also submit scores from the American College Test (ACT) or the Scholastic Assessment 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 native language is not English. Applicants may be required to submit additional information or data to support their applications.
1.3(2) Admission of students with fewer than twelve semester hours college credit
Admission of students with fewer than twelve semester hours of college credit will be based on high school academic and standardized test records in addition to review of the college record.

1.3(2) Transfer applicants under disciplinary suspension
Transfer applicants under disciplinary suspension will not be considered for admission until information concerning the reason for the suspension has been received from the college assigning the suspension. Applicants granted admission under these circumstances will be admitted on probation.

1.3(2) Transfer applicants from colleges and universities not regionally accredited
Transfer applicants from colleges and universities not regionally accredited will be considered for admission on an individual basis taking into account all available academic information.

720—1.3(262) Transfer credit practice
The regents universities endorse the Joint Statement on Transfer and Award of Academic Credit approved in 1978 by the American Council on Education, the American Association of Collegiate Registrars and Admissions Officers (AARC/OA), and the Council on Postsecondary Accreditation (COAPA). The Joint Statement on Transfer Credit Practices of Selected Educational Institutions, published by the American Association of Collegiate Registrars and Admissions Officers (AARC/OA), is available for reference to the universities in determining transfer credit. The acceptance and use of transfer credit is subject to limitations in accordance with the educational policies of the receiving university.

1.3(3) Students from regionally accredited colleges and universities
Credit earned at regionally accredited colleges and universities is acceptable for transfer except that credit in courses determined by the receiving university to be of a remedial, vocational, or technical nature, or credit in courses or programs in which the institution granting the credit is not directly involved, may not be accepted, or may be accepted to a limited extent.

Transfer credit from a baccalaureate college will not reduce the minimum number of credit hours required for a baccalaureate degree if that credit is earned after the total number of credit hours required by the student at institutions attended exceeds one half of the number of credit hours required for that degree.

1.3(3) Students from colleges and universities which have candidate status
Credit earned at colleges and universities which have become candidate 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.

1.3(3) Students from colleges and universities not regionally accredited
When students are admitted from colleges and universities not regionally accredited, they may be accompanied by a statement of satisfactory academic standing from the college. Each university will specify the amount of the transfer credit and the terms of the validation process of the time of admission.

In determining the acceptability of transfer credit from non-regionally accredited colleges, the regents will consider information about the institutional qualifications and capabilities of the granting institution. Each university will consult with the state students association, the state college association, and the state board of higher education in evaluating the capabilities of the courses.

1.3(4) Students from foreign colleges and universities
Transfer credit from non-regionally accredited educational institutions may be granted if the course of study is determined to be of equivalent level, and after an evaluation of the content, level, and comparability of the study to courses and programs at the regents university. Credit may be granted in specific courses but is frequently assigned to general areas of study. Extensive use is made of professions' journals and references which describe the educational systems and programs of individual countries.

Supplemental Specific Rules for the University of Iowa

720—2.1(262) Formal application for admission
Applicants for admission to any college of the University of Iowa must submit a formal application for admission with the required official forms and supporting material as required by the director of the college. Students may not be registered until they have been issued an admission statement by the director of admissions.

720—2.3(262) College of Business Administration

2.1(3) 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 admission guarantees time to devote to each application. Closing dates for receiving applications will be announced well in advance of the opening date of any session.

2.3(2) Requirements for admission
For admission to the College of Business Administration an applicant must have:

a. Completed specific course work as prescribed by the faculty of the college.

b. Attained satisfactory scores on the university's required admission examinations.

c. Maintained a satisfactory grade-point average of at least 3.0 (on a 4.0 scale) in all courses undertaken at the University of Iowa, and on all courses undertaken in business and economics.

Applications from students who have minor deficiencies in meeting grade-point average requirements may be considered under conditions determined by the admissions committee of the college, and upon favorable recommendation of the committee, such students may be granted conditional or probationary admission.

 Fulfillment of the minimal requirements listed above, however, does not assure admission to the College of Business Administration. From time to time, applicants who meet the minimum requirements, the admissions committee will interview these students, whose judgment, to be assessed.

720—2.4(262) College of Dentistry

2.4(1) Application for admission
Address all inquiries regarding admission to the College of Dentistry to the University of Iowa.

Applicants are urged to apply as early as possible, since the college will conduct the interview process immediately after the college applications are received. Admission decisions for incoming applications will be announced in advance of the opening of the fall semester.

Applicants for admission to dentistry are encouraged to complete a program leading to a baccalaureate degree before entering dentistry. Applications for admission to the college are required to complete a degree in a combined program.

Supplemental Specific Rules for the University of Iowa
in order to meet minimum scholarship requirements, the applicant should attain a cumulative grade point average of 2.5. Since the quality of coursework is important, science is basic to success in dentistry, special consideration should be given to high grade point in this by the admissions committee. The grade-point average is based on the University of Iowa's marking system in which a grade of A is equivalent to four points. Other marking systems will be evaluated by the office of admissions and the committee on examinations of the College of Dentistry.

Applicants who have completed the requirements for admission to dentistry five or more years prior to seeking admission to this College of Dentistry will be considered by the admissions committee only under exceptional conditions.

Preference will be given to applicants who are residents of Iowa, but consideration will also be given to outstanding nonresidents.

Personal interviews will be required of applicants for admission to the College of Dentistry. Applicants will be notified when they should appear for the required interviews with members of the admissions committee.

All applicants must complete the dental aptitude tests sponsored by the council on dental education of the American Dental Association. Tests are given three times annually. The University of Iowa is a testing center.

To facilitate early selection, applicants for admission to the College of Dentistry are urged to complete the aptitude test no later than October to enable the admissions committee to begin its selection in December.

Accepted applicants are notified of their acceptance in writing.

Grades in college are basic to success in dentistry. The grade-point average is not refundable but consideration will be given to applicants who fail to make the grade within the entering class. All applicants for admission are required to submit a personal interview in their report to the University student health service within 90 days of notification of acceptance.

Applicants accepted as transfers must also complete to the extent possible health service within 90 days of notification of acceptance.

Grades in college are required. All applicants must complete the requirements for admission to the College of Dentistry. Applications should be filed with the admissions office by November 1 of the year of application.

Graduates of any college or university accredited by regional accrediting associations acceptable in the graduate college are not otherwise equivalent or approved by the proper authorities of the University of Iowa.

A student who has completed the requirements for admission to the College of Dentistry will be considered by the admissions committee. The grade-point average is based on the University of Iowa's marking system in which a grade of A is equivalent to four points. Other marking systems will be evaluated by the office of admissions.

Applicants for admission must present a bachelor's degree from an approved college or university prior to admission to the College of Dentistry.

Each applicant for admission must take the Law School Admission Test administered by the Educational Testing Service, Princeton, New Jersey, and have his or her score forwarded to the College of Law. The test is given several times per year and may be taken at numerous locations in the United States and throughout the world. Applicants are urged to take the test in the fall or winter preceding the fall semester of the year of their anticipated admission.

Exception to a student's transferring of an application, the admissions committee will not consider applications from students who fail to take the bar exam prior to the June 1 preceding the fall semester in which they wish to enter.

Fulfillment of the specific requirements for admission listed above does not insure admission to the College of Law. From the applicants meeting the minimum requirements, the admissions committee will select those applicants who, in their judgment appear to be best qualified in the academic, professional and personal qualities which will contribute to the study and practice of law. The law admissions committee may request personal interviews of applicants.

2.7(2) Admission with advanced standing

A transfer student may be eligible for admission to the College of Law if he or she has attended a school of law accredited by the American Bar Association. A student must present to the admissions office a transcript from the American Bar Association, a satisfactory grade-point average of at least 2.5 in college work undertaken, and a letter from the dean of the school from which transferred, (a) to meet the requirements for admission to the College of Law. The student must have completed at least two years of college work at the time of application. The student must have completed at least two years of college work at the time of application. The student must have completed at least two years of college work at the time of application.

2.7(2)(b) College of Law

3.0(1) Application for admission

Address all inquiries regarding admission to the Director of Admissions, the University of Iowa, Iowa City, Iowa.

Closing dates for receiving applications will be announced in advance of the opening date of any session.

2.7(1) Application for admission

Address all inquiries regarding admission to the Director of Admissions, the University of Iowa, Iowa City, Iowa. Students in the University of Iowa's College of Dentistry who have completed at least two years of college work at the time of application, and have completed at least two years of college work at the time of application, will be considered for admission, on the basis of their record of achievement. The University of Iowa's marking system in which a grade of A is equivalent to four points. Other marking systems will be evaluated by the office of admissions.

Applicants for admission must present a bachelor's degree from an approved college or university prior to admission to the College of Law. Each applicant for admission must take the Law School Admission Test administered by the Educational Testing Service, Princeton, New Jersey, and have his or her score forwarded to the College of Law. Each applicant for admission must take the Law School Admission Test administered by the Educational Testing Service, Princeton, New Jersey, and have his or her score forwarded to the College of Law. The test is given several times per year and may be taken at numerous locations in the United States and throughout the world. Applicants are urged to take the test in the fall or winter preceding the fall semester of the year of their anticipated admission.

Exception to a student's transferring of an application, the admissions committee will not consider applications from students who fail to take the bar exam prior to the June 1 preceding the fall semester in which they wish to enter.

Fulfillment of the specific requirements for admission listed above does not insure admission to the College of Law. From the applicants meeting the minimum requirements, the admissions committee will select those applicants who, in their judgment appear to be best qualified in the academic, professional and personal qualities which will contribute to the study and practice of law. The law admissions committee may request personal interviews of applicants.
b. Have completed three years of a combined baccalaureate-medicinal curriculum which qualifies the applicant to receive the baccalaureate degree on completion of the last year in medicine; or
c. Have completed three years of a baccalaureate program which includes the college of pharmacy component of the University of Washington or the College of Liberal Arts of The University of Iowa for the combined baccalaureate degree.

Each applicant must place on file in the office of the Director of Admissions the completed application form and an official transcript from each college attended.

The college work as outlined below will suffice to meet the minimal academic requirements for admission to the College of Medicine.

Applicants who have completed the baccalaureate degree by the required course five or more years prior to applying admission in this College of Medicine will be considered by the admissions committee only under exceptional conditions.

The college curriculum must include at least three years (equivalent to ninety-six semester hours) including specific required science courses as prescribed by the faculty of the college.

Students planning to study medicine should bear in mind that other college work is required in addition to prerequisite sciences because it offers an opportunity to secure a well-rounded education, which is of special importance to entering those medical profession. In the selection of applicants, preference will be given to those who give evidence of having obtained such a broad education.

To be considered for admission, an applicant must have attained a grade-point average of at least 2.5 for all college work undertaken. As the quality of work in premedical science is very basic to success in medicine, special attention will be given by the admissions committee to the preparation of premedical college work. The grade-point average is based upon The University of Iowa's rating system in which a grade of A is equivalent to four points. Other ranking systems will be evaluated by the office of admissions and the committee on admissions of the College of Medicine.

Preference will be given to applicants with high grade-point standing who are residents of Iowa, and consideration will also be given to nonresidents of Iowa. The committee on admissions for admission are required to take the medical college admissions test which is administered by the American Medical College Admissions Test. Applicants are requested to complete this test in May or October of the year preceding that in which they are applying for admission. Students may arrange to apply for this examination through the office of admissions or the University of Iowa.

Personal interviews will be required. Applicants will be contacted for the appointment for required tests.

Applicants accepted for admission are required to submit a satisfactory physical examination report and report of the Student Health Service within two weeks following notification of their acceptance.

All applicants must also complete, through the Director of Admissions, and return the Advance Planning Sheet and the entrance Health Questionnaire. All applications which are accepted for advanced standing will be reviewed for the degree and successful vaccination against smallpox prior to registration.

2.8(2) Admission to advanced standing

If their work prepratory to entering a college of medicine would meet entrance requirements of the college, students from other approved medical colleges may be admitted to advanced standing according to the following conditions:

1. Only applicants of high scholastic standing will be considered.

2. They must present certificates showing that they have satisfactorily completed courses equivalent to those already pursued by the class they wish to enter.

3. The committee on admission to advanced standing will decide at the time of application, the conditions required for admission to advanced standing that the student has completed and the grades received, together with a statement of the work preparatory to entering the course in medicine.

No advanced standing will be granted to students from other than approved medical schools. Students may be granted limited credit upon recommendation of the head of the college and of the Director of Admissions for work taken in other than medical schools.

2.8(3) Unclassified students

Applicants for admission to the College of Medicine who are not candidates for a degree but who desire to register for special subjects, will be admitted to any lecture or laboratory course only upon complying with all the regular requirements for admission to such course or by action of the faculty upon recommendation of the professor in charge of the course.

720—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. Students for admission to the undergraduate program in nursing must present a minimum of 40 semester hours completed in an accredited college. For admission to the College of Nursing an applicant must have:

1. Completed courses from time of graduation up to the course of the college.

2. Completed the college course at the end of the semester and the course at the end of the academic year.

3. Performed satisfactorily on all courses undertaken.

4. Obtained satisfactory on all courses undertaken.

Applications from students who have any deficiencies in meeting grade-point requirements specified above will be reviewed by the admissions committee of the college, and, if such deficiencies are, course work undertaken under the direction of a faculty member, the student may be granted conditional or probationary admission. Fulfillment of the minimum requirements listed above, however, does not assure admission to the College of Nursing. From those applicants who meet the minimum requirements, the admissions committee will select those applicants who meet the minimum standards of the College of Nursing and, in accordance with admission criteria, appear to be best qualified.

720—2.10(262) College of Pharmacy

2.10(1) General basis for admission

Fulfiment of the specific requirements for admission does not insure admission to the College of Pharmacy. From the applicants meeting the specific requirements, the admissions committee will select those applicants who in their judgment appear to be best qualified. Applicants for admission to the College of Pharmacy must have graduated from an approved high school or have an equivalent amount of training.

2.10(2) Collegiate work

The college work as outlined below will meet the minimum academic requirements for admission to the College of Pharmacy. The minimum should include 32 semester hours of college-level work exclusive of credits in military and air science and physical education. The 32 semester hours must include:

1. Communication: 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 of credits in English composition and rhetoric and two semester hours of credit in speech or an eight-semester-hour course in communication skills.

2. Organic chemistry and qualitative analysis, eight semester hours.

3. College mathematics, eight semester hours.

4. Physical or zoology, eight semester hours.

Students from other institutions may substitute an eight-semester-hour course in computer science.

Students who present minor deficiencies in meeting the entrance requirements may be admitted to the College of Pharmacy upon presentation of evidence of the admission of the College of Pharmacy.

2.10(3) Scholarship and admission policies

To be considered for admission to the College of Pharmacy, students must have earned a grade-point average of 2.0 or C average on all college work undertaken. The minimum grade-point average of 2.0 is based on The University of Iowa's ranking system in which a grade of A is equivalent to four points. Applications for admission and the required entrance examination should be filed before March 1 for the class to enter pharmacy in the fall.
720—2.11(262) College of Liberal Arts

Applicants for admission to the College of Liberal Arts must meet the rules that are common to the three state institutions in Iowa as listed in 1.1(262), 1.2(262) and 1.3(262).

720—2.12(262) College of Education

Students at the University desiring professional work in education are registered in the College of Liberal Arts or the Graduate College. Requirements for permission to take teacher-training courses are listed in the University Catalog.
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